Minnesota Air National Guard

148th Fighter Wing

Final Environmental Assessment for Installation Development Projects

Duluth International Airport, Duluth, MN

April 2016



Acronyms & Abbreviations

148 FW	148th Fighter Wing
ACM	Asbestos Containing Material(s)
AFI	Air Force Instruction
ANG	Air National Guard
AOC	Area(s) of Concern
ARFF	Aircraft Rescue and Firefighting
AST	Above Ground Storage Tank(s)
AT/FP	Antiterrorism/Force Protection
BASH	Bird/Wildlife Aircraft Strike Hazard
BCE	Base Civil Engineer
BMP	Best Management Practice(s)
BTEX	Benzene, Toluene, Ethylbenzene, and Xylenes
BX	Base Exchange
CAA	Clean Air Act
CAAA	Clean Air Act Amendments
CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CFR	Code of Federal Regulations
CH_4	Methane
CO	Carbon Monoxide
CO_2	Carbon Dioxide
CO_2e	Carbon Dioxide Equivalent
CZMA	Coastal Zone Management Act
dB	Decibel(s)
dBA	A-weighted decibel(s)
DoD	Department of Defense
DOMOPS	Domestic Operations
DRMO	Defense Reutilization and Marketing Office
EA	Environmental Assessment
EIS	Environmental Impact Statement
EISA	Energy Independence and Security Act
EO	Executive Order
EOC	Emergency Operations Center
EOD	Explosives Ordnance Disposal
ERP	Environmental Restoration Program
FAA	Federal Aviation Administration
FAR	Federal Aviation Regulations
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Map
FOD	Foreign Objects and Debris
FONSI	Finding of No Significant Impact
GHG	Greenhouse Gas(es)
GWP	Global Warming Potential
HAP	Hazardous Air Pollutant(s)
HFC	Hydrofluorocarbons
HUD	United States Department of Housing and Urban Development
IDP	Installation Development Plan
JEM	Jet Engine Maintenance
LBP	Lead Based Paint(s)
L_{eq}	Equivalent Sound Level
LID	Low Impact Development
LOX	Liquid Oxygen
LRS	Logistics Readiness Squadron
MHS	Minnesota Historical Society
MILCON	Military Construction
MNANG	Minnesota Air National Guard
MNDNR	Minnesota Department of Natural Resources
MPCA	Minnesota Pollution Control Agency
MSA	Munitions Storage Area
MLSCP	Minnesota Lake Superior Coastal Program
N_2O	Nitrous Oxide
NA	Not Applicable or Not Available
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NO_x	Nitrogen Oxides
NO_2	Nitrogen Dioxide
NOAA	National Oceanic and Atmospheric Administration
NPDES	National Pollution Discharge Elimination System
NRHP	National Register of Historic Places
NWI	National Wetlands Inventory
O_3	Ozone
OWS	Oil/Water Separator(s)
Pb	Lead
PCB	Polychlorinated Biphenyls
PFC	Perfluorocarbons
$PM_{2.5}$	Particulate matter with a diameter ≤ 2.5 micrometers
PM_{10}	Particulate matter with a diameter of ≤ 10 micrometers
PMEL	Precision Measurement Equipment Laboratory
POL	Petroleum, Oil and Lubricants
POV	Privately-Owned Vehicle(s)
QD	Quantity-Distance
RCRA	Resource Conservation and Recovery Act
SARA	Superfund Amendments Reauthorization Act
SF_6	Sulfur Hexafluoride
SHPO	State Historic Preservation Officer
SIP	State Implementation Plan
SO_2	Sulfur Dioxide
SWPPP	Stormwater Pollution Prevention Plan
TBD	To Be Determined
tpy	Tons Per Year
UFC	Unified Facilities Criteria
USC	United States Code
UST	Underground Storage Tank(s)
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
VOC	Volatile Organic Compounds
WLSSD	Western Lake Superior Sanitary District

FINDING OF NO SIGNIFICANT IMPACT

Installation Development Projects

148th Fighter Wing Base

Duluth International Airport, Duluth, Minnesota

Pursuant to Section 102(2)(c) of the National Environmental Policy Act of 1969 (NEPA) (42 USC 4331 et seq.), the regulations of the President's Council on Environmental Quality (CEQ) that implement NEPA procedures (40 Code of Federal Regulations [CFR] 1500-1508), the US Air Force's Environmental Impact Assessment Process Regulations at 32 CFR Part 989, and US Air Force Instruction 32-7061 (12 March 2003), the Air National Guard (ANG) has prepared an Environmental Assessment (EA) to assess the impacts of proposed installation development projects at the Minnesota Air National Guard's (MNANG) 148th Fighter Wing (148 FW) installation[1] at Duluth International Airport (IAP), Duluth, Minnesota. The EA is incorporated by reference in this Finding of No Significant Impact (FONSI).

The 148 FW installation is located approximately five miles northwest of downtown Duluth. The majority of the 148 FW installation, hereafter referred to as the "main base," occupies approximately 221 acres (including easements) in the northeast corner of the airport, including the entry control facility ("main gate") and driveway leading from Airport Road to the main base. Additional 148 FW facilities are located on four outparcels on the north and south sides of the airport. Those outlying facilities consist of the Munitions Storage Area (MSA), Aircraft Rescue and Firefighting (ARFF) facility, the Base Exchange (BX), and the Precision Measurement Equipment Laboratory (PMEL).

1. Proposed Action

The proposed action is to implement construction and infrastructure projects presented in the 148 FW's Installation Development Plan (IDP) over the next five to seven years. The purpose of the proposed action is to provide the facilities and infrastructure necessary to support the mission of the 148 FW, as defined in the IDP. The proposed action is needed because functional space for multiple activities is inadequate, fails to meet the space authorization for those activities, or is altogether lacking on the installation. In addition, the inadequate spatial arrangement of, and functional relationships between, multiple related facilities prohibits the 148 FW from achieving optimal operating efficiency.

[1] As they pertain to the 148 FW property at Duluth International Airport, "installation" and "base" are used synonymously in this Finding of No Significant Impact.

2. Alternatives

Two alternatives are evaluated in the EA: the No Action Alternative and the Proposed Action Alternative. The individual projects comprising the Proposed Action Alternative are summarized in Table 1.

Table 1: Summary of Proposed Action

EA Project Number[1]	Project[2]	Year
Construction Projects		
1	Renovate and Modify Building 250	2018 2020
2	Construct Addition to Building 280	2016
3	Construct Hydrazine Facility	2015
4	Expand and Renovate Building 222 and Construct DRMO[3] Yard	2018
5	Demolish Aircraft Shelters 497, 498, 499 and Construct New Aircraft Shelter	2020
6	Construct Ground Vehicle Fueling Station and Demolish Existing Fueling Station	2015
7	Construct New PMEL Facility and Demolish Existing PMEL Facility	2022
8	Construct Mail Facility	2020
9	Construct Small Arms Range	2017
10	Construct Addition to Building 223	2017
11	Construct Addition to Building 252 and Relocate Security Forces from Building 255	2017
12	Construct Recycling Facility	TBD
Infrastructure Projects		
13	Demolish Building 224, LOX[4] Storage and Relocate Building 270, Hush House	2018
14	Construct Secondary Access/Industrial Gate	2015
15	Complete Pedestrian Sidewalk Network	2020
16	Improve On-base Road Network	2020
17	Demolish Buildings 231, 238 and Expand AT/FP[5]-compliant Non-organizational Vehicle Parking	2019

Notes:
1. Numbers indicate approximate project locations as shown on Figure 2-1 and do not reflect priority.
2. IDP projects qualifying for a Categorical Exclusion are not included. See Appendix D.
3. DRMO = Defense Reutilization and Marketing Office
4. LOX = Liquid Oxygen
5. AT/FP = Antiterrorism/Force Protection

3. Impacts

Consistent with 40 CFR 1501.7(a)(3), socioeconomics and visual resources are not considered in the EA because the proposed action has no potential to have impacts on those resources.

No Action Alternative

Implementation of the No Action Alternative would represent the continuation of existing conditions on the 148 FW base. This would have a long-term adverse impact on safety and parking on the installation because approximately 200 non-organizational parking spaces would remain non-compliant with applicable anti-terrorism/force protection (AT/FP) requirements. Although these impacts would be adverse, they would be non-significant because they would remain manageable, as they currently are.

The No Action Alternative would also have an adverse impact on land use because it would fail to consolidate functions that are scattered in multiple facilities throughout the base, thereby prolonging inefficient spatial relationships. While this would be an adverse impact, it would remain manageable and non-significant because it would not substantially degrade the routine operations of the base.

The No Action Alternative would have no adverse impacts on any of the other resources evaluated in the EA.

Proposed Action Alternative

Safety

Implementation of the Proposed Action Alternative would have no adverse effects on safety on or in the vicinity of the 148 FW base. Safety practices during the construction phase of each project would be in accordance with relevant regulations established by the ANG and other federal and state agencies. Construction sites would only be accessible to authorized persons. Any risks to the safety of workers and passers-by would be minimized and no unusual risks would be created.

None of the proposed facilities would be built within the Clear Zone (CZ) or Accident Potential Zones (APZ) associated with the base's runways and no violations to the Part 77 surfaces would occur. The design and construction of all new or renovated facilities and the reconfiguration of non-organizational vehicle parking areas would comply with the requirements set forth in UFC 4-010-01, as applicable, thereby resulting in a positive impact on antiterrorism/force protection (AT/FP) requirements. The proposed projects would be reviewed, as applicable, to ensure their compliance with the DoD BASH program and minimize the potential for conflicts between aircraft between birds or other wildlife. Thus, there would be no BASH-related adverse impact on the safety of pilots, crew members, passengers, cargo and aircraft.

Project 9 would be built within the quantity-distance (QD) arc on the south-central side of the main base; however, it would not be a permanently-occupied facility and would constitute a

light-industrial use that would not be incompatible with the facility with which the QD arc is associated. Thus, there would be no long-term adverse impacts on explosives safety.

Air Quality

The proposed projects would have short-term adverse impacts on air quality from the generation of fugitive dust from construction, renovation and demolition activities, and from emissions of criteria pollutants regulated under the National Ambient Air Quality Standards (NAAQS) from diesel-powered construction equipment and workers' vehicles traveling to and from the project sites. The use of standard best management practices and the distribution of the projects over a period of five to seven years would further minimize impacts. Thus, short-term adverse impacts on air quality would remain minor and non-significant.

In the long term, the net increase in built space would generate some additional emissions of criteria pollutants, hazardous air pollutants, and greenhouse gases. However, these emissions would be partly or wholly offset by the proposed demolitions and the use of newer, more efficient systems in the new facilities. The projects comprising the proposed action would result in emissions that do not exceed the *de minimis* thresholds applicable to the criteria pollutant (carbon monoxide) for which the project area is in maintenance; would constitute only a negligible fraction of the 2011 regional emissions for the other criteria pollutants; emissions of HAP would be very small; and carbon dioxide emissions would not be such as to have a meaningful effect on global climate change. For these reasons, short- and long-term adverse impacts on air quality would be minor and non-significant.

Noise

Construction, demolition and renovation activities as well as construction-related traffic associated with the proposed projects would have short-term adverse effects on ambient noise on and in the vicinity of the 148 FW base. The intensity of these impacts would vary throughout the construction phase of each project, and would be further minimized by the implementation of the projects over a period of five to seven years. Adverse impacts from construction-related noise would also be attenuated by the substantial distances between the project sites and the nearest residences to the 148 FW base and Duluth IAP, and would generally be negligible in the context of noise produced by routine aircraft operations occurring at the airport and 148 FW base. Thus, short-term impacts on the ambient noise environment on and in the vicinity of the 148 FW base would be negligible and non-significant.

Only Project 9 has the potential to result in adverse long-term noise impacts. However, the nearest off-base residential area is located approximately one mile from the project site, with a forested area in-between that would screen and attenuate noise from the proposed range. The use of the range would be limited to daytime hours, would be temporary and intermittent throughout the week and thus would not create a new continuous source of noise, further minimizing impacts. Based on these distances and frequency of use, operation of the range is not anticipated to result in significant adverse noise impacts.

The proposed action does not involve any change to aircraft operations by the 148 FW or Duluth IAP. Therefore, no change to aircraft noise conditions would occur.

Land Use and Coastal Zone Management

While the implementation of the proposed action would temporarily turn some areas of the 148 FW base into construction sites, none of the potential adverse effects (e.g., noise or dust) would make adjacent or nearby facilities unusable. Construction-related effects resulting from the proposed projects would be temporary, and would be further attenuated by the implementation of the projects over a five- to seven-year period. Thus, short-term effects on land use would be negligible or minor and non-significant.

The proposed projects would be consistent with underlying and nearby land uses; none would prevent, inhibit or degrade the operation of adjacent or nearby land uses. The implementation of the Proposed Action Alternative would reorganize multiple functions that are currently scattered in multiple facilities throughout the base, thereby optimizing spatial and functional relationships. For these reasons, the proposed action would have no adverse and some positive long-term impacts on land use on the 148 FW base.

The ANG has determined that the Proposed Action Alternative would be consistent to the maximum extent practicable with the enforceable policies and programs of Minnesota's Lake Superior Coastal Program (MLSCP).

Geological Resources

The Proposed Action Alternative would have no impacts on geologic resources underlying the projects sites and negligible adverse impacts on topography from minor grading associated with site preparation. No unique or noteworthy topographic features would be altered or destroyed, and impacts would remain non-significant. None of the proposed projects would involve topographic alteration as part of their operational phase. Thus, the proposed action would have negligible and non-significant short-term adverse impacts on topography, and no long-term impacts.

Construction activities associated with the proposed action would disturb up to an estimated 332,774 square feet (7.6 acres) or 73,950 cubic yards of soils. Potential short-term impacts on soils resulting from construction-related disturbances would primarily consist of increased erosion risk from the effects of water or wind. Standard best management practices (BMP) would be used for all earth-disturbing projects, and the ANG would obtain a Construction Stormwater General Permit (General Permit) from the State of Minnesota and prepare a construction stormwater pollution prevention plan (SWPPP) for all projects disturbing one or more acres of land. Based on estimates presented in the EA, Projects 9, 16, and 17 would be required to obtain coverage under the General Permit and prepare a construction SWPPP. Adherence to these requirements would ensure that adverse construction-related impacts on soils would remain minor. The implementation of the proposed projects over a period of five to seven years would further minimize short-term soil impacts and ensure that they remain non-significant.

Impervious area on the 148 FW base would increase by up to approximately 79,620 square feet (1.8 acres) as a result of the proposed action. While this would have an adverse impact on soil permeability on the base, it would be negligible in the context of the mostly-rural and mostly permeable geographic area (i.e., St. Louis County) surrounding the base and airport. Soils

characterized as limited for development would be evaluated prior to the implementation of each project and would be supplemented with fill soils suitable to support each project as necessary. At each project site, undeveloped surfaces would be vegetated, eliminating the risk of long-term erosion. Adverse impacts on soils designated as Farmland of Statewide Importance would be negligible because those soils are not currently used for agricultural purposes, and are unlikely to be used for such purposes in the future given their location on a secure military installation; and because it is likely that the soils underlying those sites have been disturbed to the extent that many if not all the characteristics marking them as Farmland of Statewide Importance are substantially degraded or no longer present. For these reasons, long-term adverse impacts on soils would be negligible and non-significant.

Water Resources

The sedimentation and pollution of downstream watercourses could increase as a result of construction-related soil disturbance. These impacts would be minimized by the implementation of standard BMP for each earth-disturbing project, and as required by the General Permit and construction SWPPP for projects disturbing on or more acres of land. Due to the proximity of Miller Creek, which is designated as Special Waters and Impaired Waters by the State of Minnesota, the ANG would also incorporate total maximum daily load (TMDL) requirements for construction stormwater into the project SWPPP, as applicable. Adherence to these requirements would ensure that adverse short-term impacts on water resources remain minor and non-significant.

The Proposed Action Alternative would have no direct long-term impacts on surface water because none of the projects involve construction on, in or over bodies of surface water; channel alteration; or the filling of surface water bodies. In addition, none of the project sites are located adjacent to bodies of surface water.

The proposed action would have no short-term adverse impacts on groundwater because none of the proposed projects would require the installation of new wells or require increased withdrawals of groundwater from existing wells, nor would monitoring wells associated with the ongoing remediation of Environmental Restoration Program (ERP) sites be disturbed. While the anticipated net increase in impervious surface resulting from the implementation of the proposed projects would have a long-term adverse indirect impact on groundwater recharge in the vicinity of the 148 FW base, it would be negligible and non-significant in the context of the larger, mostly-rural and mostly permeable geographic area (i.e., St. Louis County) surrounding the base.

The Proposed Action Alternative would have no effects on 100-year floodplains because none of the proposed projects would occur within floodplains on the 148 FW base.

Construction-related erosion could increase sedimentation and compromise water quality in on-base drainages and off-base watercourses such as Miller Creek. The use of BMP for all earth-disturbing projects, including those required by the General Permit and construction SWPPP for projects disturbing one or more acres of land, would minimize soil erosion, resulting in minimal pollution and sedimentation of downstream watercourses. As applicable, the SWPPP for each project would also incorporate TMDL for Miller Creek to minimize the runoff of pollutants from each project site. While impacts from construction-related runoff cannot be entirely eliminated, they would remain minor and non-significant.

Up to approximately 1.8 acres of new impervious surface would be created on the 148 FW base as a result of the proposed action, with a corresponding potential increase in the stormwater runoff generated on the base. In accordance with Section 438 of the Energy Independence and Security Act (EISA), projects with a footprint of 5,000 square feet or greater would incorporate, to the maximum extent technically feasible, low impact development (LID) techniques to maintain the pre-development hydrology of the site. Adherence to these measures and continuing updates to and compliance with the 148 FW's base-wide SWPPP would ensure that adverse impacts on water quality in the bodies of water draining the base, including Miller Creek, remain minor and non-significant.

Biological Resources

No vegetation providing unique or valuable wildlife habitat would be lost. Thus, short-term and long-term adverse impacts on vegetation on the 148 FW base would be negligible and non-significant.

None of the proposed projects would be sited within or require the filling of areas suspected of being wetlands on the 148 FW base. The erosion control measures described above would minimize the risk of impacts from erosion. Thus, the Proposed Action Alternative would have no impacts on wetlands on or in the vicinity of the 148 FW base.

The vegetation that would be disturbed by the proposed action is unlikely to provide habitat for species other than those that are capable of living in highly disturbed, urbanized environments and in close proximity to human activity. No pristine or sensitive ecological communities would be disturbed or lost. Clearing of vegetation on the project sites would likely disturb and displace some individual animals. Many would probably return to the area upon the completion of construction activities. Therefore, adverse effects on wildlife would be minor and non-significant.

The proposed action would have no effect on species protected under the Endangered Species Act or their critical habitat. The projects included in the Proposed Action Alternative would not result in the clearing of any vegetation or habitat that that is particularly valuable or attractive to birds protected under the Migratory Bird Treaty Act or Bald and Golden Eagle Protection Act. No bald eagle nests or foraging habitat are known to occur on the 148 FW base. Although noise and traffic generated by construction activities could cause annoyance to individual birds, any such effects would be localized and temporary. The implementation of the proposed action over a period of five to seven years would further minimize these impacts. In the long term, the noise generated by the proposed small arms range could also disturb individual birds but such disturbance, which would be intermittent and would not have a significant impact on the survival of the affected birds.

With respect to both short- and long-term impacts, activities that keep birds away from airport property (consistent with the Bird/Aircraft Strike Hazard [BASH] Program) can be considered to have a positive impact since they reduces the risk of conflicts with aircraft, conflicts that are generally lethal to birds. Thus, short-term and long-term impacts on the bird species protected under the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act would not be significant.

Transportation and Circulation

Construction activities associated with Project 5 would be coordinated with the control tower to ensure that the potential for conflicts between aircraft, aircraft support vehicles and equipment, and construction vehicles and equipment are prevented. Thus, the Proposed Action Alternative would have no short-term adverse impacts on airside facilities. There would be no long-term impacts on the 148 FW's airside facilities because operations would return to pre-construction conditions following the implementation of the proposed action.

Construction-related activities would generate additional personal vehicle and truck traffic on the internal roadway network on the 148 FW base as well as on nearby off-base roads. The duration and intensity of this impact would vary throughout the construction phase of each project, and the implementation of the proposed projects over a period of five to seven years would further minimize impacts on vehicular circulation. It is not anticipated that construction-related traffic would exceed the capacity of the on-base and off-base road networks. Thus, short-term impacts on vehicular circulation would be minor and non-significant. None of the projects included in the Proposed Action Alternative would increase the number of personnel assigned to the base or generate additional vehicle trips. For these reasons, the implementation of the proposed action would have no long-term adverse impacts on on-base or off-base transportation networks.

Projects included in the Proposed Action Alternative would better define the roadway network and improve vehicular circulation throughout the 148 FW base, thereby resulting in beneficial long-term impacts on vehicular circulation on the installation.

Construction-related closures of pedestrian sidewalk segments and/or the rerouting of pedestrian movements on the base would be temporary and minor. The implementation of the proposed projects over five to seven years would further minimize these impacts. In the long term, the Proposed Action Alternative would have beneficial impacts on pedestrian circulation by completing the pedestrian sidewalk network throughout the base.

Adequate parking for construction-related vehicles would be provided on or near the project sites and would not impact the parking requirements of 148 FW staff or personnel. The Proposed Action Alternative would have a long-term beneficial impact on parking by reconfiguring non-organizational parking to meet AT/FP requirements; eliminating non-AT/FP compliant parking spaces throughout the base; and meeting the 148 FW's authorization of 725 AT/FP-compliant non-organizational vehicle parking spaces.

Cultural Resources

A survey conducted in 2007 identified no archaeological sites on the 148 FW base and found that there is low likelihood for such sites to be present due to prior disturbance. Thus, the proposed action is not anticipated to have an adverse effect on archaeological resources. In the case of inadvertent discovery of archeological materials or human remains during construction and demolition activities, standard operating procedures outlined in the 148 FW's Integrated Cultural Resources Management Plan (ICRMP) would be followed to ensure that potential adverse effects on archaeological resources are minimized and remain minor and non-significant.

Building 500 is eligible for listing in the National Register of Historic Places. None of the proposed projects would directly affect Building 500. One project, Project 5, is located in the vicinity of Building 500. This project would replace three existing aircraft shelters (Buildings 497, 498, and 499) with a single new facility. The proposed new facility would be similar in size and appearance to the three existing shelters and would fulfill a similar function. Thus, Project 5 is not anticipated to result in any indirect adverse effects on Building 500 that could reduce its historic integrity. The other projects included in the proposed action have no potential for indirect effects as they are located well away from Building 500 and would not introduce any new visual or functional elements that could affect the integrity of the building. No other National Register-eligible or potentially eligible resources have the potential to be directly or indirectly affected by the proposed action.

Hazardous Substances

The quantities of hazardous substances used and stored on the project sites would be limited and would be managed in accordance with federal, state, and ANG regulations and procedures. Standard measures would be taken to prevent pollutants from reaching the soil, groundwater, or surface water. Hazardous waste produced on the project sites would be managed and disposed of in accordance with all applicable federal, state, DoD and ANG procedures and regulations. If determined to be hazardous waste, excavated soils that would not be reused on site would be disposed of at a disposal facility permitted to accept such waste; otherwise, they would be disposed of at an appropriate permitted facility. Given the scale of the proposed projects and their staggered implementation, any short-term increase in the quantity of hazardous materials would be small in the context of such substances generated on the 148 FW, Duluth IAP and the surrounding region. Thus, short-term impacts would be minimal and non-significant.

In the long term, implementation of the Proposed Action Alternative would not change the quantity or type of hazardous substances stored and used or hazardous waste generated at the 148 FW base. All hazardous materials and waste would continue to be used and managed and disposed of in accordance with all applicable regulations. Thus, the proposed action would have no long-term adverse impacts on hazardous materials or hazardous waste management.

No impacts pertaining to pesticides are anticipated. None of the proposed projects have the potential to draw more pest species to the installation or to affect how pesticides are stored, handled, and used.

Project 6 includes the installation of new aboveground storage tank (AST) and the demolition of the AST supporting the existing ground vehicle fueling station. The capacity of and substances stored in the new AST would be similar to the existing tanks. Further, the new AST would include all necessary secondary containment and life safety equipment, and would be installed and operated in accordance with all applicable federal and state regulations. Thus, the proposed action would have no short-term or long-term adverse impacts on these types of equipment.

Buildings affected by the proposed action that are suspected to contain asbestos containing materials (ACM) or lead-based paints (LBP) would be evaluated for those substances. If determined to be present, those materials would be handled and removed in accordance with applicable federal, state and DoD regulations and procedures. Thus, there would be no adverse short-term impacts from and long-term beneficial impacts on ACM and LBP.

None of the proposed projects would interfere with ongoing ERP remediation activities. None of the proposed projects would be located in areas where exceedances of human health Preliminary Remediation Goals for lead and antimony associated with the former skeet range were detected. If contaminated soils or other materials from undocumented releases are encountered during construction of any of the proposed projects, the ANG would address such materials in accordance with all applicable federal, state, DoD and ANG regulations. Thus the Proposed Action Alternative would have no adverse effects on ERP sites and remediation activities on the 148 FW base.

Cumulative Impacts

The proposed action, when considered in combination with past, present, and reasonably foreseeable future actions on and in the vicinity of the 148 FW base, would not result in significant cumulative impacts.

4. Public Notice

NEPA, 40 CFR 1500-1508, and 32 CFR 989 require public review of the EA before approval of the FONSI and implementation of the proposed action. The Draft EA for this proposed action was sent to 34 federal, state, and local agencies, organizations, or Native American tribes or component bands for review and comment. A notice of availability for public review was published in the *Duluth News Tribune* on September 1 and 8, 2015. The public review period lasted from September 1 through October 1, 2015. The Draft EA was made available at a local public library for the duration of the public review period.

5. Finding of No Significant Impact

After careful review of the potential impacts of this proposed action, I have concluded that implementation of the proposed action would not have a significant impact on the quality of the human environment or generate significant controversy; therefore, the preparation of an environmental impact statement is not required. This analysis fulfills the requirements of NEPA and the CEQ regulations.

4/1/16

BENJAMIN W. LAWLESS P.E. GS-15
Chief, Asset Management Division

DATE

FINAL ENVIRONMENTAL ASSESSMENT

for

INSTALLATION DEVELOPMENT PROJECTS

at

148th Fighter Wing Base

Duluth International Airport

Duluth, Minnesota

April 2016

Abstract

The Minnesota Air National Guard's (MNANG) 148th Fighter Wing (148 FW) proposes to implement multiple construction and infrastructure projects on the 148 FW base at Duluth International Airport. The projects would be implemented over the next five to seven years and would be fully consistent with the Installation Development Plan (IDP) being prepared for the 148 FW. The purpose of the proposed action is to provide the facilities and infrastructure necessary to support the mission of the 148 FW. The proposed action is needed because functional space for multiple activities is inadequate, fails to meet the space authorization for those activities, or is altogether lacking on the installation. In addition, the inadequate spatial arrangement of, and functional relationships between, multiple related facilities prohibits the 148 FW from achieving optimal operating efficiency.

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APPENDICES

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1. Purpose and Need

This environmental assessment (EA) evaluates the impacts on the human environment of implementing short-term (five to seven years) construction and infrastructure projects (proposed action) at the 148th Fighter Wing installation[2] at Duluth International Airport, Minnesota.

The Air National Guard (ANG) has prepared this EA pursuant to Section 102(2)(c) of the National Environmental Policy Act of 1969 (NEPA) (42 United States Code [USC] 4331 et seq.), the regulations of the President's Council on Environmental Quality (CEQ) that implement NEPA procedures (40 Code of Federal Regulations [CFR] 1500-1508), the US Air Force's Environmental Impact Assessment Process Regulations at 32 CFR Part 989, and Air Force Instruction 32-7061 (Secretary of the Air Force, 2003). The information presented in this document will serve as the basis for deciding whether the proposed action would result in a significant impact on the human environment, requiring the preparation of an environmental impact statement (EIS), or whether no significant impacts would occur, in which case a finding of no significant impact (FONSI) would be appropriate.

The projects comprising the proposed action are summarized in Table 1-1.

1.1 Background

1.1.1 Location

The 148 FW installation is located at Duluth International Airport (IAP) in Duluth, Minnesota, approximately five miles northwest of downtown Duluth (Figure 1-1). The majority of the 148 FW installation, hereafter referred to as the "main base," occupies approximately 221 acres (including easements) in the northeast corner of the airport, including the entry control facility ("main gate") and driveway leading from Airport Road to the main base. Additional 148 FW facilities are located on four outparcels on the north and south sides of the airport. Those outlying facilities consist of the Munitions Storage Area (MSA), Aircraft Rescue and Firefighting (ARFF) facility, the Base Exchange (BX), and the Precision Measurement Equipment Laboratory (PMEL). The main base and outparcels are shown in Figure 1-2.

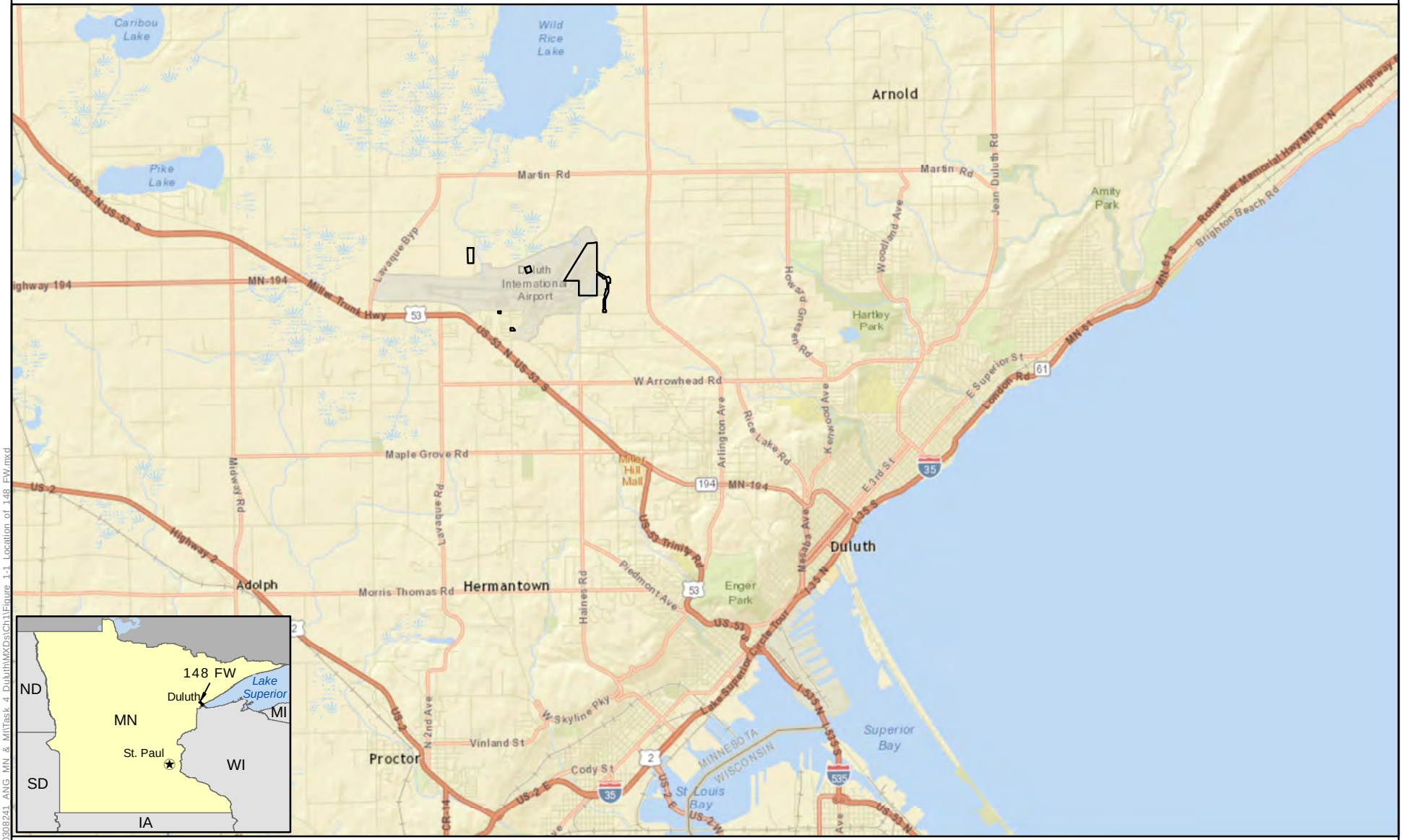
[2] As they pertain to the 148 FW property at Duluth International Airport, "installation" and "base" are used synonymously in this EA.

Table 1-1: Summary of Proposed Action

EA Project Number[1]	Project[2]	148 FW Project Number	Year
Construction Projects			
1	Renovate and Modify Building 250	FMKM082035 FMKM022020	2018 2020
2	Construct Addition to Building 280	FMKM112030	2016
3	Construct Hydrazine Facility	FMKM082029	2015
4	Expand and Renovate Building 222 and Construct DRMO[3] Yard	FMKM112035	2018
5	Demolish Aircraft Shelters 497, 498, 499 and Construct New Aircraft Shelter	FMKM112032	2020
6	Construct Ground Vehicle Fueling Station and Demolish Existing Fueling Station	FMKM092032	2015
7	Construct New PMEL Facility and Demolish Existing PMEL Facility	FMKM039122	2022
8	Construct Mail Facility	FMKM072019	2020
9	Construct Small Arms Range	FMKM052013	2017
10	Construct Addition to Building 223	FMKM102013	2017
11	Construct Addition to Building 252 and Relocate Security Forces from Building 255	FMKM112006	2017
12	Construct Recycling Facility	TBD	TBD
Infrastructure Projects			
13	Demolish Building 224, LOX Storage and Relocate Building 270, Hush House	FMKM082029 FMKM112003	2018
14	Construct Secondary Access/Industrial Gate	FMKM062039	2015
15	Complete Pedestrian Sidewalk Network	NA[4]	2020
16	Improve On-base Road Network	NA	2020
17	Demolish Buildings 231, 238 and Expand AT/FP[5]-compliant Non-organizational Vehicle Parking	FMKM082019[6] FMKM082030[7]	2019

Notes:
1. Numbers indicate approximate project locations as shown on Figures 2-1 and 2-2 and do not reflect priority.
2. IDP projects qualifying for a Categorical Exclusion are not included. See Appendix D.
3. DRMO = Defense Reutilization and Marketing Office
4. NA = Not Applicable
5. AT/FP = Antiterrorism/Force Protection
6. Project number is for the demolition of Building 231.
7. Project number is for the demolition of Building 238.

Location of the 148 FW Installation at Duluth International Airport



148 FW Installation Boundary

0 1 2 4

Miles

N

Figure 1-1

Source: Duluth ANG CIP 2013; ESRI Data & Maps 2006.

Path: L:_Common\GIS_Data\60308241_ANG_MN_&_MI\Task_4_Duluth\MXDs\Ch1\Figure_1-1_Location_of_148_FW.mxd

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148 FW Installation at Duluth International Airport

148 FW Installation Boundary (Approximate)

N

0 1,000 2,000 4,000

Feet

Figure 1-2

Source: Duluth ANG CIP 2013; ESRI Data & Maps 2006.

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1.1.2 Installation Development Plan

An Installation Development Plan (IDP) is being prepared for the 148 FW to guide development on the installation for the next 20 years. The IDP documents existing conditions on the base, identifies constraints and opportunities, and provides development alternatives and preferred scenarios to address shortcomings and fulfill requirements and space authorizations for facilities and infrastructure on the 148 FW installation. The goals and objectives of the IDP include:

- Mission effectiveness
    - Provide for current facility shortfalls
    - Collocate and consolidate functions
- Sustainability
    - Reduce energy use
    - Reduce water use
- Consolidation/optimization of functions and facilities
    - Consolidate related mission support functions
    - Reduce operations and maintenance
- Safety and security compliance
    - Improve vehicular and pedestrian circulation
    - Improve parking and AT/FP compliance
- Ready and resilient force
    - Provide adequate training, property and facilities

The projects included in the proposed action evaluated in this EA implement the IDP and are fully consistent with its goals and priorities.

The 148 FW has determined that a number of projects presented in the IDP qualify for a categorical exclusion in accordance with 32 CFR 989, Appendix B and do not require full evaluation in this EA. A copy of 32 CFR 989, Appendix B and a list of categorically-excluded IDP projects is included in Appendix D of this EA.

1.1.3 Mission

The mission of the Air National Guard is twofold: at the federal level, to maintain well-trained, well-equipped units available for prompt mobilization during war and provide assistance during national emergencies (such as natural disasters or civil disturbances); and to provide protection of life and property and preserve peace, order and public safety at the state level (ANG 2014).

The 148 FW's mission reflects that of the Air National Guard as a whole: to provide ready airmen to defeat America's enemies and rapidly respond to state and community needs (ANG 2014). In support of its mission, the 148 FW operates 22 F-16 single-engine jet aircraft.

1.2 Purpose and Need

The overall purpose of the proposed action evaluated in this EA is to provide the facilities and infrastructure necessary to support the mission of the 148 FW. The proposed action is needed because functional space for multiple activities is inadequate, fails to meet the space authorization for those activities, or is altogether lacking on the installation. In addition, the inadequate spatial arrangement of, and functional relationships between, multiple related facilities prohibits the 148 FW from achieving optimal operating efficiency.

The specific purpose and need for each project is presented in Table 1-2.

Table 1-2: Purpose and Need for Each Project

EA Project Number[1]	Project	Purpose and Need
Construction Projects		
1	Renovate and Modify Building 250	This project's purpose is to meet the full space authorization and provide an adequate functional layout for the 148 FW's Medical Group as well as provide functionally-designed and centrally-located conference and training space for events hosted by the 148 FW and visiting groups. The project is needed because the space currently occupied by the Medical Group is outdated and insufficient for the requirements of modern medical care. Further, conference and training space is scattered among several buildings on the installation and inconsistently equipped with presentation devices and other supporting electronic media, which creates inefficiencies when organizing and executing conference and training activities.
2	Construct Addition to Building 280	The purpose of expanding Building 280 is to provide a single, centralized BCE facility on the 148 FW installation. This is needed because BCE personnel, functions, and equipment are currently scattered among multiple facilities, creating operational inefficiencies.
3	Construct Hydrazine Facility	This project's purpose is to provide a replacement hydrazine facility adjacent to other aircraft maintenance functions, including the relocated Hush House (Building 270; see Project 13). It is needed because hydrazine is currently stored in Building 224, which would be demolished to accommodate the relocation of Building 270 under Project 13.
4	Expand and Renovate Building 222 and Construct Defense Reutilization and Marketing Office (DRMO) Yard	This project's purpose is to allow for the consolidation of all Logistics Readiness Squadron (LRS) functions into a single facility, Building 222, and provide adequate and secure outdoor storage space for DRMO materials. The project is needed because LRS functions are currently scattered across multiple facilities, resulting in operational inefficiencies; additionally, the base currently lacks an adequate and secure outdoor storage area for DRMO materials.

EA Project Number[1]	Project	Purpose and Need
5	Demolish Aircraft Shelters 497, 498, 499 and Construct New Aircraft Shelter	The purpose of constructing a new aircraft shelter is to provide a single facility capable of housing three fully-fueled and loaded F-16 fighter aircraft prior to takeoff. Currently, three separate shelters on the flightline must be used. The project is needed because this situation creates operational inefficiencies, particularly in winter when snow builds up in the narrow alleys between the shelters, preventing personnel from efficiently moving between the three shelters and increasing aircraft servicing and preparation times. In addition, the width of the shelters does not meet size requirements for F-16 aircraft, requiring the 148 FW to hold aircraft wingtip waivers to use the shelters for F-16s.
6	Construct Ground Vehicle Fueling Station and Demolish Existing Fueling Station	The purpose of this project is to provide a new unattended fueling station that meets all requirements for fire and life safety and secondary containment. The project is needed to remove the existing fuel point and thereby enable adequate service access to the consolidated LRS facility in Building 222 (see Project 4).
7	Construct New PMEL Facility and Demolish Existing PMEL Facility	This project's purpose is to provide the PMEL with a new, adequate facility on a site within the main base. The project is needed because the current PMEL facility is undersized, in marginal condition, and separated from the rest of the ANG base, which creates operational inefficiencies.
8	Construct Mail Facility	The purpose of this project is to provide the 148 FW installation with a secure mail room that is functionally separate from Building 240. It is needed because currently, threats detected in incoming mail (such as a tainted letter or suspicious package) have the potential to shut down the other functions in Building 240, unnecessarily impacting those functions.
9	Construct Small Arms Range	This project's purpose is to provide an adequately-sized, on-site small arms range for firearms training and qualification for 148 FW personnel. The project is needed because currently, 148 FW personnel must travel off-site to a civilian facility and schedule sessions around local law enforcement use, which results in unnecessary delays, expense and operational inefficiencies.
10	Construct Addition to Building 223	The purpose of this project is to consolidate all jet engine maintenance (JEM) operations in Building 223, thereby meeting the space authorization for such operations. The project is needed because JEM maintenance operations are currently split between Buildings 222 and 223, creating operational inefficiencies. In addition, the consolidation of JEM operations to Building 223 is needed to free up space in Building 222 and enable the consolidation of LRS functions into that facility (see Project 4).
11	Construct Addition to Building 252 and Relocate Security Forces from Building 255	This project's purpose is to locate the 148 FW's Security Forces and Emergency Operations Center (EOC) to a facility closer to the installation's main entrance and meet its space authorization. It would also provide heated storage space for domestic operations (DOMOPS) equipment. The project is needed to free up space in Building 255 to provide the full authorization for telecommunications operations on the base.
12	Construct Recycling Facility	The purpose of this project is to provide a purpose-built facility for the sorting and processing of recyclable materials generated on the base. The project is needed because the base currently lacks such a facility.

EA Project Number[1]	Project	Purpose and Need
Infrastructure Projects		
13	Demolish Building 224, LOX Storage and Relocate Building 270, Hush House	This project's purpose is to remove an unneeded facility (Building 224, Liquid Oxygen [LOX] Storage) and make room for the relocation of Building 270, Hush House, near other aircraft maintenance functions. It is needed because in its current location on the northern side of the main base, Building 270 is spatially removed from associated aircraft maintenance functions, creating unnecessary delays in maintenance activities and operational inefficiencies. In addition, foreign objects and debris (FOD) checks necessitated by the current location of Building 270 interrupt traffic along the primary road west of Building 223. Because of FOD issues, the tow lane leading to Building 270 disrupts the primary route from the main gate through the installation and around Runway 3/21 to the ARFF and MSA.
14	Construct Secondary Access/Industrial Gate	The purpose of this project is to provide a dedicated, purpose-built access control facility for admitting commercial vehicles, such as fuel tanker trucks and tractor-trailers delivering munitions to the MSA, to the main base. The project is needed because currently, such vehicles have to traverse the main base after entering through the main gate, or enter through the existing secondary gate, which is not equipped with required anti-terrorism/force protection (AT/FP) facilities and equipment or a proper vehicle inspection and turnaround area. Both of these situations create unnecessary safety hazards.
15	Complete Pedestrian Sidewalk Network	This project's purpose is to complete the pedestrian sidewalk network on the main base. The project is needed because in many areas, pedestrians traversing the base must walk in vehicle travel lanes, creating an unnecessary safety hazard to both pedestrians and vehicle operators.
16	Improve On-base Road Network	The purpose of this project is to improve vehicular circulation, access, safety and wayfinding while also enhancing the appearance of the main base. It is needed because currently, on-base vehicular circulation suffers from lack of definition, lack of separation from parking, and obsolete alignments, all of which negatively impact efficiency and driver safety. In addition, access to facilities on the northern and southern ends of the base is challenging and poorly-defined.
17	Demolish Buildings 231, 238 and Expand AT/FP-compliant Non-organizational Vehicle Parking	This project's purpose is to provide the full authorization for AT/FP-compliant non-organizational vehicle parking while also removing facilities that are no longer necessary to the 148 FW mission. It is needed because, although non-organizational vehicle parking on the installation currently exceeds the 148 FW's authorization, approximately 200 spaces violate AT/FP requirements (ANG 2013). Thus, the project would enable the elimination of non-AT/FP-compliant parking spaces located throughout the base. It would also enable he implementation of some the road-defining components of Project 16.

Notes:
1. Numbers indicate approximate project locations as shown on Figure 2-1 and do not reflect priority.

1.3 Summary of Environmental Study Requirements

1.3.1 National Environmental Policy Act

NEPA provides for the consideration of environmental issues in federal agency planning and decision-making. Under NEPA, federal agencies must prepare an EIS or an EA for any federal action, except those actions that are determined to be "categorically excluded." An EIS is prepared for those federal actions that may significantly affect the quality of the human environment. An EA is a concise public document that serves to provide sufficient evidence and analysis for determining whether to prepare an EIS. The EA includes brief discussions of the following:

- The need for the proposal.
- The alternatives (as required under Section 102 [2] [E] of NEPA).
- The environmental impacts of the proposed action and alternatives.
- A listing of agencies and persons consulted.

The regulations governing NEPA compliance for the US Air Force and the ANG are contained in 32 CFR Part 989. Paragraph 14 of the regulations describes requirements applying to the preparation of an EA, including the following:

> The length of an EA should be as short and concise as possible, while matching the magnitude of the proposal. An EA briefly discusses the need for the proposed action, reasonable alternatives to the proposed action, the affected environment, the environmental impacts of the proposed action and alternatives (including the "no action" alternative), and a listing of agencies and persons consulted during preparation. The EA should not contain long descriptions or lengthy, detailed data. Rather, incorporate by reference background data to support the concise discussion of the proposal and relevant issues (32 CFR 989.14[d])

Every EA must lead to either a FONSI, a decision to prepare an EIS, or no action on the proposal (32 CFR 989.14[a]). Should the Air National Guard determine that the proposed action would have a significant impact on the quality of the human environment, an EIS would be prepared.

1.3.2 Agency Coordination (Executive Order 12372)

The ANG solicited comments from the Twin Cities Ecological Services Field Office of the US Fish and Wildlife Service (USFWS) and the Northeast Region office of the Minnesota Department of Natural Resources (MNDNR) concerning the potential impacts of the proposed action on sensitive biological resources, including rare, threatened, and endangered species. In an email dated April 23, 2015, the USFWS stated that it has no known records for federally listed or proposed species and/or designated or proposed species or proposed critical habitat with the project area on the 148 FW installation. Copies of the coordination letters and the USFWS response are included in Appendix A. The Draft EA was sent for further review to both agencies. No comments were received.

Consistent with Section 106 of the National Historic Preservation Act (NHPA), the ANG solicited comments from the Minnesota Historical Society, which is the Minnesota State Historic Preservation Officer (SHPO), concerning the potential effects of the proposed action on historic properties listed or eligible for listing in the National Register of Historic Places. An initial letter was sent on February 24, 2015. At that time, the proposed action included the construction of an addition to Building 520, a National Register-eligible facility located within the MSA. In its response dated April 7, 2015, the SHPO requested more information on the historic status of Building 520 and the MSA, as well as more information on potential effects to Building 500, also eligible for the National Register. In the course of a follow-on discussion, the SHPO indicated that this information could be provided to them along with the Draft EA. On August 26, 2015, the Draft EA was sent to the SHPO for review (a copy of the accompanying cover letter is in Appendix A). The Draft EA concluded to a finding of no effect on Building 500 and included a commitment to conduct further evaluation of Building 520 and the MSA before constructing the proposed addition to Building 520; if the historic status of the facility was confirmed, measures were outlined that would avoid an adverse effect on the building. In a response dated October 8, 2105, the SHPO concurred that the Draft EA accurately reflected the status of the Section 106 consultation for the proposed action. In accordance with its policies, the SHPO could not concur to a conditional finding of no effect for Building 520 and requested further consultation for the relevant project. Because the proposed addition to Building 520 was the only component of the proposed action for which the SHPO requested further consultation, the ANG made the decision to remove this project from the proposed action. Therefore, the proposed action addressed in this final EA and FONSI does not include any projects affecting Building 520 and the MSA. Copies of the referenced letters are in Appendix A.

The following federally-recognized Native American tribes with historical ties in the state of Minnesota were contacted for information on any potential tribal interest that might be affected by the proposed action: Lower Sioux Indian Community, Prairie Island Indian Community, Shakopee Mdewakanton Sioux Community of Minnesota, Upper Sioux Community, Red Lake Band of Chippewa Indians, Minnesota Chippewa Tribe (Six Component Bands), Bois Forte Band of Chippewa Indians, Fond du Lac Band, Grand Portage Band of Lake Superior Chippewa, Leech Lake Band of Ojibwe, Mille Lacs Band of Ojibwe, and White Earth Band of Minnesota Chippewa. A representative copy of the tribal consultation letter is included in Appendix A. The tribes were also sent copies of the Draft EA for review.

In a letter dated September 28, 2015 the Prairie Island Indian Community stated that there is a low likelihood of encountering intact cultural resources at the 148 FW base and Duluth IAP. A copy of this letter is included in Appendix A. In the letter, the Prairie Island Indian Community also requested a copy of the cultural resources survey conducted at the 148 FW base in 2007 (ANGRC 2007) as well as a copy of the standard operating procedures (SOP) from the 148 FW's integrated cultural resources management plan (ICRMP) (MNANG & NGB 2012) pertaining to inadvertent discovery of cultural resources. No other tribal responses were received.

1.3.3 Coastal Zone Management Act

The Coastal Zone Management Act (CZMA) of 1972 (16 USC § 1451, et seq., as amended) provides assistance to states, in cooperation with federal and local agencies, for developing land

and water use programs in coastal zones. Section 307 of the CZMA stipulates that federal projects that affect land uses, water uses, or other coastal resources of a state's coastal zone must consistent to the maximum extent practicable with the enforceable policies of that state's federally-approved coastal management plan.

Minnesota's Lake Superior Coastal Program (MLSCP) was approved by the National Oceanic and Atmospheric Administration (NOAA) in 1999. The designated coastal boundary encompasses the entirety of Minnesota's Lake Superior shoreline and includes the City of Duluth, the Duluth International Airport, and the 148 FW installation. A federal consistency determination (Appendix C) was prepared for the proposed action evaluated in the EA and was submitted to MLSCP for review along with the Draft EA on August 26, 2015. To date, no response to the federal consistency determination from MLSCP has been received by the ANG; therefore, in accordance with 15 CFR 930.41, the MLSCP's concurrence with the consistency determination is presumed.

1.3.4 Air Conformity Requirements

The Clean Air Act Amendments of 1990 expanded the scope and content of the Clean Air Act's conformity provisions. Under Section 176(c) of the amendments, a project is in "conformity" if it corresponds to a state air quality implementation program's purpose of eliminating or reducing the severity and number of violations of the National Ambient Air Quality Standards (NAAQS) and achieving the expeditious attainment of these standards. Conformity requires that such activities do not:

(1) Cause or contribute to any new violations of any standards in any area.

(2) Increase the frequency or severity of any existing violation of any standards in any area.

(3) Delay the timely attainment of any standard or any required interim emission reductions or other milestones in any area.

The US Environmental Protection Agency (USEPA) has published final rules on general conformity (40 CFR Parts 51 and 93) that apply to federal actions in areas designated as being in nonattainment or maintenance status for any of the NAAQS. The rules specify *de minimis* emission levels by pollutant to determine the applicability of conformity requirements for a project.

Currently, the area where the 148 FW installation is located (Duluth, Minnesota) is a maintenance area for carbon monoxide (CO) and in attainment for all other criteria pollutants regulated under NAAQS. Therefore, a General Conformity Rule applicability determination is included in Appendix B of this EA.

1.4 Resources Eliminated from Further Study

Consistent with 40 CFR 1501.7(a)(3), the following resources are not considered further in this EA because the proposed action has no potential to measurably affect them:

Socioeconomics, Environmental Justice (Executive Order [EO] 12898) and Protection of Children (EO 13045). The proposed action does not involve any changes in the number of full-time or part-time personnel at the 148 FW installation. Therefore, it has no potential to affect the local or regional demography, or the services supporting the local and regional population. The project sites are well away from the nearest residential area and the proposed action has no potential to result in disproportionate impacts on minority or low-income communities protected under EO 12898, or on the health and welfare of children under EO 13045. Implementation of the projects included in the proposed action would have a beneficial impact on the local economy, but because of the limited scale of each project and the five to seven years over which the projects would be implemented, this impact would be very small.

Visual Resources. The visual environment of the 148 FW installation is characterized by administrative and industrial structures and paved surfaces that support the operations of the 148 FW. Further, the installation is adjacent to similar civilian-operated structures and surfaces that support the operations of Duluth IAP. No unique or historic viewsheds or vistas have been identified at the 148 FW installation, Duluth IAP, or in the surrounding area. Therefore, the proposed action has no potential to adversely impact visual resources at or in the vicinity of the 148 FW installation and Duluth IAP.

2. Proposed Action and Alternatives

2.1 Proposed Action

2.1.1 Introduction

CEQ regulations require an EA to contain a brief description of the proposed action's features as well as a description of alternatives to the proposed action, consistent with Section 102(2)(e) of NEPA. Agencies are directed to use "…the NEPA process to identify and assess the reasonable alternatives to proposed actions that will avoid or minimize adverse effects of these actions upon the quality of the environment" (40 CFR 1500.2[e]). Alternatives found not to be reasonable do not need to be evaluated in the EA. This chapter describes the various activities associated with the proposed action and addresses alternatives, including the No Action Alternative.

2.1.2 Proposed Activities

The proposed action evaluated in this EA is comprised of the construction and infrastructure projects presented in Table 1-1 and described in the following paragraphs. The projects described below are those presented in the IDP and considered by the 148 FW to be the most likely to be implemented within the next five to seven years. The location of each project is illustrated in Figures 2-1 and 2-2. (Note: the numbers preceding each of the following project descriptions correspond to the numbers shown on the figures and do not reflect priority).

2.1.2.1 Construction Projects

1 – Renovate and Modify Building 250

The internal courtyard of Building 250 (Photo 1), totaling approximately 12,500 square feet, would be fully enclosed and converted into a conference/training center to provide consolidated conference/training space and free up similar but smaller spaces scattered throughout the installation for other uses.

Photo 1: Building 250, interior courtyard.

The existing courtyard consists of paved sidewalks and areas of maintained lawn. The conference center would be built on a reinforced

concrete slab with gypsum board interior partition walls and would be supported with all necessary utilities including heating and air conditioning, water/sewer, electrical, fire and life safety, and data/communications.

Also as part of this project, interior spaces of Building 250 (approximately 38,575 square feet) would be renovated to provide the 148 FW's Medical Group with a layout that maximizes efficiencies and provides the group with its full space authorization. The renovations would include demolishing and reconfiguring interior partition walls and replacing worn finishes, and lighting and plumbing fixtures.

2 – Construct Addition to Building 280

A two-story, 6,375-square foot addition would be built onto the north façade of Building 280 (Photo 2) to enable the consolidation of all Base Civil Engineer (BCE) functions into one facility on the installation (BCE functions are currently split between Buildings 252 and 280). Shop and equipment storage spaces would be located on the ground floor of the addition, while administrative functions for the BCE unit would occupy the second floor. The approximate area of expansion is illustrated in Figure 2-1.The addition would cross a small grass-covered berm and expand into a portion of the asphalt-paved BCE equipment storage lot north of Building 280. The addition would consist of a steel-framed structure erected on a reinforced concrete slab and would be supported by all necessary utilities including heating and air conditioning, water/sewer, electricity, fire and life safety, and data/communications. The exterior design of the addition would be consistent with that of the existing building. Disaster preparation and explosives ordnance disposal (EOD) functions would remain in Building 252.

Photo 2: Site of Project 2

3 – Construct Hydrazine Facility

An 800-square-foot hydrazine storage facility would be built south of Building 221, near the relocated Building 270, Hush House (see Project 13). The location of this project is shown on Figure 2-1; the site currently consists of maintained grass. Hydrazine is used as fuel for the emergency power unit in the 148 FW's F-16 aircraft. The new facility would be constructed on a reinforced concrete slab and would consist of a steel-framed structure with climate-controlled storage rooms and shop/maintenance areas. The building would be supported with all necessary utilities including heating and air conditioning, water/sewer, electricity, and data/ communications.

Project Locations

1 Construction project
16 Transportation project
17 Parking project
Revegetated Area
New curbs and gutters
Facilities to be demolished
250 Building Number
148 FW Installation Boundary (Approximate)

0 200 400 800
Feet

N

Figure 2-1

Source: Duluth ANG CIP 2013; ESRI Data & Maps 2006.

Path: L:_Common\GIS_Data\60308241_ANG_MN_&_MI\Task 4_Duluth\MXDs\Ch2\Figure 2-1 Project Locations.mxd

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4 – Expand and Renovate Building 222 and Construct DRMO Yard


Photo 3: Site of addition to Building 222 and DRMO Yard

A two-story, 8,028-square foot addition would be constructed onto the south side of Building 222 (Photo 3) to provide the Logistics Readiness Squadron (LRS) with its full authorization of functional space and enable its consolidation into one facility on the installation (LRS is currently split between Buildings 222 and 231). The area of the proposed expansion currently consists of maintained lawn and a few landscape trees. Consolidating LRS operations in Building 222 would also increase the unit's efficiency and effectiveness by locating it in proximity to the flightline and other deployment-oriented units with which it regularly interacts. The addition would be constructed on a reinforced concrete slab with precast exterior wall panels, interior gypsum board partition walls, and standing seam metal roof. Its exterior design would be similar to that of the existing structure. It would include a loading dock on the ground floor and administrative areas on the second, and would be supported with all necessary utilities, including heating and air conditioning, water/sewer, electricity, and data/communications. The renovation of Building 222 would include the demolition and reconfiguration of interior partition walls and replacing worn finishes, and lighting and plumbing fixtures. An outdoor equipment storage area for the Defense Reutilization and Marketing Office (DRMO) would be created adjacent to Building 222 by erecting fencing around an area up to 5,000 square feet on the west side of the new addition. Currently, the area for the proposed DRMO yard consists of paved and vegetated (maintained lawn) areas; the entire area would be paved as part of Project 4. The area of expansion and the approximate location of the DRMO yard are shown on Figure 2-1.

5 – Demolish Aircraft Shelters 497, 498, 499 and Construct New Aircraft Shelter


Photo 4: North façade of aircraft shelters 497, 498 and 499 (left to right).

The three individual aircraft shelters (Photo 4) located near the southern end of the aircraft maintenance apron would be replaced with a single, new 21,400-square foot facility with capacity for three F-16 fighter aircraft. The location of this project is shown on Figure 2-1. The new facility would be built in the same location as, and its construction would be similar to that of, the

existing shelters: it would be a steel-framed building built on the existing concrete slab and would have metal exterior siding and three bay doors to accommodate the ingress and egress of individual aircraft. The new shelter would be supported with all necessary utilities including heating and air conditioning, water/sewer, electrical, fire and life safety, and data/communications. Two options for this project are evaluated in the EA:

- **Option A:** The existing shelters would be demolished and the new shelter would be built in their place. This option would have to be implemented within one construction season (between April and November).
- **Option B:** The existing shelters would be relocated to an area on the flightline south of Building 212 and the new shelter would be built in their original location. Following the completion of the new shelter, the original shelters would be demolished. This option would be implemented if it is determined that the 148 FW requires additional flexibility between constructing the new shelter and demolishing the existing shelters, for example, if it is determined that the new shelter could not be built in one construction season.

6 – Construct Ground Vehicle Fueling Station and Demolish Existing Fueling Station

An unattended refueling station for 148 FW ground vehicles would be constructed to replace the existing station located south of Building 265. The new fuel station would include gasoline and diesel above ground storage tank (AST), each with a capacity up to 20,000 gallons as well as all necessary secondary containment, fire, and life safety equipment. The existing refueling station and AST would be demolished following the completion of the new station. Two location options for the new fuel station are evaluated in the EA (these locations are shown on Figure 2-1):

- **Option A:** The new fuel station would be built north of Building 266, near the 148 FW's petroleum, oil and lubricants (POL) facility. This site is entirely paved. The new fuel station would occupy approximately 1,300 square feet in this location.
- **Option B:** The new fuel station would be built east of Building 265. This site currently consists of maintained lawn and would require approximately 4,500 square feet of new paving to accommodate the fueling station.

7 – Construct New PMEL Facility and Demolish Existing PMEL Facility

A new PMEL facility would be built on the main base at the site of Building 270, the Hush House (jet engine testing facility), following its relocation to a new site south of Building 221 (see Project 13, below). The new PMEL facility would replace the existing facility (Photo 5), currently located outside the main base on the south side of the airport. The new PMEL facility would consist of a one-story, 15,400-square-foot, steel-framed building erected on a reinforced concrete slab with interior gypsum board partition walls. The building would be supported with all necessary utilities including heating and air conditioning, water/sewer, electricity, fire and life safety, and data/communications systems, and its exterior design would be consistent with other facilities on the installation.

It is anticipated that the new facility would be erected on a portion of the existing slab underlying Building 270; for purposes of analysis in the EA, it is assumed than an additional slab up to 12,000 square feet would be constructed adjacent to the existing slab to support the facility's relocation. The area in which the additional slab would be built primarily consists of maintained lawn.

Photo 5: Existing PMEL facility

Following the completion of the new PMEL facility, the existing facility (Building 385) as well as two ancillary buildings (Buildings 386 and 387), all located on the south side of the airport, would be demolished. The 148 FW would retain ownership of the land for the foreseeable future.

8 – Construct Mail Facility

A new facility would be built for the sorting and processing of mail arriving at and leaving the installation. The mail facility would occupy about 300 square feet and would consist of a one-story structure erected on a reinforced concrete slab. The building would have interior gypsum board partition walls and its exterior design would be consistent with other facilities on the installation. All necessary utilities including heating and air conditioning, water/sewer, electricity, and data/communications would be provided to the new facility. Two options are being considered for this project (see Figure 2-1).

- **Option A:** A free-standing facility would be built on a paved area immediately south of Building 240.
- **Option B:** The facility would be built as an addition to the south side of Building 240. This area is also paved.

9 – Construct Small Arms Range

An outdoor small-arms firing range would be built in a depressed area along the southern perimeter fence of the main base (see Figure 2-1 and Photo 6). The proposed site of the range is currently vacant and is covered by areas of crushed gravel and maintained grass. The range facility would cover approximately 45,000 square feet and would have up to 14 firing lanes to accommodate training and certification on firearms ranging from 9 millimeter to .223 caliber. The proposed range would incorporate all necessary safety

Photo 6: Site of Project 9

features and would be designed, built and operated in accordance with Air Force Instruction (AFI) 36-2226, *Combat Arms Program* and Engineering Technical Letter (ETL) 11-18, *Small Arms Range Design and Construction*.

10 – Construct Addition to Building 223

Photo 7: Building 223 (right). The addition would be built on façade at left

A 2,514-square-foot addition would be built onto the south side of Building 223 (Photo 7) to provide the 148 FW with the full space authorization for a jet engine maintenance shop. The approximate location of the addition is shown in Figure 2-1; it currently consists of a berm covered by maintained grass. The addition would consist of a steel-framed structure erected on a reinforced concrete slab with interior gypsum board partition walls and serviced by all necessary utilities including heating and air conditioning, water/sewer, electricity, and data/communications. Following the completion of the addition, JEM functions currently housed in Building 222 would move to the expanded Building 223, freeing up space in Building 222 to consolidate LRS functions from Building 231 (see Project 4).

11 – Construct Addition to Building 252 and Relocate Security Forces from Building 255

Photo 8: Building 252, south façade; the site of Project 11 is at the far right side of this façade

This project would enable Security Forces operations to vacate Building 255, enabling the renovation of that facility to provide the full space authorization for Communications operations at the base. An addition up to 5,782 square feet would provide climate-controlled storage for domestic operations (DOMOPS) equipment such as (generators, communications equipment and the like). The approximate area for the addition to Building 252 is shown on Figure 2-1; the area is currently paved (Photo 8). The addition would consist of a steel-framed structure erected on a reinforced concrete slab with interior gypsum board partition walls. Its exterior design would be similar to that of the existing

building. All necessary utilities, including heating and air conditioning, fire and life safety, and electrical would be extended to the addition from Building 252.

12 – Construct Recycling Facility

A 1,800-square-foot recycling facility would be built in a vacant area south of the existing site of Building 270 (Hush House) (see Figure 2-1). The facility would be used for the sorting and processing of recyclable wastes generated on the base, including office and shop wastes as well construction materials. The facility would consist of a small steel-framed structure built on a reinforced concrete slab and its exterior design would be consistent with other facilities on the installation. Electrical and other utilities, as needed, would be extended to the new facility. The proposed site is nearly level and devoid of vegetation other than maintained lawn.

2.1.2.2 Infrastructure Projects

13 – Demolish Building 224, LOX Storage and Relocate Building 270, Hush House

Photo 9: Building 224.

Building 224 (Photo 9), an underutilized, open-air warehouse that is occasionally used to store vehicles and equipment, would be demolished to accommodate the relocation of Building 270. Adequate storage space would be available elsewhere on the base following its removal. The relocated Building 270 would be partially erected on the existing concrete slab underlying Building 224, and would require the construction of an additional, 7,100-square-foot slab to fully underlie the relocated facility. The location of this project is shown on Figure 2-1. The current site of Building 270 would become available for relocating the PMEL facility (see Project 7).

14 – Construct Secondary Access/Industrial Gate

An AT/FP-compliant access control facility would be built in the northeastern corner of the base at the site of an existing but infrequently-used secondary gate. The location of the project is shown on Figure 2-1 and in Photo 10. The gate is currently accessed via Ridgeview Road, an unpaved service road connected to Rice Lake Road (County Road 4). The paving of Ridgeview Road is not part of the proposed action; it is anticipated that the City of Duluth will improve the road prior to the construction of the proposed new gate.

The new facility would be used to inspect and admit commercial vehicles such as fuel tanker trucks and tractor trailers, particularly those destined for the POL facility and MSA, thereby avoiding the need to have such vehicles enter through the primary gate off Airport Road and travel through the more developed areas of the main base. Components of the new facility would include an approximately 2,000-square-foot, steel-framed gate house/control building with an

exterior design that would be consistent with other facilities on the installation; a steel-framed shelter to protect 148 FW personnel and vehicles undergoing inspection from the elements; a vehicle turnaround area; and appropriate screening and personnel safety equipment. The access control facility would be supported by all necessary utilities including water, sewer, electricity, and communications/data. New paved surfaces associated with the facility, including driveways, medians and sidewalks, would cover approximately 36,000 square feet. All surfaces on the project site not paved would be vegetated with maintained lawn or ornamental vegetation.

Photo 10: Site of Project 14.

15 – Complete Pedestrian Sidewalk Network

To improve pedestrian safety and wayfinding, approximately 5,700 linear feet of six-foot-wide sidewalks would be constructed in portions of the main base currently lacking sidewalks. The areas where the sidewalks would be built are shown on Figure 2-1.

16 – Improve On-base Road Network

This project would consist of multiple activities to improve the functionality, efficiency, safety and aesthetics of the 148 FW's on-base road network. The various improvements are shown on Figure 2-1 and would consist of:

- Straightening Bulldog Boulevard west of the perimeter road and constructing a traffic circle adjacent to the central non-organizational vehicle parking lot.
- Defining new roads to access facilities on the north side of the base.
- Eliminating on-street parking adjacent to Buildings 250 and 223.
- Reconfiguring surface parking lots south and east of Building 211 to meet AT/FP requirements and establish better-defined roads.
- Redefining curves at the intersection of Mustang Drive and Viper Street near Building 250 and in Viper Street immediately northwest of Building 223 to improve vehicular movements.
- Constructing curbs and gutters along Phantom Drive and Deuce Avenue south of the proposed traffic circle.

Following the realignment of Bulldog Boulevard west of the perimeter road, paved areas southwest of Building 252 would be returned to a permeable condition (Figure 2-1).

17 – Demolish Buildings 231, 238 and Expand AT/FP-compliant Non-organizational Vehicle Parking

Photo 11: Building 231

This project would provide the full authorization of 725 spaces for AT/FP-compliant non-organizational vehicle (i.e., private vehicles owned by full- and part-time 148 FW personnel and visitors to the installation) parking on the 148 FW installation. The project would also enable the elimination of approximately 200 non-AT/FP-compliant parking spaces located throughout the base. In turn, it would enable the implementation of some of the components of Project 16. The project would include the demolition of Buildings 231 (Photo 11) and 238 to expand the existing central non-organizational vehicle parking lot onto the sites of those facilities. New, smaller parking lots would also be created west of Buildings 223 and 265, and the parking lot east of Building 250 would be expanded by approximately 20 spaces.

The individual components of Project 17 are illustrated in Figure 2-1.

2.2 Alternatives

The EA considers one action alternative in addition to the No Action alternative. Projects included under the action alternatives would be implemented independently of one another over a period of five to seven years (see Table 1-1 for the anticipated implementation year of each project).

2.2.1 Proposed Action Alternative

The Proposed Action Alternative consists of the projects described in Sections 2.1.2.1 and 2.1.2.2. Either of the options under Projects 5, 6 and 8 would be implemented as part of the Proposed Action Alternative.

2.2.2 No Action Alternative

Under the No Action Alternative, none of the projects described in Sections 2.1.2.1 and 2.1.2.2 would be implemented. Conditions at the 148 FW installation would remain as they currently are.

2.2.3 Alternatives Considered but Dismissed

The projects included in the proposed action were identified during the IDP process as necessary to provide facilities and infrastructure required to fulfill the mission of the 148 FW. These projects were identified and defined taking into account the following factors:

- Existing conditions
- Constraints to development
- Development opportunities
- Facility authorizations
- Facility shortfalls and excesses

Given the densely developed character of the 148 FW installation and the existing constraints to development (see Figure 4.1 from the IDP in Appendix D of this EA), the proposed projects collectively represent the optimal solution to meet the 148 FW's facility and infrastructure needs.

At the individual project level, potential alternatives are considered below based on the following criteria:

1. The alternative must be consistent with the purpose and need for the project (Table 1-2).
2. The alternative must be consistent with the IDP and, as such, must:
    a. Follow major facilities improvements accomplished during the past 10 years, building on the success of those initiatives.
    b. Reflect guidance to develop a plan not reliant on Military Construction (MILCON) funding, and, in general, minimize cost.
    c. Contribute to consolidating functions while meeting the full facility authorization required.
    d. Not conflict with the implementation of another IDP project.

Project alternatives that do not meet these criteria cannot be considered reasonable since they either do not meet the purpose and need or are not consistent with the IDP; therefore, they do not need to be considered further in this EA. Depending on the project, no potential alternatives (other than no action) existed or, while potential alternatives could be identified, none could be considered reasonable, as detailed in the following paragraphs.

2.2.3.1 Construction Projects

1 – Renovate and Modify Building 250

Demolishing Buildings 231 and 238 and building a new conference/training center on their site is a potential alternative for this project. This alternative would meet Criterion 1 since it would

meet the purpose and need for the project. However, creating a new stand-alone facility requiring ongoing maintenance and upkeep rather than building on an otherwise adequate existing facility would not meet Criterion 2a and 2b. New construction on a different site would fail to meet the same criteria. Another alternative, renovating all conference and training rooms on the base to be consistently equipped with similar types of conference support media, would be generally consistent with Criterion 1 but not with Criterion 2c. Thus, these potential alternatives are not considered in this EA.

2 – Construction Addition to Building 280

Building a new, stand-alone facility for BCE operations on the site of the existing building or another available site would fulfill Criteria 1, 2c, and 2d but fail to meet Criterion 2a and 2b. Expanding Building 252 to house all CE operations would conflict with Project 11, thereby failing to meet Criterion 2d. Thus, these alternatives are not considered further.

3 – Construct Hydrazine Facility

Constructing a new hydrazine facility at any location on the 148 FW installation other than the one described in Section 2.1.2.1 would fail to meet Criterion 2c because it would not collocate the facility with other related functions. Thus, alternative locations for this facility are not considered in the EA.

4 – Expand and Renovate Building 222 and Construct DRMO Yard

The only potential alternatives to expanding and renovating Building 222 and constructing the DRMO yard adjacent to it would be to relocate all LRS operations to another facility on the base or to demolish the existing facility and construct a purpose-built facility and DRMO yard for LRS in its place. Neither would meet Criteria 2a and 2b. For this reason, only the project described in Section 2.1.2.1 is carried forward in the EA.

5 – Demolish Aircraft Shelters 497, 498, 499 and Construct New Shelter

Building a new shelter at an alternative location east of Building 212 and demolishing the existing shelters was considered but this would require expanding the eastern edge of the aircraft apron, which would otherwise be unnecessary. As such, this alternative would fail to meet Criterion 2b and it is not considered further.

6 – Construct Ground Vehicle Fueling Station and Demolish Existing Fueling Station

Other than the two location options described in Section 2.1.2.1, there are no reasonable alternatives for this project. Any other location would fail to meet Criterion 2c because the facility would not be collocated with other similar functions. Therefore, other project location options are not considered further in the EA.

7 – Construct New PMEL Facility and Demolish Existing PMEL Facility

Potential sites for the PMEL facility are limited because this facility is noise-sensitive. The location options presented in Section 2.1.2.1 are the only feasible ones, considering this and other existing constraints.

8 – Construct Mail Facility

The construction of a new mail facility in any location other than the ones specified in Section 2.1.2.1 would fail to keep mail operations collocated near existing mail operations already located in Building 240. For this reason, other location options would not meet Criterion 2c and are not considered further in the EA.

9 – Construct Small Arms Range

Given the spatial and safety constraints associated with this project, the proposed location is the only feasible one on base. Locating the range off-base would perpetuate some of the inefficiencies resulting from the current situation and thus fail to meet Criteria 1 and 2c. Therefore, there are no reasonable alternatives to the project as described in Section 2.1.2.1.

10 – Construct Addition to Building 223

The purpose of the project is to co-locate JEM functions in a single facility. Constructing a new standalone facility elsewhere on the installation would fail to meet Criteria 2a and 2b by building a new facility when an existing one is available. Therefore, only the option of constructing an addition to Building 223 is analyzed in the EA.

11 – Construct Addition to Building 252 and Relocate Security Forces from Building 255

A potential alternative to this project was relocating Security Forces operations to Building 281; however, this alternative would prevent deployment processing operations from relocating to Building 281 from Building 222 to provide the full authorization for LRS in that facility (Project 4). Thus, this alternative would not meet Criterion 2d. Building a new, stand-alone facility for the Security Forces would fail to meet Criteria 2a and 2b since an acceptable existing facility is otherwise available. Therefore, these alternatives are not considered further considered in the EA.

12 – Construct Recycling Facility

There are no reasonable alternatives to this project. The only available site for this facility is the one described in Section 2.1.2.1. Any other potential sites would fail to locate it near the proposed commercial gate, requiring that heavy trucks picking up recycled materials at the facility traverse the base unnecessarily and thereby contribute to additional traffic and circulation congestion. Such alternatives would fail to consolidate functions and improve efficiency and economy, and thus fail to meet Criterion 2c. For this reason, only the site described in Section 2.1.2.1 is considered in the EA.

2.2.3.2 Infrastructure Projects

13 – Demolish Building 224, LOX Storage and Relocate Building 270, Hush House

There are no reasonable alternatives to this project. Any other potential site for Building 270 would fail to collocate it with similar maintenance functions, *contra* Criterion 2c.

14 – Construct Secondary Access/Industrial Gate

The proposed location for the secondary access/industrial gate is the only reasonable alternative for this project. Other potential sites would fail to meet Criteria 2a and 2b by requiring the construction of substantial new infrastructure when adequate existing infrastructure is available.

15 – Complete Pedestrian Sidewalk Network

There are no reasonable alternatives for this project. The project-specific purpose and need can only be fulfilled by completing the existing sidewalk network on the main base. Constructing an entirely new sidewalk network throughout the base would fail to maximize the use of existing infrastructure, and thereby fail to meet Criteria 2a and 2b.

16 – Improve On-base Road Network

As with Project 15, there are no reasonable alternatives to this project. Building an entirely new road network on the main base would fail to meet Criteria 2a and 2b because it would not maximize the use of existing road infrastructure already in place on the main base.

17 – Demolish Buildings 231, 238 and Expand AT/FP-compliant Non-organizational Vehicle Parking

There are no reasonable alternatives to this project. Any other alternatives would fail to meet Criteria 2a and 2b because they would require the inefficient expansion and reconfiguration of existing parking facilities on the base rather than efficiently consolidating the majority of non-organizational vehicle parking facilities in a centralized area.

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3. Affected Environment

This chapter describes the environment of the area that would be affected by the proposed action. The study area consists of the 148 FW main base and the PMEL outparcel. Although the proposed projects would occur entirely within the boundaries of those areas, conditions outside the installation are described when relevant. The impacts of the Proposed Action Alternative and the No Action Alternative on the environment described in this chapter are presented in Chapter 4. As explained in Section 1.4, consistent with 40 CFR 1501.7(a)(3), visual resources and socioeconomic resources are not considered because the proposed action has no potential to have significant impacts in these areas.

3.1 Safety

This section addresses requirements and measures designed to minimize safety hazards and ensure personnel and property protection from potential terrorist actions.

3.1.1 Force Protection and Physical Security

The 148 FW is a fenced, access-controlled facility. The main base is accessed by personnel, visitors, and delivery trucks from Airport Road via the main gate along Bulldog Boulevard. A gate in the northeast corner of the main base also provides access; however, this gate is used infrequently because it lacks AT/FP-compliant screening facilities and equipment, and is not permanently staffed. Personnel and delivery trucks traveling to the MSA access that facility by first entering the main base and then following the Perimeter Road along the north side of the airport. It is not necessary to travel through the main base to reach the PMEL and BX; those facilities are primarily accessed via Cirrus Drive, Airport Road, or County Road 296 (Stebner Road).

Department of Defense (DoD) AT/FP standards (per Unified Facilities Criteria [UFC] 4-010-01, *DoD Minimum Antiterrorism Standards for Buildings,* 2012) must be incorporated into all inhabited new construction and major renovation work funded under the Military Construction process. Standoff distance must be coupled with appropriate building hardening to provide the necessary level of protection to personnel.

These standards apply to all covered new and existing DoD buildings. Conventional construction may be used for new buildings without specific analysis of blast effects where conventional standoff distances can be met, except as otherwise required by the standards. When such distances cannot be achieved, a competent engineer should analyze the building and apply hardening measures, as needed, to mitigate the distance deficit. For existing buildings, effective standoff distances should be achieved when possible. When effective standoff distances cannot be met, lesser standoff distances are allowed when the required level of protection can be shown

to be achieved through building hardening, other mitigating construction, or retrofit. New construction at the 148 FW is planned consistent with these standards.

Several parking areas (approximately 200 parking spaces for privately-owned vehicles [POV]) on the installation are in violation of applicable AT/FP requirements (see Section 3.8.2.2, *Parking*.

3.1.2 Airfield Safety

Airfield clearance requirements are designed to minimize the potential for accidents during aircraft take-offs and landings. These requirements consist of two- and three-dimensional areas associated with functioning runways, taxiways, and parking aprons that must be kept clear of obstacles or objects that could cause or be affected by a crash or other accident. The Federal Aviation Administration (FAA) regulates airfield design and clearances at Duluth IAP consistent with FAA Advisory Circular 150/5300-13, *Airport Design* and Federal Aviation Regulations (FAR) Part 77, *Objects Affecting Navigable Airspace*.

Duluth IAP is served by two runways. Runway 9/27, the primary runway, is 10,162 feet in length and is oriented in an east-west direction. Runway 3/21, also referred to as the "crosswind runway," is 5,719 feet in length and is oriented in a northeast-southwest direction. The passenger terminal is located in the southeast corner of the airport and the majority of airport maintenance and support facilities are located south of Runway 9/27. A network of taxiways provides access to and from the airport and the 148 FW facilities.

FAR Part 77 establishes standards for determining and preventing obstructions to navigable airspace. These standards apply to man-made (e.g., buildings) or natural (e.g., trees) objects, as well as to terrain. The main FAR Part 77 safety areas associated with runways are:

- The primary surface, which is 1,000 feet wide centered on the centerlines of Runways 3/21and9/27.
- The approach surface, which is a sloped trapezoidal area at the end of each runway centered on the extended centerline.
- The transitional surface, which extends upward and outward from the sides of the primary surface and approach surfaces at a 7:1 slope up to 150 feet above each runway.

Any penetration of one of these surfaces by any object not specifically supporting air navigation is considered an obstruction. There are no such obstructions at the 148 FW installation. As illustrated in Figure 4.1 from the IDP (included in Appendix D), a number of facilities located on the western and southern sides of the main base are overlain by the transitional surfaces associated with Runways 3/21 and 9/27. Due to their limited height, however, none of the facilities penetrates the transitional surface. In addition, the northeast corner of the base and much of its southern end are overlain by portions of the approach surfaces associated with Runways 3/21 and 9/27, respectively. No structures are located in these areas. The MSA is located well outside the primary and transitional surfaces associated with Runway 9/27. Thus, there are no obstructions of the safety areas associated with Duluth IAP's runways at the base.

3.1.2.1 Bird/Wildlife Aircraft Strike Hazard (BASH) Program

The DoD Bird/Wildlife Aircraft Strike Hazard (BASH) program has been developed to reduce the potential for wildlife hazards to aircraft operations. The program combines various measures to reduce the attraction of birds and other wildlife to airfields and attempts to deny birds the use of airspace in the vicinity of airfields. Both active and passive techniques are used. Active control methods attempt to disperse wildlife from an airfield to give short-term relief from an immediate safety hazard. These techniques may include, but are not limited to, the use of border collies, pyrotechnics, radio controlled airplanes and boats, and depredation. Passive techniques are more long-term in nature and involve managing the airspace to eliminate or reduce those conditions birds and other wildlife find attractive. Passive techniques may include grass height management, selective landscaping, managing reforested areas, removal of edge effects, controlling drainage, appropriately locating stormwater and wastewater treatment facilities, managing sanitary landfills, and the installation of fencing.

Due to their context and setting, the 148 FW installation and Duluth IAP have a high BASH potential. Although the 148 FW does not maintain a base-specific BASH plan, all aspects of natural resource management and facility construction on the 148 FW installation are reviewed to ensure their compliance with the policies of the DoD BASH program.

3.1.3 Explosive Safety

Explosive safety quantity distance (QD) zones are designated areas designed to safeguard the installation population and civilian community from the potential detonation of stored or transported explosive materials. QD zones on the main base are shown on Figure 4.1 in the IDP (included in Appendix D). They encompass the flightline and most of the southwest corner of the installation as well as an area in the south-central part of the installation that includes the site of Project 9. In addition, a 1,250-foot QD arc surrounds the entire MSA (148 FW 2013). Existing land uses in the QD zones are mission-necessary functions generally consisting of industrial, storage, and maintenance operations.

Ordnance is handled and stored in accordance with USAF explosive safety directives (Air Force Instruction [AFI] 91-201), and all munitions maintenance is carried out by trained, qualified personnel using ANG-approved technical procedures. All ordnance required by the 148 FW to fulfill its mission is stored at the MSA, which is located on a 16.7-acre parcel north of the main runway approximately 1.5 miles west of the main installation. Live ordnance is loaded and unloaded from aircraft on the apron along the west side of the main base. Safeguards that arm the ordnance are removed prior to flight, and reinstalled once the aircraft has landed if the ordnance has not been expended during flight (ANG 2005).

3.2 Air Quality

This section addresses regulated ambient air pollutants and the criteria used to assess the effects of new pollutant emissions on air quality.

3.2.1 Introduction

Air quality, as defined under federal law, refers to the presence and quantity of particular contaminants or pollutants in the atmosphere. Pollutants may be substances emitted as byproducts of mechanical processes, such as the operation of engines and generators, or may be naturally-occurring substances whose quantities or concentrations are increased through chemical reactions with sunlight or other substances already present in the atmosphere. If present above certain established levels, pollutants may pose a threat to human health. Factors influencing air quality in a region include the types and quantities of atmospheric pollutants and pollutant sources in the area as well as surface topography, the size of the topological "air basin," and prevailing meteorological conditions.

3.2.2 National Ambient Air Quality Standards

The United States Environmental Protection Agency (USEPA), 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 air pollutants known as criteria pollutants (40 CFR 50): carbon monoxide (CO), nitrogen dioxide (NO_2), ozone (O_3), particulate matter (PM_{10} [particulate matter with a diameter $\leq$ 10 micrometers], and $PM_{2.5}$ [particulate matter with a diameter $\leq$ 2.5 micrometers]), lead (Pb), and sulfur dioxide (SO_2). Note that O_3 is not emitted directly into the atmosphere; instead it is created by the combination of nitrogen oxides (NO_x) and volatile organic compounds (VOC), which are referred to as O_3 precursors.

The NAAQS include primary and secondary standards. The primary standards were established at levels sufficient to protect public health with an adequate margin of safety. The secondary standards were established to protect the public welfare from the adverse effects associated with pollutants in the ambient air. Table 3.2-1 shows the primary and secondary standards.

3.2.3 National Ambient Air Quality Status

Areas that meet the NAAQS for a criteria pollutant are designated "in attainment." Areas where a criteria pollutant level exceeds the NAAQS are "nonattainment" areas. A maintenance area is one that has been re-designated from nonattainment status and has an approved maintenance plan under Section 175 of the CAA.

The proposed action evaluated in this EA would take place at Duluth IAP in the City of Duluth within St. Louis County, Minnesota. The City of Duluth's attainment status governs air quality conformity requirements for the proposed action. The City of Duluth is a maintenance area for CO and an attainment area for all other criteria pollutants.

Table 3.2-1: National Ambient Air Quality Standards

Pollutant	Primary/ Secondary	Averaging Time	Level[1]	Form
Carbon Monoxide (CO)	Primary	8-hour	9 ppm	Not to be exceeded more than once per year
		1-hour	35 ppm	
Nitrogen Dioxide (NO_2)	Primary	1-hour	100 ppb	98th percentile, averaged over 3 years
	Primary and secondary	Annual	53 ppb	Annual Mean
Ozone (O_3)	Primary and secondary	8-hour	0.075 ppm	Annual fourth-highest daily maximum 8-hr concentration, averaged over 3 years
Particular Matter ($PM_{2.5}$)	Primary	Annual	12 µg/m^3	Annual mean, averaged over 3 years
	Secondary	Annual	15 µg/m^3	Annual mean, averaged over 3 years
	Primary and secondary	24-hour	35 µg/m^3	98th percentile, averaged over 3 years
Particular Matter (PM_{10})	Primary and secondary	24-hour	150 µg/m^3	Not to be exceeded more than once per year on average over 3 years
Lead (Pb)	Primary and secondary	Rolling 3 month average	0.15 µg/m^3	Not to be exceeded
Sulfur Dioxide (SO_2)	Primary	1-hour	75 ppb	99th percentile of 1-hour daily maximum concentrations, averaged over 3 years
	Secondary	3-hour	0.5 ppm	Not to be exceeded more than once per year

Note:
1. ppm = parts per million; ppb = parts per billion; µg/m^3 = micrograms per cubic meter
Source: USEPA, http://www.epa.gov/air/criteria.html.

3.2.4 Clean Air Act Conformity

In areas where the NAAQS are exceeded, the CAA requires preparation of a state implementation plan (SIP) that details how the state will attain the standards within a mandated time frame or maintain the standards after a redesignation from nonattainment to attainment. On April 14, 1994, the USEPA approved a redesignation request and maintenance plan for the City of Duluth as a revision to Minnesota's SIP for CO.

The Clean Air Act Amendments (CAAA) of 1990 expand the scope and content of the act's conformity provisions in terms of their relationship to a SIP. Under Section 176(c) of CAAA, a project is in "conformity" if it corresponds to the SIP's purpose of eliminating or reducing the severity and number of violations of the NAAQS and achieving their expeditious attainment. Conformity further requires that such activities would not:

- Cause or contribute to any new violations of any standards in any area.
- Increase the frequency or severity of any existing violation of any standards in any area.
- Delay timely attainment of any standard or any required interim emission reductions or other milestones in any area.

The USEPA published a final rule on general conformity (40 CFR Parts 51 and 93) in the Federal Register on November 30, 1993. The rule applies to federal actions in nonattainment areas for any of the criteria pollutants and specifies *de minimis* (threshold) emission levels by pollutant to determine the applicability of conformity requirements for a project.

The project area is located in a maintenance area for CO. The applicable *de minimis* threshold is 100 tons per year (tpy).

3.2.5 Hazardous Pollutants

In addition to the criteria pollutants, non-criteria pollutants, called hazardous air pollutants (HAP), are also regulated under the CAA. The USEPA has identified a total of 187 HAP that are known or suspected to cause health effects in small doses. HAP are emitted by a wide range of man-made and naturally occurring sources, including mobile and stationary combustion sources. Federal ambient air quality standards have not been developed for non-criteria pollutants.

3.2.6 Greenhouse Gas Emissions and Climate Change

Greenhouse gases (GHG) are compounds that contribute to the greenhouse effect. The greenhouse effect is a natural phenomenon where gases trap heat within the surface-troposphere system (lowest portion of the earth's atmosphere), causing heating at the surface of the earth. The primary long-lived GHG directly emitted by human activities are carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFC), perfluorocarbons (PFC), and sulfur hexafluoride (SF_6).

The heating effect from these gases is considered the probable cause of the global warming observed over the last 50 years (USEPA 2009a). Global warming and climate change can affect multiple aspects of the environment. The USEPA Administrator has recognized potential risks to public health or welfare and signed an endangerment finding regarding GHG under Section 202(a) of the CAA (USEPA 2009b), which finds that the current and projected concentrations of the six key well-mixed gases listed above in the atmosphere threaten the public health and welfare of current and future generations.

The global warming potential (GWP) of the various GHG is generally expressed relative to a reference gas, CO_2, which is assigned a GWP of 1. Emissions of GHG are multiplied by their GWP and the results are added to calculate the total equivalent emissions of CO_2 (CO_2e). Because CO_2 is the dominant (85.4%) GHG emitted as a result of fossil fuel combustion, (USEPA 2009c), this EA more simply considers CO_2 emissions as representative of all GHG emissions from the proposed action.

The analysis presented in this EA follows the *Draft NEPA Guidance on Consideration of the Effects of Climate Change and Greenhouse Gas* issued by CEQ (2010). The potential effects of proposed GHG emissions are by nature global and cumulative; project-level emissions are not large enough to have a distinguishable effect on climate change. Therefore, CO_2 emissions levels are provided here for disclosure purposes only.

3.2.7 Existing Ambient Air Quality Conditions

Ambient air quality conditions in Minnesota are monitored by the Minnesota Pollution Control Agency (MPCA) at stations throughout the state as part of its permanent, state-wide air monitoring program. The stations sample and record levels of criteria air pollutants. The air monitoring stations in the City of Duluth include:

- 314 W Superior Street (CO).
- 1202 East University Circle (O_3 and $PM_{2.5}$).
- 37th Ave W. & Oneota Street (PM_{10}).

Currently, all monitored concentrations are below the NAAQS, which is consistent with the designation of the City of Duluth as a maintenance area for CO and attainment for all other criteria pollutants.

3.3 Noise

This section discusses measurement methodologies and regulatory criteria applicable to noise, and describes the ambient noise environment on and in the vicinity of the 148 FW base.

3.3.1 Noise Fundamentals and Methodology

Noise can be described as unwanted sound. While most people conduct their daily lives in an environment full of sounds, some sounds are generally considered undesirable and may detract from the quality of the human environment. A number of factors affect sound as it is perceived by the human ear. These factors include the actual level of the sound, the frequencies involved, the period of exposure, and changes or fluctuations in sound levels during exposure. Noise levels are measured in units called decibels (dB). Because the human ear cannot perceive all pitches or frequencies equally well, noise measures are adjusted to compensate for the human lack of sensitivity to low-pitched and high-pitched sounds. This adjusted unit is known as the A-

weighted decibel (dBA). The A-weighted metric de-emphasizes both very low- and very high-pitched sounds, so measured levels better correlate with human perception.

Human response to changes in sound levels depends on a number of factors, including the quality of the sound, the magnitude of the changes, the time of day at which the changes take place, whether the sound is continuous or intermittent, and the individual's ability to perceive the changes. Human ability to perceive changes in sound levels varies widely with the individual, as do responses to the changes. A change in sound level of less than three dBA is barely perceptible to most listeners while a 10-dBA change normally is perceived as a doubling (or halving) of the sound. These thresholds enable the estimation of an average individual's probable perception of, and reaction to, changes in sound levels.

However, the dBA metric describes sound levels in a static way whereas sound levels are rarely steady and unchanging. Therefore, methods to describe and evaluate changing sound levels over time have been developed. One method is to describe the fluctuating sound heard over a specific period as if it were a steady, unchanging sound. To this end, a descriptor called the equivalent sound level (L_{eq}) can be computed. The L_{eq} descriptor is the constant sound level that, in a given situation and time period (e.g., one-hour L_{eq}, or 24-hour L_{eq}), conveys the same sound energy as the actual time-varying sound.

Alternatively, it is often useful when measuring sound levels to take into account the difference in perception and response between daylight, waking hours and nighttime, sleeping hours. To this end, a descriptor called the day-night noise level (DNL) has been developed. DNL is defined as the A-weighted average sound level during a 24-hour period, with a ten-dBA penalty weighting applied to sound occurring during nighttime (10 pm to 7 am). The ten-dBA weighting accounts for the fact that sounds at night are more perceptible because of lesser background sound levels.

The DNL descriptor has been recognized by the Department of Housing and Urban Development (HUD), the USEPA, the FAA, and DoD as one of the most appropriate metrics for estimating the degree of nuisance or annoyance that increased noise levels can be anticipated to cause in residential neighborhoods. On this basis, DNL was selected as the most appropriate noise descriptor for assessing the noise environment around Duluth IAP in this EA.

3.3.2 Noise Standards and Criteria

Federal agencies have adopted various standards and guidelines for assessing noise impacts. These regulations and standards provide both a characterization of the quality of the existing noise environment and a measure of project-induced impacts when applicable.

3.3.2.1 HUD Environmental Criteria and Standards

HUD has adopted environmental standards, criteria, and guidelines for determining the acceptability of federally-assisted projects and proposed mitigation measures to ensure that activities assisted by HUD achieve the goal of a suitable living environment. These guidelines are strictly advisory.

HUD assistance for the construction of new noise-sensitive land uses is generally prohibited for projects with "unacceptable" noise exposure and is discouraged for projects with "normally unacceptable" (as defined in Table 3.3-1) noise exposure. This policy applies to all HUD programs for residential housing, college housing, mobile home parks, nursing homes, and hospitals. It also applies to HUD projects for land development, new communities, redevelopment, or any other provision of facilities and services that is directed toward making land available for housing or noise-sensitive development.

Sites falling within the "normally unacceptable" zone require mitigation, such as implementation of sound attenuation or reduction measures: a five-dB reduction if the DNL is greater than 65 dB but does not exceed 70 dB; and a ten-dB reduction if the DNL is greater than 70 dB but does not exceed 75 dB. If the DNL exceeds 75 dB, the site is considered unacceptable for residential use.

Table 3.3-1: HUD Site Acceptability Standards

Noise	Day/Night Sound Level (DNL)
Acceptable	Not exceeding 65 dB
Normally Unacceptable	Above 65 dB but not exceeding 75 dB
Unacceptable	Above 75 dB
Source: 24 CFR 51.	

3.3.2.2 Aviation Noise Standards

In June 1980, the Federal Interagency Committee on Urban Noise published guidelines relating DNL to compatible land uses. This committee was composed of representatives of DoD, the Department of Transportation, HUD, USEPA, and the Veterans Administration. Since the issuance of these guidelines, federal agencies have generally adopted them for their noise analyses.

Following the lead of the committee, DoD and the FAA have adopted the concept of land use compatibility as the accepted measure of aircraft noise effect. The FAA incorporated the committee's guidelines in the FAR. Although these guidelines are not mandatory, they provide the best method to assess noise impacts in airport communities. In general, residential land uses are not compatible with an outdoor DNL above 65 dBA. Thus, the extent of land areas and populations exposed to a DNL of 65 dBA or higher provides one of the criteria to assess and compare the noise impacts of aircraft actions.

3.3.3 Past Part 150 Studies and Historical Noise Conditions

The Part 150 process was established by the FAA on February 28, 1981 and is governed by 14 CFR Part 150. Part 150 specifies the methodology and procedures for developing and implementing Noise Exposure Maps (NEM) and Noise Compatibility Programs. NEM are graphic depictions of noise exposure around an airport for existing or future conditions.

On June 30, 1999, Duluth IAP published a Part 150 study report that included NEM to reflect the then-existing noise conditions around the airport. In 2005, the 148 FW updated the airport-wide NEM under both 2004 baseline and future conditions in anticipation of the deployment of the F-35 Joint Strike Fighter to the 148 FW base. These NEM are included in the comprehensive *Aircraft Noise Environmental Management Resource Book* (148 FW 2005). This document contains aircraft operational data collection and validation; the development of noise modeling inputs for both civilian and military aircraft (including aircraft types, flight track profiles, runway and flight track usages, and engine maintenance run-ups); the implementation of appropriate noise models; and the modeling results in terms of NEM under various analysis scenarios. The baseline 2005 condition NEM developed in that study is included in this EA for comparison purposes to current baseline conditions as discussed in Section 3.3.4.

The noise contours developed in the 2005 analysis are shown in Figure 3.3-1. A total of 61,371 civilian and military flight operations were modeled in the study and the predicted area of land within each contour zone is summarized in Table 3.3-2. Of the noise-sensitive receptors identified in the 2005 study, one, Gethsemane Covenant Church, is located within the 65-dBA contour but outside the 75-dBA contour.

Table 3.3-2: 2005 Off-airport Noise Contour Areas

DNL Contour (dBA)	Area within Contour (acres)
65-69	1,136
70-74	232
75 and Above	24
Total	1,393
Source: 148th FW, November 2005	

3.3.4 Existing Noise Conditions

To establish updated baseline aircraft noise conditions for this EA, the 2005 NEM was updated based on a field data collection process primarily focusing on changes in military aircraft operations, which have a substantial influence on airport-wide noise conditions. This EA includes a noise contour map update reflecting 2014 existing conditions, which was developed using the same modeling approach as used for the 2005 study. The updated map reflects the noise generated by a total of 64,671 aircraft flight operations characterized as follows:

- 9,771 air carrier operations.
- 41,917 general aviation operations.
- 12,983 military operations (including 148 FW and transient operations).

2005 Noise Exposure Map

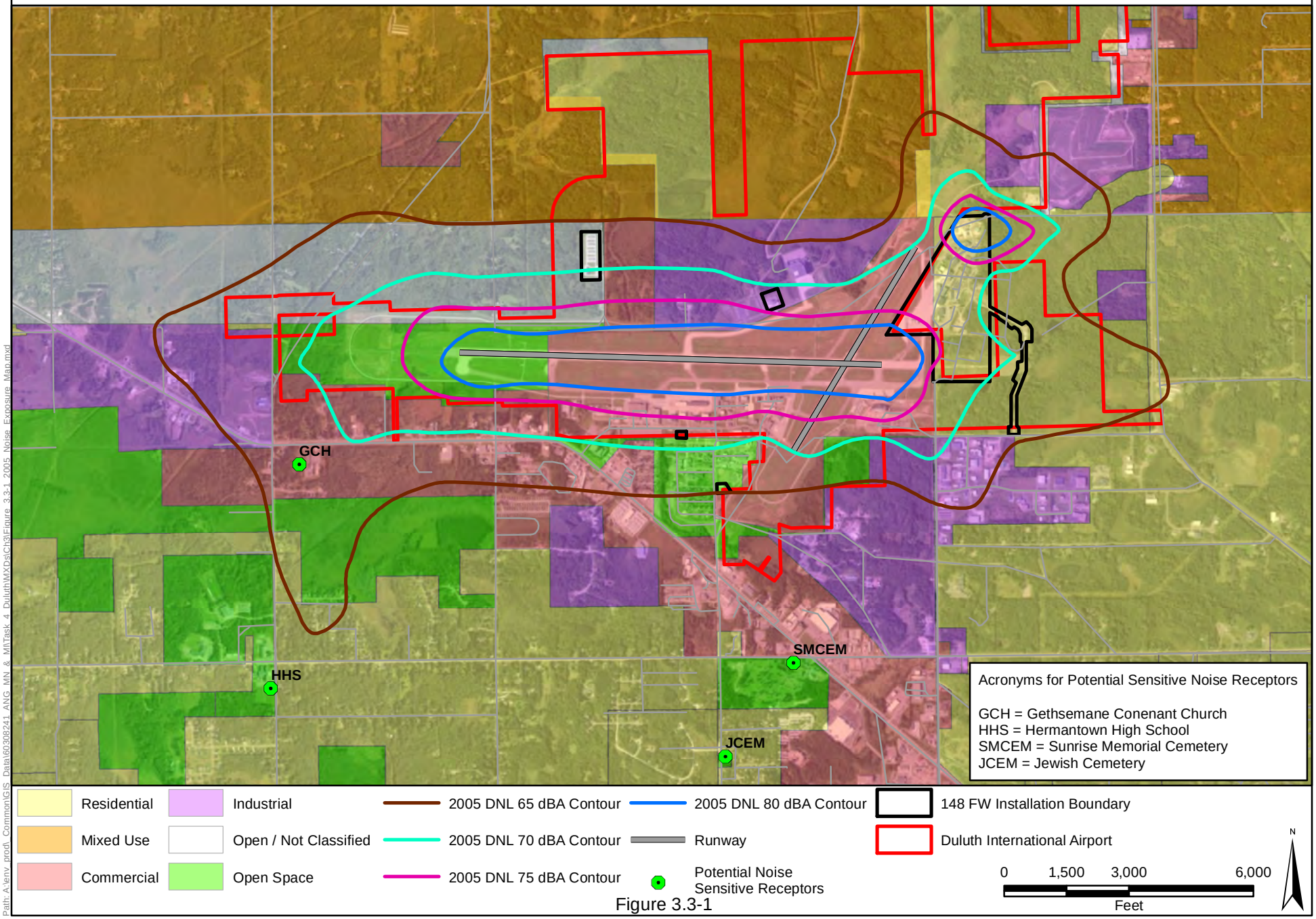

Figure 3.3-1

Source: Duluth ANG CIP 2013

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Figure 3.3-2 shows the noise contours generated by these operations and also depicts the change of contours as compared to 2005 conditions. As previously noted, the updated contours were developed using the same modeling methodologies and assumptions as used for the 2005 study. The noise model based on DoD's NOISEMAP model that was used for the 2005 study was updated with current existing flight operation inputs obtained in July 2014. These inputs were validated through interviews with the airport tower control manager and operational and training personnel from the 148 FW as well as the 133^{d} Airlift Wing (AW) and 934th AW based at Minneapolis-St. Paul International Airport, which routinely use Duluth IAP for C-130 flight training operations.

A detailed description of the noise modeling methodologies and assumptions, noise models, and types of operational data used as model inputs can be found in the *Aircraft Noise Environmental Management Resource Book* (148 FW 2005). The major updates that result in a slight change of the NEM relative to 2005 include:

- Elimination of some outdated military transient aircraft operations.
- Increases in C-130 flight operations, particularly pattern operations from the 133^{d} AW and 934th AW.
- Changes in C-130 pattern flight tracks, which are now slightly closer to Runway 9/27.

Table 3.3-3 shows the areas within each contour (2014 conditions) and a comparison with the 2005 condition.

The modeling results shown on Figure 3.3-2 and summarized in Table 3.3-3 show that:

- 65-dBA and greater DNL levels occur mostly within the airport. The eastern and southwestern ends of the 65-dBA contour extend somewhat beyond the airport boundary into areas zoned for residential uses; however, these residential areas either do not have residences or are not densely populated.
- Only one point of interest (i.e., noise sensitive receptors other than residences, such as schools, community facilities, churches, and hospitals), Gethsemane Covenant Church, is located within the 65-dBA or greater contour line to the southwest of Duluth IAP. This receptor is not within the 75-dBA or greater contour line that is considered unacceptable for a residential use.
- No residential property is located within the 75 dBA or greater contour that is considered unacceptable for residential use according to HUD.
- The 2014 noise conditions are generally comparable to the 2005 conditions, particularly in those areas zoned for residential land uses.

Table 3.3-3: Change in Off-airport Noise Contour Land Area Between 2005 and 2014

DNL Contour (dBA)	Area within Contour (acres) (2005)	Area within Contour (acres) (2014)	Change (Percent)
65-69	1,136	1,195	+5
69-74	232	264	+14
75 and Above	24	17	-29
Total	1,393	1,476	+6

3.4 Land Use and Coastal Zone Management

"Land use" describes how a given parcel of land or area is used and the type of functions and structures it supports. Examples of land uses include residential, industrial, agricultural, and recreational.

3.4.1 Location and Setting

The 148 FW is located at Duluth IAP in St. Louis County, approximately five miles northwest of downtown Duluth. The majority of the 148 FW installation, or the main base, occupies about 221 acres (including easements) in the northeast corner of the airport, including the main gate and driveway leading from Airport Road to the main base. Four additional 148 FW facilities are located on outparcels on the north and south sides of the airport (see Figure 1-2): the MSA (12 acres), ARFF (4 acres), BX (1 acre), and the PMEL (1.4 acres).

3.4.2 Installation Land Use

Land uses on the 148 FW's main base and outparcels are classified as Aircraft Maintenance, Aircraft Operations, Airfield Pavement, Command and Support, Industrial, Open Space/Buffer Zone, and Special Areas. These designations are illustrated in Figure 3.4 of the IDP, included in Appendix D. Actual land uses on the installation are generally consistent with their underlying designations. There are no land uses that conflict with or prevent the safe and efficient operation of other adjacent or nearby land uses. However, as noted in Section 1.2, *Purpose and Need*, the physical separation of Aircraft Maintenance uses between the central and northern areas of the base prevents the 148 FW from optimizing functional relationships between those types of facilities.

2014 Baseline Noise Exposure Map

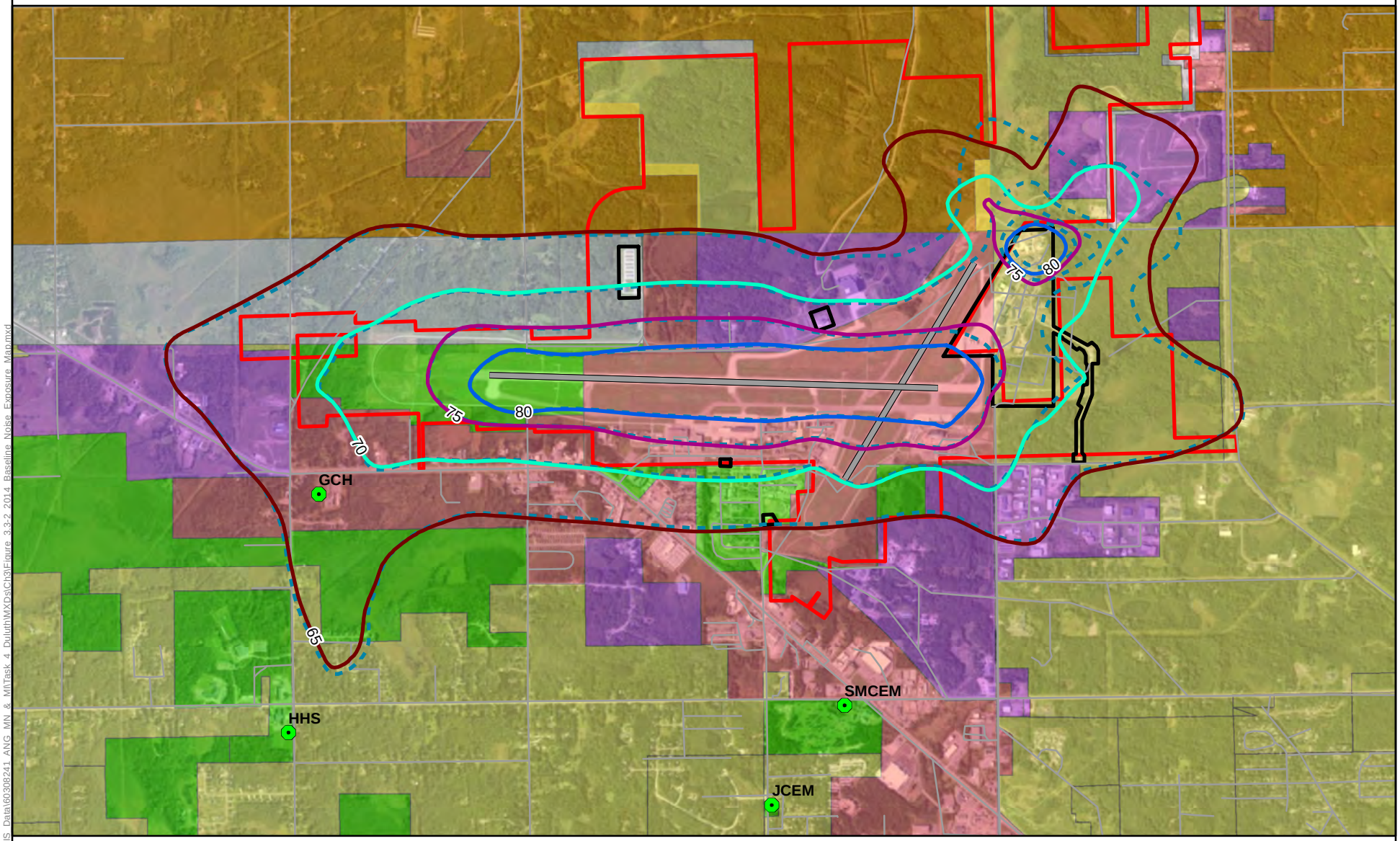

Figure 3.3-2

Source: Duluth ANG CIP 2013

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3.4.3 Off-Base Land Use

Land uses adjacent to the west and south of the main base primarily consist of facilities associated with Duluth IAP, including runways and taxiways, the passenger terminal, hangars, maintenance shops, and other support facilities. Land on the north and east sides of the main base is owned by the airport but is heavily vegetated and minimally developed. Beyond the boundaries of the airport, land use is largely suburban in character and predominantly consists of low-density residential and commercial developments dispersed among swaths of open or otherwise undeveloped land.

3.4.4 Coastal Zone Management

The Coastal Zone Management Act (CZMA) of 1972 (16 USC § 1451, et seq., as amended) provides assistance to states, in cooperation with federal and local agencies, for developing land and water use programs in coastal zones. Section 307 of the CZMA stipulates that federal projects that affect land uses, water uses, or other coastal resources of a state's coastal zone must be consistent to the maximum extent practicable with the enforceable policies of that state's federally-approved coastal management plan.

Minnesota's Lake Superior Coastal Program (MLSCP) was approved by the National Oceanic and Atmospheric Administration (NOAA) in 1999. The designated coastal boundary encompasses the entirety of Minnesota's Lake Superior shoreline and includes the City of Duluth, Duluth IAP, and the 148 FW installation. A federal consistency determination was prepared for the proposed action evaluated in the EA and submitted to MLSCP for review along with the Draft EA. The federal consistency determination is included as Appendix C.

3.5 Geological Resources

This section includes discussions of the geologic, topographic, and soil conditions underlying the 148 FW installation and Duluth IAP.

3.5.1 Geology

Duluth IAP and the 148 FW installation are underlain by Upper Precambrian age consolidated rock collectively assigned to the Duluth Complex. The Duluth Complex occurs in an arcuate pattern extending from the City of Duluth northward 150 miles to the Canadian border, with a surface area of approximately 2,500 square miles. This unit may have originated as one large mass of magma that developed into a sublayered, somewhat differentiated rock sequence through internal convective movements. No faults have been mapped in this unit in the vicinity of Duluth IAP (ANG 2005).

The only substantial unconsolidated unit in the vicinity of the 148 FW is a Pleistocene-age glacial drift. These materials (consisting of a heterogeneous mixture of cobbles, gravel, sand, silt, and clay) were deposited during the last major period of glaciation (Wisconsin Period). The drift

forms a relatively level, thin mantle overlying the older consolidated Duluth Complex and is known to vary in thickness at the installation from 10 to 60 feet. Numerous poorly drained low areas became swamps and peat bogs on the drift surface (ANG 2005).

3.5.2 Topography

The land surface in the vicinity of the 148 FW generally appears flat to gently rolling. Regional surface elevations range from 800 feet above mean sea level near Lake Superior to 1,500 feet above mean sea level at the Canadian border. Topography on the western side of the main base is generally level primarily as a result of development activities associated with the airport and 148 FW that have occurred over the years. Slopes taper away from the installation along its eastern side, resulting in a decrease in elevation of approximately 25 feet (ANG 2005).

3.5.3 Soils

The 148 FW installation is underlain by eight different soil units, as illustrated in Figure 3.5-1. These units and selected characteristics of each are briefly summarized in Table 3.5-1.

Soils underlying the main base, and most of the areas where the proposed projects would be implemented, predominantly consist of F158B, Urban land-Normanna-Canosia complex, with 0 to 8 percent slopes. It is a moderately well- to poorly-drained soil with a moderate erosion K factor of .32. It is not considered prime farmland. F158B soil is considered predominantly non-hydric, indicating that it does not possess ideal qualities for supporting wetland vegetation and hydrology.

Soils in the northern and southern areas of the main base consist of F135A, Hermantown-Canosia-Giese, depressional complex, with 0 to 3 percent slopes. This is considered a Farmland of Statewide Importance soil and has partially hydric characteristics. F135A has erosive qualities similar to those of F158B, mentioned above. It is considered very limited for the construction of small commercial buildings and roads and streets (NRCS 2014).

3.6 Water Resources

This section characterizes surface water, groundwater, floodplains, and stormwater on and in the vicinity of the 148 FW installation and Duluth IAP. Unless otherwise cited, information in this section is drawn from the *Final Environmental Assessment, Proposed Construction Projects and Real Estate Transactions at the 148th Fighter Wing, Minnesota Air National Guard, Duluth International Airport, Duluth, Minnesota* (ANG 2005).

Soils

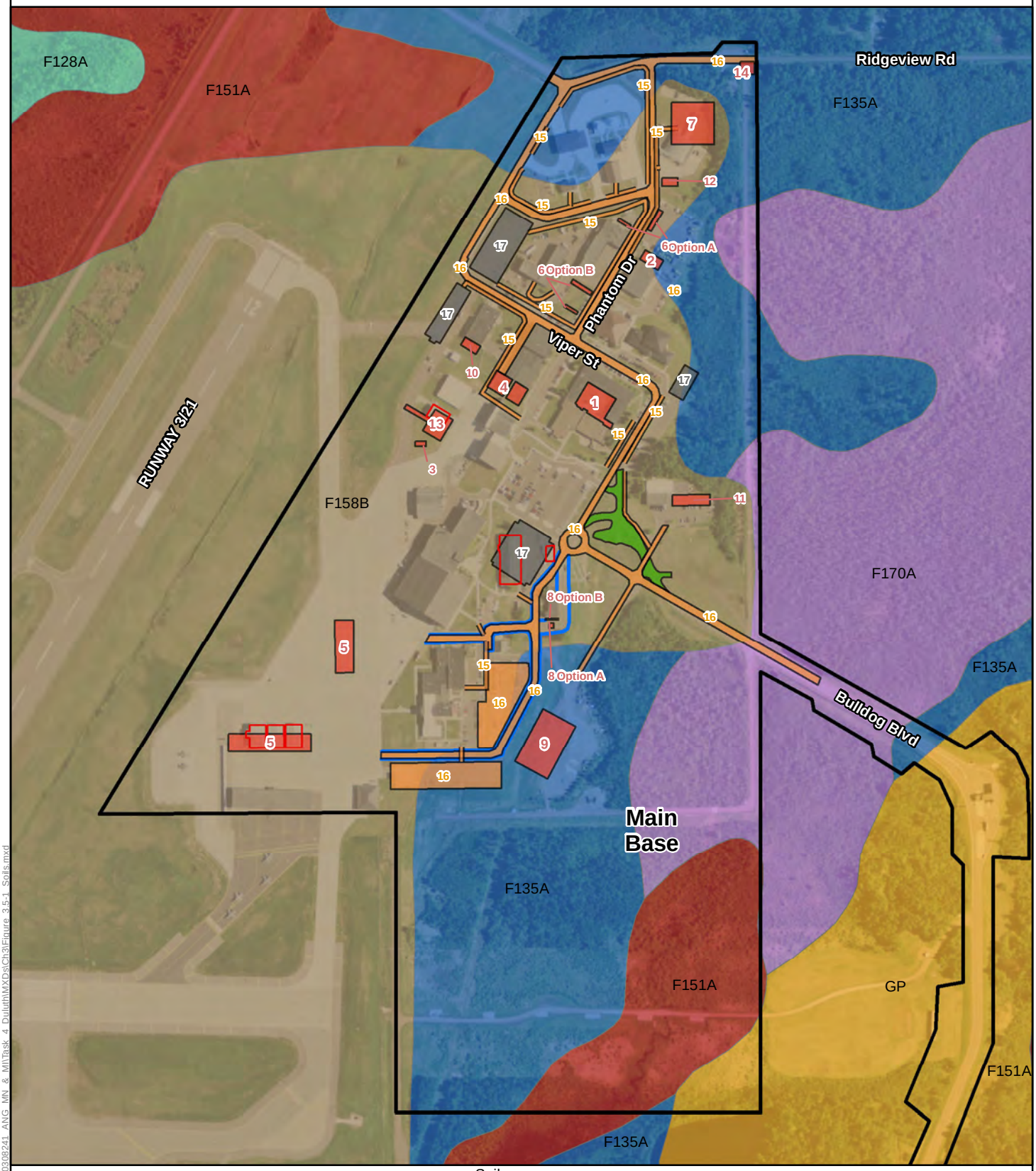

Figure 3.5-1

Source: Duluth ANG CIP 2013; ESRI Data & Maps 2006.

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Table 3.5-1: Soils Underlying the 148 FW Installation

Symbol	Name	Percent of Installation	Description	Drainage Class	K factor	Limitations for Small Commercial Buildings	Limitations for Roads and Streets	Prime Farmland	Hydric Category
F134A	Giese muck, depressional, 0 to 1 percent slopes	0.1	Found on depressions and moraines. Consists of loamy material over dense loamy fill.	Very poorly drained	.02	Very limited	Very limited	No	Hydric
F135A	Hermantown-Canosia-Giese, depressional complex, 0 to 3 percent slopes	29.6	Found on flats and rises on moraines. Consists of loamy material over dense loamy fill.	Somewhat poorly drained	.32	Very limited	Very limited	Farmland of Statewide Importance	Partially hydric
F138D	Ahmeek-Mormanna-Canosia complex, 0 to 18 percent slopes	1.0	Found on moraines. Consists of loamy material over dense loamy fill.	Well drained	.43	Very limited	Somewhat limited	No	Predominantly nonhydric
F151A	Tacoosh mucky peat, dense substratum, 0 to 1 percent slopes	6.4	Found in swamps on moraines and interdrumlins. Conists of organic material over loamy material over dense loamy fill.	Very poorly drained	NA	Very limited	Very limited	No	Hydric
F158B	Urban land-Normanna-Canosia complex, 0 to 8 percent slopes	46.8	Found on moraines. Consists of fill material from surrounding uplands, gravel pits and blasted bedrock.	Moderately well drained to poorly drained	.32	Not rated	Not rated	No	Predominantly nonhydric

Symbol	Name	Percent of Installation	Description	Drainage Class	K factor	Limitations for Small Commercial Buildings	Limitations for Roads and Streets	Prime Farmland	Hydric Category
F170A	Rifle soils, dense substratum, 0 to 1 percent slopes	6.9	Found in swamps on moraines and interdrumlins. Consists of organic material.	Very poorly drained	.02	Very limited	Very limited	No	Hydric
GP	Pits, gravel-Udipsamments complex	5.4	Found on outwash plains, stream terraces and moraines. Consists of sandy and gravely outwash.	Well drained	NA	Not rated	Not rated	Not specified	Nonhydric
Source: NRCS 2014.									

3.6.1 Surface Water

The 148 FW installation lies within the boundaries of three watersheds: Miller Creek, Midway River, and Rice Lake. Drainage in the area is poorly defined and characterized by small local streams flowing into small lakes or marshy wetlands, or into Lake Superior. To the east of the installation, Miller Creek flows south and ultimately discharges into St. Louis Bay on the western end of Lake Superior. A segment of Miller Creek crosses the southeastern corner of the main base. Runoff that flows north and west of the installation is captured by Beaver Creek, which flows into Wild Rice Lake located less than one mile from the installation.

The headwaters of Miller Creek are located east of the installation. Miller Creek is designated by the MPCA as Special Waters of Minnesota due to its outstanding values as an urban trout stream, as well as Impaired Waters of Minnesota due to pollution from nearby development. Total maximum daily load (TMDL) thresholds for biota and temperature have been established for Miller Creek, and permitted discharges that drain to Miller Creek must include measures to ensure that discharges remain within those thresholds.

3.6.2 Groundwater

The 148 FW installation lies within the east-central groundwater province of Minnesota. Duluth IAP and the 148 FW installation are underlain by the Glacial Drift aquifer, which ranges in thickness from about 10 to 60 feet in the vicinity of the installation and is the primary aquifer in the area. Groundwater is usually present at depths of about five feet. Movement of groundwater through peat, silt, and clay substrata is slow. Water from the aquifer is used for isolated domestic and agricultural uses but does not supply the airport or adjacent communities. Multiple private wells are located in the incorporated areas surrounding the installation.

3.6.3 Floodplains

EO 11988, *Floodplain Management*, requires federal agencies to determine whether a proposed action would occur within a floodplain, and to avoid development in floodplains unless the agency determines that there is no practicable alternative.

As shown on Flood Insurance Rate Map (FIRM) Panel 270421 produced by the Federal Emergency Management Agency (FEMA) and dated April 2, 1982, portions of the 100-year floodplain associated with Miller Creek are located within the boundaries of the main base, primarily along its eastern and southeastern edges. The majority of the main base and the entirety of the MSA are designated as Zone C, areas of minimal flooding. Enlargements of the FIRM panels showing the main base and MSA are included in Appendix D as Figure D-1 and Figure D-2, respectively. Development currently within the 100-year floodplain on the main base is limited to segments of Bulldog Boulevard, the installation perimeter road, and the service road between Haines Road and Bulldog Boulevard in the southern end of the base.

3.6.4 Stormwater

Stormwater runoff on the installation is collected in a series of manmade ditches, storm sewers, and shallow unlined swales. Most of the runoff flows north to two drainage channels that flow into a detention basin located on airport property. Downstream of the basin, water tends to stay within the stream channel and discharges into Beaver Creek and eventually into Wild Rice Lake. Runoff from the south and east portions of the airfield drain to two retention ponds and then drain into Miller Creek. Stormwater runoff from the eastern portion of the 148 FW installation discharges directly into the wetlands on the east side of the base. Higher ground is fairly well drained, but lower areas tend to have deep peat pockets that are poorly drained and overgrown.

The 148 FW installation discharges stormwater under a National Discharge Elimination System (NPDES) general stormwater permit issued by MPCA. In accordance with the permit, the 148 FW installation has prepared and adheres to a stormwater pollution prevention plan (SWPPP) that provides strategies to control stormwater discharges and minimize pollution of nearby surface waters.

3.7 Biological Resources

Biological resources refer to vegetation as well as wildlife and its habitat, including wetlands and threatened and endangered species. Section 3.7.1 focuses on vegetation. Wetlands are addressed in Section 3.7.2. Section 3.7.3 discusses common species of wildlife. Threatened and endangered species are addressed in Section 3.7.4. The Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act are discussed in Section 3.7.5.

Unless otherwise cited, information in this section is drawn from the *Final Environmental Assessment, Proposed Construction Projects and Real Estate Transactions at the 148th Fighter Wing, Minnesota Air National Guard, Duluth International Airport, Duluth, Minnesota* (ANG 2005).

3.7.1 Vegetation

Duluth is located within the Highland subsection of the Laurentian Mixed Forest Province. The majority of the subsection remains forested, although the pre-settlement white pine and red pine forests have been largely replaced by forests of quaking aspen and paper birch.

Native vegetation surrounding the 148 FW installation is limited. Existing vegetation in the area is primarily cultivated cropland interrupted by small wooded areas of mixed coniferous and deciduous trees. All developed areas of the installation and airfield have been cleared of native vegetation and planted with maintained grasses and other landscape vegetation. However, peripheral undeveloped areas are wooded.

3.7.2 Wetlands

The locations of wetlands identified by the USFWS's National Wetlands Inventory (NWI) on and in the vicinity of the 148 FW installation are shown in Figure 3.7-1. Note that the locations of NWI wetlands are based on remote sensing and are thus approximate; precise information on wetlands within the boundaries of the 148 FW installation is unavailable, as the previous base-wide wetlands delineation was conducted in 1998. The 148 FW conducts wetlands surveys on a project- or site-specific basis when wetlands are suspected to be present within areas proposed for development.

3.7.3 Wildlife

Common wildlife found in the Highland subsection of the Laurentian Mixed Forest Province include: moose (*Alces alces*), white-tailed deer (*Odocoileus virginianus*), black bear (*Ursus americanus*), red fox (*Vulpes vulpes*), bobcat (*Felis rufus*), rabbit species, porcupine (*Erithizon dorsatum*), woodchucks (*Marmota monax*), otters (*Lutra canadensis*), and beaver (*Castor canadensis*).

Between mid-August and mid-December, a seasonal average of over 93,000 raptors migrate through Hawk Ridge Nature Reserve, located approximately 7 miles east of the 148 FW base. Species observed at Hawk Ridge include turkey vulture (*Cathartes aura*), osprey (*Pandion haliaetus*), bald eagle (*Haliaeetus leucocephalus*), northern harrier (*Circus cyaneus*), sharp-shinned hawk (*Accipiter striatus*), Cooper's hawk (*Accipiter cooperii*), northern goshawk (*Accipiter gentilis*), broadwinged hawk (*Buteo platypterus*), red-tailed hawk (*Buteo jamaicensis*), rough-legged hawk (*Buteo legopus*), golden eagle (*Aquila chrysaetos*), American kestrel (*Falco sparverius*), merlin (*Falco columbarius*) and peregrine falcon (*Falco peregrinus*). Gyrfalcon (*Falco rusticolus*), red-shouldered hawk (*Buteo lineatus*) and swainson's hawk (*Buteo swainsoni*) have also been observed. Due to the proximity of the 148 FW base to Hawk Ridge, it is possible that some transient individual specimens of these species may occasionally be observed on or in the vicinity of the 148 FW base.

3.7.4 Threatened and Endangered Species

Federally listed threatened and endangered species that have been documented in St. Louis County and associated areas of critical habitat are presented in Table 3.7-1. The Critical habitat area for the Canada lynx includes the Duluth IAP and 148 FW base. However, both the airport and the installation are developed and industrial in character, with no or minimal usable habitat for this species.

Table 3.7-1: Federally-listed Threatened and Endangered Species Documented in St. Louis County

Common Name	Scientific Name	Status	Habitat
Canada lynx	*Lynx canadensis*	Threatened	Northern forest
Canada lynx – Critical habitat in Minnesota	N/A	N/A	Includes most of St. Louis County east of Highway 53, including Duluth IAP and 148 FW base
Gray wolf	*Canis lupus*	Threatened	Northern forest
Northern long-eared bat	*Myotis septentrionalis*	Threatened	Hibernates in caves and mines - swarming in surrounding wooded areas in autumn. Roosts and forages in upland forests during spring and summer.
Piping plover (Great Lakes Breeding Population)	*Charadrius melodus*	Endangered	Sandy beaches, islands
Piping plover (Great Lakes Breeding Population) – Critical habitat in Minnesota	N/A	N/A	Located 500 meters (1640 feet) inland from the normal high water line on Interstate Island in St. Louis County (approximately 7 miles southeast of the 148 FW base)
Rufa red knot	*Calidris canutus rufa*	Threatened	Coastal areas along Lake Superior
Source: JaKa, pers.comm, April 23, 2015.			

In an email dated April 23, 2015, the USFWS stated that it has no known records for federally listed or proposed species and/or designated or proposed species or proposed critical habitat within the project area on the 148 FW installation. Copies of the coordination letters and the USFWS response are included in Appendix A.

3.7.5 Migratory Bird Treaty Act and Bald and Golden Eagle Protection Act

3.7.5.1 Migratory Bird Treaty Act

Minnesota is located within the Mississippi migratory flyway and the 148 FW installation is located in proximity to water bodies, wetlands, agricultural lands, and parks and wildlife refuges that attract a wide range of bird species. Nearly half of North America's bird species, and about 40 percent of its waterfowl, spend at least part of their lives in the Mississippi migratory flyway (NAS 2014). For these reasons, it is likely that multiple individual specimens of species protected by the Migratory Bird Treaty Act are present on or within the vicinity of the 148 FW or Duluth IAP Airport at least periodically throughout the year.

NWI Wetlands

Figure 3.7-1

Source: Duluth ANG CIP 2013; ESRI Data & Maps 2006.

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3.7.5.2 Bald and Golden Eagle Protection Act

The bald eagle, which is protected under the Migratory Bird Treaty Act, is also protected under the Bald and Golden Eagle Protection Act. The Bald and Golden Eagle Protection Act prohibits anyone, without a permit issued by the Secretary of the Interior, from "taking" bald eagles. Taking is described to include their parts, nests, or eggs, molesting or disturbing the birds. As described above for birds protected under the Migratory Bird Treaty Act, habitat attractive to bald eagles is present in the vicinity of Duluth IAP and the 148 FW installation. However, no bald eagle nests are known to occur within the boundaries of the airport or 148 FW base, and it is likely that any specimens observed on the airport or base would be transient individuals.

3.8 Transportation and Circulation

Transportation and circulation resources encompass the networks of roads, bridges, sidewalks, bike lanes, runways and other facilities that facilitate human movement in vehicles or on foot. This section briefly describes such resources on and in the vicinity of the 148 FW installation.

3.8.1 On-Base Transportation Network

3.8.1.1 Airside Facilities

Airside transportation facilities within the 148 FW installation consist of the flightline on the west side of the base; two taxiways on the north and south sides of the flightline connecting it to Runway 3/21 and Runway 9/27, respectively; and the alert taxiway connecting the alert hangar to Runway 9/27. No runways are located within the boundaries of the 148 FW installation.

3.8.1.2 Landside Facilities

Vehicular Circulation

The main base is accessed primarily via Airport Road through a main gate facility along Bulldog Boulevard. A secondary, unstaffed gate in the northeastern corner of the main base provides access from Ridgeview Road but is not permanently staffed and is used infrequently. Facilities on the north side of the main base are primarily reached via Viper Street and Mustang Drive, while Deuce Avenue and Phantom Drive provide access to facilities on the south side. Voodoo Street serves as a perimeter road along the east side of the main base. With the exception of Voodoo Street, all roads within the main base are paved with asphalt or concrete.

To access the MSA, vehicles exit through the north side of the main base and travel west along the perimeter road on the north side of the airport. There is no direct access from the main base to the PMEL or BX; vehicles must access those facilities from County Road 296/Stebner Road and Airport Road, respectively.

Pedestrian Circulation

Pedestrian sidewalks are present throughout the main base. However, sidewalk connections are incomplete in some areas, particularly between industrial-type facilities on the north side of the main base, and between non-organizational parking areas and facilities on the south side.

Parking

Parking for installation personnel and visitors POV is provided throughout the main base in asphalt-paved surface parking lots and on-street parking spaces. Although POV parking exceeds the installation's authorization of 725 spaces, approximately 200 spaces are in violation of AT/FP requirements (ANG 2013). These include spaces along the north and east sides of Building 250 and on the south side of Building 281. There are no parking structures on the installation.

3.8.2 Off-Base Transportation Network

Regional access to the airport is via U.S. Highway 53, which generally runs southeast to northwest from downtown Duluth. Local access to the airport is provided off of U.S. Highway 53 by Haines Road. Maintenance and support facilities on the south side of the airport are primarily accessed via County Road 296/Stebner Road and Cirrus Drive. Average annual daily traffic volumes for selected roads in the vicinity of the airport are presented in Table 3.8-1.

Table 3.8-1: Annual Average Daily Traffic Volumes in the Vicinity of Duluth IAP

Road	Segment	AADT	Year
U.S. Highway 53	Lavaque Road to Haines Road	18,800	2013
County Road 297/Stebner Road	North of U.S. Highway 53 to Duluth IAP	1,800	2011
Haines Road	U.S. Highway 53 to W. Arrowhead Road	10,300	2011
	W. Arrowhead Road to Swan Lake Road	9,600	2011
	Swan Lake Road to Airport Road	6,200	2011
Source: MNDOT 2013.			

3.9 Cultural Resources

3.9.1 Introduction

Cultural resources include archaeological and architectural sites that provide essential information to understand the prehistory and historical development of the United States. The primary law protecting cultural resources is the National Historic Preservation Act (NHPA) of 1966. Under Section 106 of the act, federal agencies must integrate consideration of historic preservation issues into their planning. The head of any federal agency having direct or indirect

jurisdiction over a proposed federal or federally-financed undertaking is required to account for the effects of this undertaking on any historic property, that is any district, site, building, structure, or object that is listed or eligible for listing in the National Register of Historic Places (National Register). As much as possible, adverse effects on these resources must be avoided, minimized, or mitigated in consultation with the State Historic Preservation Officer (SHPO) and other consulting parties, as appropriate. The Minnesota Historical Society is Minnesota's SHPO. In general, if under Section 106 an action would have an adverse effect on a historic property listed in or eligible for the National Register, this action would have an adverse impact under NEPA. An adverse effect that is mitigated in consultation with the SHPO and other parties, as appropriate, can generally be considered a non-significant impact under NEPA. The analysis provided in this EA is intended to address the requirements of both NEPA and Section 106.

The proposed action qualifies as an undertaking for the purposes of Section 106. The Area of Potential Effect for this undertaking consists of the 148 FW base. The following sections briefly describe historic properties in the Area of Potential Effect. Unless otherwise noted, the information in this section is drawn from the *Final Integrated Cultural Resources Management Plan for the 148th Fighter Wing/Minnesota Air National Guard at Duluth International Airport, Volume I of II* (MNANG & NGB 2012) and the *Cultural Resources Survey of the 148th Fighter Wing, Minnesota Air National Guard, Duluth International Airport, Duluth, St. Louis County, Minnesota, Volume 1 of 2* (ANGRC 2007).

3.9.2 Summary of Installation History

The ANG unit at Duluth was established as the 179th Fighter Squadron in September 1948. Construction of permanent facilities for the unit began in the vicinity of the existing 148 FW installation in the same year. Since then, the Duluth ANG unit has gone through a number of incarnations, including the 148th Fighter Group, the 148th Tactical Reconnaissance Group, and the 148th Fighter Interceptor Group, all the while fulfilling missions related to air defense, interception, reconnaissance and data collection. In 1951, the 179th Fighter Squadron was federalized for the Korean conflict and reinstated as an ANG unit the following year. Following designation as the 148th Fighter Group in the late 1950s/early 1960s, the unit became the first in the ANG to operate MB-1 Genie air-to-air missiles on the F-89 aircraft. The unit has operated as the 148 FW since 1995.

3.9.3 Archaeological Resources

The 148 FW installation has been heavily disturbed since its establishment in 1948 through the development of buildings, paved surfaces, and infrastructure. No archaeological sites were identified during an archaeological survey that was conducted on the installation in 2007, and the survey recommended no further archaeological work.

3.9.4 Architectural Resources

Forty-seven (47) built resources constructed prior to 1990, all of which are Cold War-era resources, were evaluated during the cultural resources survey that was conducted at the 148 FW installation in 2007. No historic districts were identified. Building 500, the alert hangar, and six built resources associated with the Weapons Checkout and Storage Facility (Buildings 520, 521, 522, 523, 524, and 525) were recommended eligible for listing in the NRHP. The other documented resources were recommended as not eligible.

Eight of the built resources evaluated as not eligible in 2007 (Buildings 120, 123, 125, 126, 311, 361, 362, and 519) have reached 50 years of age or will reach 50 within the five- to seven-year implementation period of the proposed action. In addition, six built resources constructed prior to 1990 (Buildings 310, 375, 380, 435, 460, and 461) were not evaluated during the 2007 survey and require evaluation. None of these facilities are involved with the proposed action.

Located along the flight line, Building 500 is a first-generation alert hangar designed by Strobel and Salzman for the Air Force. Constructed in 1952, the hangar has the standard form of a four-pocket air defense alert hangar, consisting of a steel frame bolted to a reinforced-concrete pad, corrugated metal sheathing, front and rear doors for each aircraft pocket, and a flat roof. The central portion of the building features two-story alert crew quarters. Building 500 was recommended eligible for listing in the NRHP under Criterion A for its association with the historically significant Cold War alert mission (MNANG & NGB 2012).

3.9.5 Traditional Cultural Resources

Federally-recognized Native American tribes with historic and cultural ties to the state of Minnesota include:

- Lower Sioux Indian Community in the State of Minnesota
- Prairie Island Indian Community in the State of Minnesota
- Shakopee Mdewakanton Sioux Community of Minnesota
- Upper Sioux Community
- Red Lake Nation
- Minnesota Chippewa Tribe (six component Bands):
    - Bois Forte Band of Chippewa Indians
    - Fond du Lac Band of Lake Superior Chippewa
    - Grand Portage of Lake Superior Chippewa
    - Leech Lake Band of Ojibwe
    - Mille Lacs Band of Ojibwe Indians
    - White Earth Band of Minnesota Chippewa

The 1999 Department of Defense *American Indian and Alaska Native Policy* recognizes the "importance of increasing understanding and addressing tribal concerns, past, present, and future" and states that "these concerns should be addressed prior to reaching decision on matters that may have the potential to significantly affect protected tribal resources, tribal rights, or Indian lands." Procedures for complying with this policy are set forth in Department of Defense Instruction (DoDI) 4710.02, *DoD Interactions with Federally-Recognized Tribes*. Based on this policy and DoDI 4710.02, all organizational entities with the Department of Defense must consult with tribes when its proposed actions may have the potential to significantly affect Indian lands, treaty rights, or other tribal interests protected by statute, regulation, or executive order.

No traditional cultural resources are known to exist within the boundaries of the 148 FW installation. As part of the agency coordination process for this EA, the ANG sent letters to the Native American tribes and component Bands listed above requesting information on any potential tribal interest that might be affected by the proposed action. A representative copy of the tribal consultation letter is included in Appendix A.

3.10 Hazardous Substances

3.10.1 Introduction

Hazardous materials are defined by 49 CFR 171.8 as "hazardous substances, hazardous wastes, marine pollutants, elevated temperature materials, materials designated as hazardous in the Hazardous Materials Table (49 CFR 172.101), and materials that meet the defining criteria for hazard classes and divisions" in 49 CFR 173. Transportation of hazardous materials is regulated by the US Department of Transportation regulations within 49 CFR Parts 105–180.

Hazardous wastes are defined by the Resource Conservation and Recovery Act (RCRA) at 42 USC §6903(5), as amended by the Hazardous and Solid Waste Amendments, as "a solid waste, or combination of solid wastes, which because of its quantity, concentration, or physical, chemical, or infectious characteristics may (a) cause, or significantly contribute to an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness; or (b) pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, or disposed of, or otherwise managed."

In addition to threatening human health and well-being, the improper release of or exposure to hazardous materials and wastes may also threaten wildlife, plants, fish, and their habitats, soil systems, and water resources. Localized conditions such as soil, topography, water resources, and climate may affect the extent of contamination from or exposure to hazardous substances.

Special hazards are those substances that might pose a risk to human health but are not regulated as contaminants under the hazardous wastes statutes. Special hazards include asbestos-containing material (ACM), lead-based paint (LBP), and polychlorinated biphenyls (PCB).

Air Force Policy Directive 32-70, *Environmental Quality*, and the AFI 32-7000 series incorporate the requirements of all federal regulations and other AFI and DoD Directives for the management of hazardous materials, hazardous wastes, and special hazards.

Unless otherwise noted, the following information is drawn from the *Final Environmental Baseline Survey, 148th Fighter Wing, Minnesota Air National Guard, Duluth International Airport, Duluth, Minnesota, September 2003* (148 FW 2003).

3.10.2 Hazardous Substances

3.10.2.1 Hazardous Materials

Activities that have historically required the use of hazardous materials at the 148 FW installation include:

- Aircraft fueling, defueling and deicing.
- Aircraft maintenance and repair.
- Aerospace ground equipment maintenance.
- Munitions supply and weapons maintenance.
- Vehicle maintenance and washing.
- Facilities maintenance and repair.

Hazardous materials used in these types of activities include fuels and lubricating oils, chlorinated solvents and other solvents/degreasers, paints and thinners, antifreeze and deicing compounds, and acids. Hazardous materials at the 148 FW installation are used, handled, stored, and managed in accordance with the procedures set forth in AFI 32-7086, *Hazardous Materials Management*. Procedures to prevent and manage accidental spills of petroleum and other hazardous substances on the installation are outlined in the 148 FW's *Oil and Hazardous Substances Spill Prevention and Response Plan*. The prevention, containment, and response to discharges of hazardous materials on the base are also governed by the 148 FW's *Hazardous Waste Management Plan*. Bulk hazardous materials (i.e., hazardous materials [HazMart] pharmacy) are stored in Building 241 prior to distribution throughout the installation.

3.10.2.2 Hazardous Wastes

Activities that require the use of hazardous materials, briefly summarized above, generally also generate hazardous wastes. Hazardous wastes generated on the base are managed in accordance with the procedures outlined in the installation's *Hazardous Waste Management Plan*, and other requirements established by AFI 32-7042 as applicable. The 148 FW installation is permitted by the USEPA as a small quantity generator of hazardous waste, meaning that the installation generates more than 100 kilograms but less than 1,000 kilograms of hazardous waste per month (148 FW 2003).

3.10.2.3 Pesticides

A variety of herbicides, insecticides, and rodenticides are used on the installation to control weeds and vegetation, pests, and vermin. Such substances are stored and mixed off base and applied as necessary by a licensed contractor. Some quantities of pesticides that are considered

war readiness materials are stored on the installation prior to the deployment of the units that use them; however, those substances are not mixed or applied on the base (148 FW 2003).

3.10.3 Storage Tanks and Oil/Water Separators

3.10.3.1 Above Ground Storage Tanks

More than 30 above-ground storage tanks (AST) are used on the 148 FW installation to store a range of products such as petroleum derivatives, propylene glycol and firefighting foam (DLAE & ANGRC 2010). This includes the tanks located at the POL facility on the north side of the main base. The 148 FW also operates five mobile refueling trucks (DLAE & ANGRC 2010).

3.10.3.2 Underground Storage Tanks

All regulated underground storage tanks (UST) formerly used for storing petroleum products have been removed from the 148 FW installation (DLAE & ANGRC 2010; 148 FW 2003). Contaminated soils associated with leaking tanks were excavated at the time of tank removal (148 FW 2003).

3.10.3.3 Oil/Water Separators

Ten active oil/water separators (OWS) are used on the 148 FW installation to prevent pollutants from entering the sanitary sewer or stormwater drainage systems on the base. All OWS are of steel double-wall construction, and all but one are located underground. The OWS located at the POL facility on the north side of the main base discharges to the installation's stormwater system; the remaining OWS discharge to the sanitary sewer system (DLAE & ANGRC 2010).

3.10.4 Asbestos Containing Materials and Lead-Based Paints

3.10.4.1 Asbestos Containing Materials

Asbestos is a group of naturally occurring minerals that separate into fibers. Asbestos that is capable of being crumbled, pulverized, or reduced to powder by hand pressure is described as "friable." Inhalation of asbestos fibers has been linked to cancer and other diseases in humans. Although highly regulated, most uses of asbestos are not banned, and the substance is found in many commonly-available products throughout the United States.

Asbestos is regulated by the USEPA (40 CFR Part 61, 40 CFR Part 763), the Occupational Safety and Health Administration (OSHA) (29 CFR 1926.58), the US Department of Transportation (49 CFR 171 and 172), and each state. Additionally, Air Force requirements for maintaining and removing asbestos have been established in AFI 32-1052, *Facility Asbestos Management*. These regulations govern the control of asbestos fiber emissions to protect the environment and public health.

An asbestos survey was conducted at the 148 FW installation in 1995. All but one of the facilities that would be affected by the proposed action were included in the survey. None were

found to contain asbestos. The facility affected by the proposed action not included in the survey is Building 520, located at the MSA (148 FW 2003).

3.10.4.2 Lead-Based Paints

The manufacture and use of LBP was banned in the United States in 1978. *Air Force Policy and Guidance on Lead-Based Paint in Facilities* (May 24, 1993), referenced in Air Force Handbook 32-9007 (May 1, 1999), requires ANG installations to identify, evaluate, control, and eliminate existing and past LBP hazards where potential LBP debris may have accumulated in the area surrounding facilities.

No surveys for LBP have been conducted at the 148 FW installation. Of the facilities that would be affected by the proposed action, Buildings 250 and 520 were identified in the 2003 environmental baseline survey prepared for the 148 FW as having the potential to contain LBP based on their year of construction (148 FW 2003).

3.10.5 Polychlorinated Biphenyls

Historically, PCBs were used in electrical equipment, primarily capacitors and transformers, because they are electrically nonconductive and stable at high temperatures. PCBs persist in the environment, accumulate in organisms, and concentrate in the food chain. The disposal of PCBs is regulated under the Toxic Substances Control Act, which banned their manufacture and distribution. By federal definition, PCB equipment contains 500 parts per million (ppm) or more of PCBs, whereas PCB-contaminated equipment contains PCB concentrations of more than 50 ppm but less than 500 ppm. USEPA regulates the removal and disposal of all sources of PCBs containing 50 ppm of PCBs or more.

All PCB-contaminated transformers on the 148 FW installation have been replaced with non-PCB transformers (148 FW 2003).

3.10.6 Environmental Restoration Program Sites

The DoD Environmental Restoration Program (ERP) was established to enable the cleanup of environmental contamination at DoD installations. Eligible ERP sites include those contaminated by past defense activities that require cleanup under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended by the Superfund Amendments and Reauthorization Act (SARA), and certain corrective actions required by RCRA. Non-ERP sites are remediated under the Compliance-Related Cleanup Program.

The 148 FW has undertaken responsibility for 15 ERP sites and two areas of concern (AOC) on the installation. Eleven of the ERP sites and both AOC have been closed and require no further action. Two of the remaining four sites are located outside the boundaries of the existing 148 FW installation and have no potential to affect or be affected by the proposed action. The other two sites are located within the boundaries of the main base. These sites are (148 FW 2003):

- **Site 21 (Imhoff Tank Treatment System):** A 60,000-gallon Imhoff tank built in the 1940s was taken out of operation in the 1970s and removed in 1997. Benzene, toluene, ethylbenzene, and xylenes (BTEX) and chlorinated solvents were detected at the site. Contaminated soils have been removed, and the groundwater plume, which has merged with the Site 25 plume (see below), runs atop a solid clay layer and eventually will hit high bedrock. Groundwater underlying the site is undergoing long-term monitoring.
- **Site 25 (Old Motor Pool Area):** Three USTs containing diesel, gasoline and solvents were formerly located on the site. Leaks from the tanks were discovered upon their removal in 1995. Contaminated soils were excavated. BTEX and chlorinated solvents were detected in the groundwater, and the plume has merged with the plume from Site 21 (see above). Groundwater underlying the site is undergoing long-term monitoring.

As shown on Figure 3.10-1, these ERP sites underlie all or portions of the sites of Projects 8, 16 and 17.

In addition to these sites, two former small arms firing ranges are located on the base and airport. The site of a former trap range (site TS737) is located outside the base boundary and would not be affected by the proposed action. However, the skeet range (site TS 738) is located on the eastern side of the 148 FW base and underlies all or portions of the footprints of Projects 1, 11, 15, 16 and 17, as shown on Figure 3.10-1. The skeet range covers approximately 15.3 acres and was used by the ANG from 1960 to 1970 for training with shotguns. Thus, the primary environmental concern at this site is the contamination of surface soil and sediment with lead and other metals associated with shotgun ammunition.

The ANG has prepared a Draft Final Feasibility Study (ANG 2015) to determine the appropriate methods for remediating contamination at the trap range and skeet range sites. It is the goal of the ANG to achieve contaminant reduction at the sites such that the land has unrestricted use/unrestricted exposure. To provide for an unrestricted land use scenario at each site, Preliminary Remediation Goals (PRG) for the protection of human health at the sites were based on the MPCA's Site Remediation Section Tier 1 (Screening) soil reference values as published in the *Draft Guidelines Risk-Based Guidance for the Soil – Human Pathway, Volume 2, Technical Support Document*. In calculating the soil reference values, an unrestricted residential exposure scenario to contaminants is considered by MPCA.

The human health PRG for contaminants of concern at the skeet range as well as maximum detected concentrations in surface soil are presented in Table 3.10-1.

Table 3.10-1: Skeet Range Preliminary Remediation Goals

Contaminant of Concern	Maximum Value Detected[1]	Human Health PRG[1]
Lead	13,000	400
Arsenic	(below detection levels)	10
Antimony	259	14

1. All values are milligrams per kilogram (mg/kg).
Source: ANG 2015

Exceedances of lead and antimony were detected in a total of three soil samples collected in the densely-wooded area east of Building 250 and north of Building 252 (Figure 3.10-1). None of the contaminants were detected deeper than two feet below ground surface. Four alternatives for remediating the contamination were presented in the *Draft Final Feasibility Study* (ANG 2015):

- **Alternative 1 – No Action:** The sites would not be remediated and existing conditions would continue.

- **Alternative 2 – Land Use Controls:** Engineering and institutional controls, including but not limited to signage and fencing, would be placed around the site to restrict access and minimize the potential for human exposure to impacted soil.

- **Alternative 3 – Excavation with Off-site Disposal:** Excavation would be conducted to a depth of two feet below ground surface in three areas totaling approximately 0.1 acres where exceedances of the human health PRG shown in Table 3.10-1 were detected within the wooded area east of Building 250 (Figure 3.10-1). Impacted soils would be disposed of at an off-base facility operating in compliance with RCRA requirements, and/or other applicable federal or state requirements.

- **Alternative 4 – Containment with Permeable Soil Cover:** A thin layer of clean fill consisting primarily of permeable sand (maximum thickness of six inches) would be placed on top of the areas where surface soil lead concentrations exceed the human health PRG. Following the completion of this alternative, inspections to monitor the integrity of the cap would be conducted annually.

To date, the ANG has not selected an alternative for implementation to remediate the trap range and skeet range sites. None of the projects included in the proposed action would be implemented within the area east of Building 250 and north of Building 252 where the exceedances of the human health PRG were detected.

ERP Sites

Figure 3.10-1

Source: Duluth ANG CIP 2013; ESRI Data & Maps 2006.

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4. Environmental Consequences

This chapter provides an assessment of the potential environmental impacts that would result from implementing the alternatives considered in the EA. It is organized similarly to Chapter 3.

4.1 Safety

Adverse impacts on safety would occur if the implementation of an alternative resulted in conditions likely to increase the risk of accidents or injury to persons. Adverse impacts on security would occur if the proposed action compromised measures designed to prevent attacks on persons or facilities.

4.1.1 No Action Alternative

4.1.1.1 Impacts

Under the No Action Alternative, existing conditions on the 148 FW base would continue. This would have long-term impacts on safety for the following reasons: the secondary gate would continue to lack required AT/FP facilities and approximately 200 parking spaces for non-organizational vehicles on the base would continue to be non-AT/FP compliant. However, while these impacts would be adverse, they would remain manageable, as they currently are. Therefore, the long-term adverse impacts on safety resulting from the No Action Alternative would not be significant.

4.1.1.2 Best Management Practices and Minimization Measures

Under the No Action Alternative, 148 FW personnel would continue to follow established safety and security procedures to minimize adverse effects on safety.

4.1.2 Proposed Action Alternative

4.1.2.1 Impacts

Implementation of the Proposed Action Alternative would have no adverse effects on safety on or in the vicinity of the 148 FW base. Construction sites would be fenced and only accessible to workers and other persons with a need to be there. Thus, any risks to the safety of workers and passers-by would be minimized and no unusual risks would be created.

The Proposed Action Alternative would have no long-term adverse impacts on airfield safety, as none of the proposed facilities would be built within the CZ, APZ I, or APZ II associated with

the base's runways and no violations of the Part 77 surfaces would occur. The proposed projects would be reviewed to ensure their compliance with the DoD BASH program and minimize the potential for conflicts between aircraft between birds or other wildlife. Thus, the proposed action would have no adverse impacts on the safety of pilots, crew members, passengers, cargo and aircraft.

The design and construction of all new or renovated facilities, as well as the reconfiguration of non-organizational vehicle parking areas would comply with the requirements set forth in UFC 4-010-01, as applicable. This would have a positive impact on AT/FP requirements.

Project 9 would be built within the QD arc on the south-central side of the main base; however, it would not be a permanently-occupied facility and would constitute a light-industrial use that would not be incompatible with the explosives storage facility with which the QD arc is associated. Thus, there would be no long-term adverse impacts on explosives safety.

4.1.2.2 Best Management Practices and Minimization Measures

Under the Proposed Action Alternative, safety practices during the construction phase of each project would be in accordance with relevant regulations established by the ANG, OSHA, and other federal and state agencies. All new or renovated facilities and reconfigured parking areas would be designed and built in accordance with the requirements set forth in UFC 4-010-01, as applicable. All of the proposed projects would be reviewed to ensure their compliance with the policies of the DoD BASH program. New facilities built and operated in QD arcs would be compliant with all regulations and procedures associated with such areas.

4.2 Air Quality

Impacts on air quality may occur if implementation of a proposed action would result in a measurable change in the amount or type of air pollutants released into the air in the short or the long term.

4.2.1 No Action Alternative

4.2.1.1 Impacts

Under the No Action Alternative, existing conditions would continue. This would have no impact on air quality.

4.2.1.2 Best Management Practices and Minimization Measures

No special BMP or minimization measures would be required for air quality under the No Action Alternative.

4.2.2 Proposed Action Alternative

4.2.2.1 Impacts

The construction and infrastructure projects included in the Proposed Action Alternative can be expected to cause the following short-term adverse air quality impacts:

- Fugitive dust would be generated by construction, demolition, and renovation activities.
- Emissions of CO, VOC and NO_x (precursors of O_3), and particulate matter ($PM_{2.5}$ and it precursor SO_2 and PM_{10}) would result from such activities as:
    - Use of diesel-powered construction equipment.
    - Construction workers' vehicles traveling to and from the project sites.

Short-term construction-related impacts from emissions of fugitive dust would be minimized through the use of standard BMPs (see further discussion in Section 4.2.2.2 below). In addition, the construction-related emissions would be distributed over a period of five to seven years, further minimizing impacts. Based on the small to medium size of the proposed projects, the proposed action is not anticipated to significantly affect regional air quality.

In the long term, the net increase in built space would generate some additional emissions of criteria pollutants, hazardous air pollutants, and GHG. However, these emissions would be partly or wholly offset by the proposed demolitions and the use of newer, more efficient systems in the new facilities.

Quantitative estimates of the anticipated new emissions are presented in Table 4.2-1. For both construction and operational emissions, the net increase is compared to the *de minimis* thresholds when applicable. Operational emissions are compared both to the applicable *de minimis* and to the existing St. Louis County emissions inventory. Refer to Appendix B for a description of the methodology used to develop these estimates.

4.2.2.2 Best Management Practices and Minimization Measures

Under the Proposed Action Alternative, short-term construction-related air quality impacts from emissions of fugitive dust would be minimized through the application of water to paved surfaces and/or disturbed soils; the vegetating of soils that would be exposed for extended periods; and other standard BMP.

4.2.3 General Conformity Rule Applicability

Based on the analysis of anticipated CO emissions performed consistent with the *Final Rule of Determining Conformity of Federal Actions to State or Federal Implementation Plans* (USEPA, November 30, 1993 and March 24, 2010), no exceedance of the applicable *de minimis* threshold of 100 tons per year would occur from either construction activities or the operation of the new facilities (see Table 4.2-1 and Appendix B). The proposed action would have minimal air quality impacts and would not require a formal conformity determination.

Table 4.2-1: Estimated Increases in Emissions[1]

	VOC	NO_X	CO	$PM_{2.5}$	PM_{10}	SO_2	HAP	CO_2[2]
Worst Year Construction Emissions								
Proposed Action	0.30	2.27	6.00	0.15	0.21	0.04	0.58	445.80
De minimis	NA	NA	100	NA	NA	NA	NA	NA
Annual Operations Emissions								
St. Louis County	104,281	31,754	78,146	8,679	18,821	6,656	NA	NA
Proposed Action	0.03	0.48	0.40	0.04	0.04	0.00	0.01	522.47
Net percent increase over St. Louis County emissions inventory	0.0000	0.0002	0.0005	0.0005	0.0000	0.0000	NA	NA
De minimis	NA	NA	100	NA	NA	NA	NA	NA

Notes:
1. All emissions in tons except where noted.
2. Metric Tons

Source: www.epa.gov/air/emissions/index.htm

4.2.4 Attainment Criteria Pollutants and HAP

4.2.4.1 Impacts

There are no established *de minimis* levels for those criteria pollutants for which the project area is in attainment or for HAP. Instead, this EA follows AFI 32-7040 (June 8, 2011) procedures and compares anticipated emissions with the available 2011 regional (i.e., St. Louis County) emissions inventory for the purpose of informing decision makers and the public of the relative air quality impacts from the proposed action.

As can be seen in Table 4.2-1, the anticipated, conservatively-estimated increases in attainment criteria pollutants are negligible fractions of the regional emissions inventory, with emissions of NO_x being the largest, at about 0.002% of the regional emissions. Emissions of HAP would also be very small.

4.2.4.2 Best Management Practices and Minimization Measures

No BMP or minimization measures would be required for attainment criteria pollutants and HAP under the Proposed Action Alternative.

4.2.6 Greenhouse Gas Emissions

4.2.6.1 Impacts

The change in climate conditions caused by GHG emissions is a global effect and, as such, requires that these emissions be assessed on a global scale. Therefore, the project-level emissions modeled for this EA are provided for the purpose of disclosure of localized incremental emissions, with no bearing on the issue of global climate change. As shown in Table 4.2-1, anticipated emissions of CO_2 are well below the CEQ meaningful assessment threshold of 25,000 metric tons per year.

4.2.6.2 Best Management Practices and Minimization Measures

No BMP or minimization measures would be required for GHG emissions under the Proposed Action Alternative.

4.2.7 Conclusion

Considered collectively, the projects comprising the proposed action would result in emissions that do not exceed the *de minimis* thresholds applicable to the criteria pollutant (CO) for which the project area is in maintenance; would constitute only a negligible fraction of the 2011 regional emissions for the other criteria pollutants; emissions of HAP would be very small; and CO_2 emissions would not be such as to have a meaningful effect on global climate change. For these reasons, short- and long-term adverse impacts on air quality would be minor and non-significant.

Emissions were not modeled for each individual project. However, by definition, each project would result in emissions that are less, often substantially less, than the overall emissions associated with the proposed action. Therefore, project-level impacts would range from negligible to minor and would be non-significant.

4.3 Noise

Adverse noise impacts may occur if the implementation of a proposed action creates a new source of ambient noise, increases the volume or frequency of occurrence of an existing noise, or creates a noise-sensitive use in a high-noise location.

4.3.1 No Action Alternative

4.3.1.1 Impacts

Under the No Action Alternative, existing conditions would continue. This would have no impact on ambient noise on or in the vicinity of the 148 FW base or Duluth IAP.

4.3.1.2 Best Management Practices and Minimization Measures

No BMP or minimization measures would be required for noise under the No Action Alternative.

4.3.2 Proposed Action Alternative

4.3.2.1 Impacts

In the short term, the Proposed Action Alternative would have adverse impacts on ambient noise on and in the vicinity of the 148 FW base as a result of construction, demolition and renovation activities associated with the projects. Additional construction-related traffic, such as construction workers' commuting vehicles and delivery trucks, would also contribute to adverse short-term noise impacts, particularly in residential areas on or adjacent to roads leading to the base. However, the intensity of these impacts would vary throughout the construction phase of each project, and would be further minimized by the implementation of the projects over a period of five to seven years. Adverse impacts from construction-related noise would also be attenuated by the substantial distances (greater than 1,000 feet) between the project sites and the nearest residences to the 148 FW base and Duluth IAP, and would generally be negligible in the context of noise produced by routine aircraft operations occurring at the airport and ANG base. Therefore, short-term impacts would be non-significant.

Project 9 would create a new source of noise on the base. However, use of the range would be limited to daytime hours, would be temporary and intermittent throughout the week, and thus would not create a continuous source of noise. The nearest residential area is located approximately one mile from the project site and separated by a forested area that would screen and attenuate noise from the small arms range. The nearest sensitive receptor identified in the 2005 study, the Sunrise Memorial Cemetery, is located about 2.5 miles from the project site. Based on the range's anticipated frequency of use and these distances, operation of the range is not anticipated to result in significant adverse noise impacts.

The proposed action does not involve any change to aircraft operations by the 148 FW or Duluth IAP. Therefore, no change to aircraft noise conditions would occur.

4.3.2.2 Best Management Practices and Minimization Measures

No BMP or minimization measures for noise would be required under the Proposed Action Alternative.

4.4 Land Use and Coastal Zone Management

Adverse impacts on land use occur when a proposed action would create land use incompatibilities, for instance by constructing a heavy industrial facility near a residential area; or when a project would disrupt operations between facilities that share a functional relationship.

4.4.1 No Action Alternative

4.4.1.1 Impacts

Existing conditions on the 148 FW base would continue under the No Action Alternative. This would have a long-term impact on land use because it would fail to consolidate functions that are scattered in multiple facilities throughout the base, thereby prolonging inefficient spatial relationships. While this impact would be adverse, it would remain manageable and would not substantially degrade the routine operations of the base. Thus, long-term adverse effects on land use resulting from the No Action Alternative would not be significant.

4.4.1.2 Best Management Practices and Minimization Measures

No BMP or minimization measures would be required for land use under the No Action Alternative.

4.4.2 Proposed Action Alternative

4.4.2.1 Impacts

Implementation of the proposed action over the next five to seven years would temporarily turn some areas of the 148 FW base into construction sites, with potential adverse effects (e.g., from noise or dust) on nearby land uses from most of the proposed projects. Generally, the projects included in the proposed action and their attendant construction-related effects would be similar to other small- to medium-sized construction projects. Any construction-related effects resulting from them would be temporary, and would be further attenuated by the implementation of the projects over a five- to seven-year period. No adjacent or nearby existing facilities would become unusable because of construction activities. Thus, short-term adverse effects on land use would be negligible or minor.

In the long term, Projects 7, 9 and 12 would result in land use changes on their respective sites. Operationally, Project 7 would be consistent with existing aircraft and engine maintenance functions on the main base, and would be fully integrated with the maintenance processes those facilities support. Although Project 9 and Project 12 represent new functions, their operations would be consistent with other light-industrial uses already present on the installation. All three projects would be consistent with underlying and nearby land uses and none would prevent, inhibit or degrade the operation of adjacent or nearby land uses. Generally, all three facilities would support the operations of the 148 FW and would be consistent with similar maintenance and light-industrial activities and functions occurring on the main base and at Duluth IAP.

Overall, the implementation of the Proposed Action Alternative would reorganize functions such as civil engineering, jet engine maintenance and LRS that are currently scattered in multiple facilities throughout the base, thereby optimizing spatial and functional relationships. For these reasons, the proposed action would have no adverse and some positive long-term impacts on land use on the 148 FW base.

4.4.2.2 Best Management Practices and Minimization Measures

No BMP or minimization measures for land use would be required under the Proposed Action Alternative.

4.4.2.3 Coastal Zone Management

An evaluation of the consistency of the proposed action with the enforceable policies of Minnesota's Lake Superior Coastal Program (MLSCP) is presented in Appendix C. Based on this analysis, the ANG has determined that proposed action is consistent to the maximum extent practicable with MLSCP.

The federal consistency determination was submitted to MLSCP for review along with the Draft EA. No response to the federal consistency determination from MLSCP was received by the ANG; thus, in accordance with 15 CFR 930.41, the MLSCP's concurrence with the consistency of the proposed action is presumed.

4.5 Geological Resources

Adverse impacts on geological resources may occur if the implementation of a proposed action causes increased soil erosion; alters or destroys unique or noteworthy topographic features; or requires drilling, boring, excavation, grading, filling, or blasting.

4.5.1 No Action Alternative

4.5.1.1 Impacts

The No Action Alternative would represent the continuation of existing conditions on the 148 FW base. This would have no adverse impacts on geological resources.

4.5.1.2 Best Management Practices and Minimization Measures

No BMP or minimization measures would be required under the No Action Alternative for geological resources.

4.5.2 Proposed Action Alternative

4.5.2.1 Geology

Impacts

None of the projects included in the proposed action would involve blasting. Although some or all of the projects involving the construction of new facilities or additions to existing facilities may require the driving of foundation support piles, it is not anticipated that such piles would

penetrate geologic strata underlying the 148 FW base. Therefore, the proposed action would have no adverse impacts on geologic resources.

Best Management Practices and Minimization Measures

No BMP or minimization measures would be required for geological resources under the Proposed Action Alternative.

4.5.2.2 Topography

Impacts

Other than minor grading to prepare sites for construction, none of the proposed projects would involve the substantial alteration of topographic features on the installation and no unique or noteworthy topographic features would be altered or destroyed. None of the proposed projects would involve topographic alteration as part of their operational phase. Thus, the proposed action would have negligible, non-significant short-term adverse impacts on topography, and no long-term impacts.

Best Management Practices and Minimization Measures

No BMP or minimization measures would be required under the Proposed Action Alternative for topography.

4.5.2.3 Soils

Impacts

Construction activities associated with the proposed action, e.g., site preparation and grading, demolition of pavement and facilities, vegetation clearing, and the construction of new facilities, would disturb existing soils and alter soil layer structure. It can be estimated that up to 332,774 square feet (7.6 acres) or 73,950 cubic yards of soils would be disturbed through these activities. Volume was estimated based on an average depth of disturbance of 6 feet.

Potential short-term impacts on soils resulting from construction-related disturbances would primarily consist of increased erosion risk from the effects of water or wind. For projects disturbing one or more acres, adherence to BMP requirements set forth in the Construction Stormwater General Permit (General Permit) issued under Minnesota's NPDES program and construction SWPPP would ensure that adverse construction-related impacts on soils remain minor (see further discussion under "Best Management Practices and Minimization Measures" below). The implementation of the proposed projects over a period of five to seven years would further minimize short-term soil impacts. These impacts would not be significant.

In the long term, impervious areas on the 148 FW base would increase by up to approximately 79,620 square feet (1.8 acres) as a result of the proposed action. While this would have an adverse impact on soil permeability on the base, it would be negligible in the context of the mostly-rural and largely permeable geographic area (i.e., St. Louis County) surrounding the base and airport. The site of Project 10 is underlain by soils identified as Farmland of Statewide

Importance. However, this would have a negligible impact for the following reasons: those soils are not currently used for agricultural purposes, and they are unlikely to be used for such purposes in the future given their location on a military installation. Also, it is likely that the soils underlying those sites have been disturbed to the extent that many if not all of the characteristics marking them as Farmland of Statewide Importance are substantially degraded or no longer present. For these reasons, and through adherence to BMP and minimization measures described below, long-term adverse impacts on soils would be negligible and non-significant.

Estimates of construction-related soil disturbance and increases in impervious surface are presented in Table 4.5-1. Based on these estimates, Projects 9, 16, and 17 would have to obtain coverage under the General Permit and prepare a construction SWPPP.

Best Management Practices and Minimization Measures

Soils disturbed during grading and excavation activities would be stockpiled on the project site until needed for backfilling or other applications associated with the project. Silt fences would be used for the smaller construction projects in mostly level areas to minimize the quantity of sediment in stormwater runoff from the project sites. Excess soils not reused onsite would be disposed of in accordance with applicable federal, state, local, and ANG regulations and guidance.

For each project disturbing one or more acres (Projects 9, 16 and 17 based on estimates presented in Table 4.5-1), the ANG would obtain coverage under the Construction Stormwater General Permit (General Permit) of the Minnesota's NPDES Permit Program (a copy of Minnesota's General Permit is included in Appendix D). The General Permit requires the preparation of a construction SWPPP, which specifies BMP to minimize soil erosion and subsequent sediment runoff and pollution of downstream watercourses. Such BMP could include sediment basins, sediment traps, gravel filter berms and/or other measures. To minimize fugitive dust, water would be periodically applied to paved surfaces and exposed soils, and/or soils that would be exposed for extended periods would be vegetated.

Soils characterized as limited for development (see Table 3.5-1) would be evaluated prior to the implementation of each project, as appropriate, and would supplemented with fill soils suitable to support each project as necessary. Undeveloped surfaces (i.e., those not paved or built on) at each project site would be vegetated, eliminating the risk of long-term erosion.

Table 4.5-1: Summary of Soils Impacts

Project Number	Project	Project Footprint (acres)	Associated Earth Disturbance (acres)	Associated Earth Disturbance (cubic yards)	Existing Impervious Surface (acres)	New Impervious Surface (acres)	Comments
Construction Projects							
1	Renovate and Modify Building 250	0.3	0.3	2,778	0.1	0.1	Existing impervious surfaces consist of sidewalks and paved patio area.
2	Construct Addition to Building 280	0.1	0.1	953	0.1	0.03	Project site is almost entirely paved except for an earthen berm approximately 1,100 square feet in area vegetated with maintained lawn.
3	Construct Hydrazine Facility	0.02	0.1	778	0.0	0.02	Project site consists of maintained lawn.
4	Expand and Renovate Building 222 and Construct DRMO Yard	0.2	0.4	3,625	0.02	0.2	Project site is mostly vegetated with maintained lawn and includes an approximately 800-square-foot segment of an asphalt-paved driveway.
5 (Option A or B)	Demolish Aircraft Shelters 497, 498, 499 and Construct New Aircraft Shelter	0.5	0.0	0	0.5	0.0	Assumes addition would be built directly on existing concrete slab and no disturbance of underlying soils would occur.
6A	Construct Ground Vehicle Fueling Station and Demolish Existing Fueling Station	0.03	0.03	289	0.03	0.0	This option would be built in an area that is entirely paved.
6B		0.1	0.1	1,000	0.0	0.1	This option would be built in an area that is vegetated with maintained lawn.
7	Construct New PMEL Facility and Demolish Existing PMEL Facility	0.4	0.5	5,076	0.1	0.3	Facility would be partially built on the slab of Building 270 (Hush House) and require the pouring of an additional slab up to 12,000 square feet. It is assumed that the site of the existing PMEL facility would be maintained in an impermeable condition following demolition of that facility.
8A	Construct Mail Facility	0.01	0.03	267	0.01	0.0	This option would be built as a free-standing structure; site is entirely paved with asphalt.
8B		0.01	0.02	222	0.01	0.0	This option would be built as an addition to an existing facility; site is entirely paved with asphalt.
9	Construct Small Arms Range	1.0	1.0	10,000	0.5	-0.3	Site consists of maintained lawn/landscaping vegetation and approximately 0.5 acre of compacted soils/gravel/miscellaneous asphalt. Construction of proposed facility would result in a net decrease in impervious surface on the site.
10	Construct Addition to Building 223	0.1	0.1	1,133	0.0	0.1	Project site consists of maintained lawn and landscape vegetation.

Project Number	Project	Project Footprint (acres)	Associated Earth Disturbance (acres)	Associated Earth Disturbance (cubic yards)	Existing Impervious Surface (acres)	New Impervious Surface (acres)	Comments
11	Construct Addition to Building 252 and Relocate Security Forces from Building 255	0.1	0.2	2,345	0.02	0.1	Site is almost entirely paved with exception of small area of maintained lawn/landscape vegetation.
12	Construct Recycling Facility	0.04	0.1	1,311	0.0	0.04	Site consists of maintained lawn.
Infrastructure							
13	Demolish Building 224, LOX Storage and Relocate Building 270, Hush House	0.2	0.3	3,156	0.1	0.2	Building 270 would be erected on existing concrete slab underlying Building 224 and would require the pouring of an additional 7,100-square-foot slab.
14	Construct Secondary Access/Industrial Gate	0.8	0.8	8,000	0.3	0.5	Project site consists of maintained vegetation and approximately 0.3 acre of compacted soils/gravel/miscellaneous asphalt.
15	Complete Pedestrian Sidewalk Network	0.8	0.8	7,605	0.8	0.8	Proposed sidewalks would be built in areas consisting of maintained lawn and landscape vegetation.
16	Improve On-base Road Network	1.0	1.7	15,982	0.6	-0.2	The conversion of paved areas southwest of Building 252 to a permeable condition following the realignment of Bulldog Boulevard would offset increases in impervious surface resulting from this project.
17	Demolish Buildings 231, 238 and Expand AT/FP-compliant Non-organizational Vehicle Parking	0.8	1.0	9,336	1.0	0.0	Project site is entirely paved or otherwise developed with buildings; project would not result in a net increase in impervious surface.
Total – Projects 1-5, 7, 9-17		6.2	7.4	72,078	4.2	1.7	
Total – With Project 8A		6.2	7.5	72,344	4.2	1.7	
Total – With Projects 8A and 6B		6.3	7.6	73,344	4.2	1.8	

4.6 Water Resources

Impacts on water resources may result from activities in and adjacent to a body of water that alter its physical or chemical properties, such as dredging, in-water construction, or release of pollutants into the water column. Also considered in this section are potential impacts on groundwater (which may result from the release of pollutants, change in the topography of an area, or use for watering or other activities); floodplains (constructing in the floodplain may alter floodways and flood levels); and stormwater management.

4.6.1 No Action Alternative

4.6.1.1 Impacts

Existing conditions would continue under the No Action Alternative. This would have no impact on water resources on or in the vicinity of the 148 FW base.

4.6.1.2 Best Management Practices and Minimization Measures

No BMP or minimization measures would be required under the No Action Alternative for water resources.

4.6.2 Proposed Action Alternative

4.6.2.1 Surface Water

Impacts

In the short term, water quality in downstream watercourses could be adversely affected because of increased, construction-related soil erosion. This includes Miller Creek, which is designated as Special Waters and Impaired Waters by the State of Minnesota. Adherence to the BMP and minimization measure described below would ensure that adverse short-term impacts on water resources remain minor and non-significant.

None of the proposed projects involve construction on, in, or over bodies of surface water; channel alteration; or the filling of surface water bodies. In addition, none of the project sites are located adjacent to bodies of surface water. Thus, the Proposed Action Alternative would have no direct long-term impacts on surface water. (Indirect impacts from increased stormwater runoff are addressed in Section 4.6.2.4.)

Best Management Practices and Minimization Measures

During construction activities, the ANG would implement BMPs such as silt fences and storm drain dams to minimize impacts on surface water in accordance with the General Permit and SWPPP for each project disturbing one or more acres. To minimize potential impacts on Miller

Creek, the ANG would also incorporate TMDL requirements for construction stormwater into the project SWPPP, as applicable.

No long-term BMP or minimization measures for surface water would be required under the Proposed Action Alternative.

4.6.2.2 Groundwater

Impacts

None of the proposed projects would require the installation of new wells or cause increased withdrawals of groundwater from existing wells. Thus, the proposed action would have no short-term adverse effects on groundwater. The anticipated net increase in impervious surface resulting from the implementation of the proposed projects would have a long-term adverse impact on groundwater recharge in the vicinity of the 148 FW base. However, in the context of the larger, mostly-rural and largely-permeable geographic area (i.e., St. Louis County) surrounding the base, this indirect impact would be negligible and not significant.

Best Management Practices and Minimization Measures

During construction activities associated with the Proposed Action, care would be taken to avoid any groundwater monitoring wells associated with the ongoing remediation of ERP sites. No long-term BMP or minimization measures would be required under the Proposed Action Alternative for groundwater.

4.6.2.3 Floodplains

Impacts

The Proposed Action Alternative would have no effects on 100-year floodplains because none of the proposed projects would occur within a floodplain.

Best Management Practices and Minimization Measures

No BMP or minimization measures for floodplains would be required under the Proposed Action Alternative.

4.6.2.4 Stormwater

Impacts

In the short term, construction-related erosion could increase sedimentation and compromise water quality in on-base drainages and off-base watercourses such as Miller Creek. Adherence to BMP and minimization measures discussed below would minimize such impacts. While adverse impacts from construction-related runoff cannot be entirely eliminated, they would remain minor and non-significant.

The proposed action would result in long-term changes in the amount of impervious surface on the base. Estimated net changes are presented in Table 4.5-1 for the relevant projects and the proposed action as a whole. Altogether, up to approximately 1.8 acres of new impervious surface would be created, with a corresponding potential increase in the stormwater runoff generated on the base.

Although an overall increase in the amount of stormwater runoff corresponding to an increase in impervious surface at the base is unavoidable, adherence to the requirements of Section 438 of the Energy Independence and Security Act (EISA) and the 148 FW's base-wide SWPPP would ensure that the implementation of the Proposed Action Alternative does not result in more than minor, non-significant adverse effects on water quality in the bodies of water draining the base, including Miller Creek.

Best Management Practices and Minimization Measures

Projects involving ground-disturbing activities would be subject to applicable requirements for the preparation of a SWPPP under Minnesota's NPDES program (see Section 4.5.2.3 for additional discussion). The SWPPP would specify BMP to be used to minimize soil erosion, resulting in minimal pollution and sedimentation of downstream watercourses. Generally, appropriate BMP would be used to minimize erosion for all earth-disturbing projects (see examples in Section 6.2). As applicable, the SWPPP for each project would also incorporate TMDL for Miller Creek to minimize the runoff of pollutants from each project site.

In accordance with Section 438 of the EISA, projects with a footprint of 5,000 square feet or greater would incorporate, to the maximum extent technically feasible, low impact development (LID) techniques to maintain the pre-development hydrology of the site. In addition, the 148 FW would continue to update and comply with its base-wide SWPPP as conditions on the installation warrant.

4.7 Biological Resources

Adverse impacts on biological resources may occur when animals or plants are destroyed or displaced as a result of the proposed action, or when existing habitat is destroyed or sufficiently altered to stop supporting the species using it.

4.7.1 No Action Alternative

4.7.1.1 Impacts

Under the No Action Alternative, existing conditions on the 148 FW base would continue. This would have no impact on biological resources.

4.7.1.2 Best Management Practices and Minimization Measures

No BMP or minimization measures for biological resources would be required under the No Action Alternative.

4.7.2 Proposed Action Alternative

4.7.2.1 Vegetation

Impacts

The majority of the proposed projects would be built on paved or previously-developed areas on the 148 FW base. Vegetation clearing would be minimal and would consist of maintained lawn and/or landscape vegetation. No vegetation providing unique or valuable wildlife habitat would be lost. Thus, short-term and long-term adverse impacts on vegetation on the 148 FW base would be negligible and non-significant.

Best Management Practices and Minimization Measures

No BMP or minimization measures would be required for vegetation under the Proposed Action Alternative.

4.7.2.2 Wetlands

Impacts

None of the proposed projects would be sited within or require the filling of areas suspected of being wetlands on the 148 FW base. Thus, the Proposed Action Alternative would have no impacts on wetlands on or in the vicinity of the 148 FW base.

Best Management Practices and Minimization Measures

Adherence to the erosion control measures described in Section 4.5.2.3 would minimize the risk of indirect short-term impacts on wetlands from erosion.

4.7.2.3 Wildlife

Impacts

The majority of the proposed projects would be implemented in areas of the 148 FW base that are largely developed—i.e., paved and/or containing structures—and devoid of natural habitat. At most, some small areas of maintained lawn and landscaping shrubs or trees would be disturbed. No natural or sensitive ecological communities are present. The existing vegetation is unlikely to provide habitat for species other than those that are capable of living in highly disturbed, urbanized environments and in close proximity to human activity. Clearing of vegetation on the project sites would likely disturb and displace some individual animals. Many

would probably return to the area upon the completion of construction activities. Therefore, adverse effects would be minor and non-significant.

Best Management Practices and Minimization Measures

No BMP or minimization measures would be required under the Proposed Action Alternative for wildlife.

4.7.2.4 Threatened and Endangered Species

Impacts

As stated in Section 3.7.4, USFWS has no known records of federally listed or proposed species and/or designated or proposed species or proposed critical habitat with the project area on the 148 FW installation (JaKa, 2015). Copies of the coordination letter and the USFWS response are included in Appendix A. The project sites are generally developed and contain no or minimal habitat potentially suitable to support threatened or endangered species. None of the proposed projects would require clearing forested parcels or other habitat potentially used for roosting, foraging, or hibernating by the northern long-eared bat. Although the installation is within the large Critical Habitat area of the Canada lynx, the project area contains no habitat usable by this species. Based on these considerations and those in Section 4.7.2.3, no adverse effects on federally listed threatened and endangered species and critical habitat are anticipated.

Best Management Practices and Minimization Measures

BMP or minimization measures would not be required for threatened and endangered species under the Proposed Action Alternative.

4.7.2.5 Migratory Bird Treaty Act and Bald and Golden Eagle Protection Act

Impacts

As explained in Section 4.7.2.1, the Proposed Action Alternative would not result in the clearing of any vegetation or habitat that is particularly valuable or attractive to birds protected under the Migratory Bird Treaty Act or Bald and Golden Eagle Protection Act. In particular, no bald eagle nests or foraging habitat occur on the 148 FW base. Although noise and traffic generated by construction activities could cause annoyance to individual specimens and potentially disrupt the foraging, nesting, or breeding habits of those individuals, any such effects would be localized and temporary; the 148 FW base would return to a pre-construction condition following the completion of the proposed projects. The implementation of the proposed action over a period of five to seven years would further minimize these impacts. In the long term, the noise generated by the proposed small arms range could also disturb individual birds but such disturbance, which would be intermittent and temporary, is not likely to have a significant impact on the survival of the affected birds, let alone the species.

Additionally, with respect to both short- and long-term impacts, it should be noted that, consistent with the goals of the BASH program, activities that keep birds away from airport property can be considered to have a positive impact since they reduce the risk of conflicts with

aircraft, conflicts that are generally lethal to birds. Thus, short-term and long-term impacts on the bird species protected under the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act would not be significant.

Best Management Practices and Minimization Measures

Under the Proposed Action Alternative, no BMP or minimization measures would be required for species protected by the Migratory Bird Treaty Act and Bald and Golden Eagle Protection Act.

4.8 Transportation and Circulation

Impacts on transportation and circulation may occur if the implementation of an alternative creates new demand for transportation facilities, exceeds existing capacity, or contributes to the deterioration of existing transportation facilities.

4.8.1 No Action Alternative

4.8.1.1 Impacts

Under the No Action Alternative, existing conditions on the 148 FW base would continue. This would have a long-term impact on non-organizational parking, because approximately 200 spaces would continue to be non-AT/FP compliant. While this impact would be adverse, it would continue to be managed as it currently is. Thus, long-term adverse impacts on parking resulting from the No Action Alternative would not be significant.

There would be no other adverse impacts on transportation resources on or in the vicinity of the 148 FW base under the No Action Alternative.

4.8.1.2 Best Management Practices and Minimization Measures

Adherence to established policies and procedures by 148 FW personnel and visitors would minimize adverse impacts on parking under the No Action Alternative.

4.8.2 Proposed Action Alternative

4.8.2.1 On-Base Transportation Network

Airside Facilities

Impacts

In the short term, the implementation of either Option A or B under Project 5 could temporarily disrupt the circulation of taxiing aircraft on the flightline as a new aircraft shelter is built on the site of Buildings 497, 498 and 499 (under either option) and as the existing shelters are

temporarily re-erected somewhat north of their current location (under Option B). Adherence to the minimization measure discussed below would ensure that the Proposed Action Alternative would have no short-term adverse impacts on airside facilities.

There would be no long-term impacts on the 148 FW's airside facilities because operations would return to pre-construction conditions following the implementation of the proposed action.

Best Management Practices and Minimization Measures

During the implementation of the Proposed Action Alternative, all construction activities associated with Option A or B under Project 5 would be coordinated with the control tower to ensure that the potential for conflicts between aircraft, aircraft support vehicles and equipment, and construction vehicles and equipment are prevented.

Vehicular Circulation

Impacts

In the short term, construction-related activities would generate additional personal vehicle and truck traffic on the internal roadway network on the 148 FW base. While this impact would be adverse, its duration and intensity would vary throughout the construction phase of each project, and the implementation of the proposed projects over a period of five to seven years would further minimize impacts on vehicular circulation. It is not anticipated that construction-related traffic would exceed the capacity of the on-base road network. Thus, short-term impacts on vehicular circulation would not be significant.

Projects included in the Proposed Action Alternative would better define the roadway network and improve vehicular circulation throughout the 148 FW base. Thus, the proposed action would have beneficial long-term impacts on vehicular circulation on the installation.

Best Management Practices and Minimization Measures

No BMP or minimization measures would be required for vehicular circulation under the Proposed Action Alternative.

Pedestrian Circulation

Impacts

In the short term, construction activities associated with the proposed action could require the closure of pedestrian sidewalk segments and/or the rerouting of pedestrian movements. Although adverse, any such closures or reroutings would be temporary and minor. The implementation of the proposed projects over five to seven years would further minimize these impacts. In the long term, the Proposed Action Alternative would have beneficial impacts on pedestrian circulation by completing the pedestrian sidewalk network throughout the base.

Best Management Practices and Minimization Measures

During the construction phase of the Proposed Action Alternative, appropriate barriers and signage would be used to prevent unauthorized entry into areas under construction and indicate alternate routes, respectively.

Parking

Impacts

Parking for construction-related vehicles would be provided on or near the project sites and would not impact the parking requirements of 148 FW staff or personnel. In the long term, parking for non-organizational vehicles would be reconfigured to meet AT/FP requirements and non-AT/FP compliant parking spaces throughout the base would be eliminated. Through the reconfiguration of non-organizational parking spaces to meet AT/FP requirements and the elimination of non-AT/FP compliant spaces, the 148 FW would meet its authorization of 725 AT/FP-compliant non-organizational vehicle parking spaces and no needed parking capacity would be lost. Thus, the Proposed Action Alternative would have no short-term adverse impacts and beneficial long-term impacts on parking on the 148 FW base.

Best Management Practices and Minimization Measures

No BMP or minimization measures would be required for parking under the Proposed Action Alternative.

4.8.2.2 Off-Base Transportation Network

Impacts

In the short term, construction workers' commuting vehicles and delivery trucks could contribute to increased traffic on roads in the vicinity of the 148 FW base and Duluth IAP. However, any such increases would be fractions of the volumes occurring on local off-base roadways (see Table 3.8-1) and would not exceed the capacity of the off-base road network. The distribution of the proposed projects over a five to seven year span would further minimize short-term impacts. In the long term, none of the projects included in the Proposed Action Alternative would increase the number of personnel assigned to the base or generate additional vehicle trips to and from the base. Thus, the proposed action would have negligible, non-significant short-term and no long-term adverse impacts on the off-base transportation network.

Best Management Practices and Minimization Measures

No BMP or minimization measures would be required under the Proposed Action Alternative for the off-base transportation network.

4.9 Cultural Resources

Adverse effects on protected cultural resources may result from any activities that compromise the historic integrity of the resources and the features that make them eligible for listing in the NRHP. For buildings and structures, this may include demolition, extensive restoration, or alteration of the resource's surroundings in a manner that is incompatible with its character. For archaeological sites, the main source of adverse effects is ground-disturbing activities that may destroy or alter beyond useful recovery known and unknown deposits of artifacts. As explained in Section 3.9, the following analysis is intended to address the requirements of both NEPA and Section 106 of the National Historic Preservation Act.

4.9.1 No Action Alternative

4.9.1.1 Impacts

Existing conditions on the 148 FW base would continue under the No Action Alternative. This would have no effect on historic properties on the 148 FW base.

4.9.1.2 Best Management Practices and Minimization Measures

No BMP or minimization measures would be required for historic properties under the No Action Alternative.

4.9.2 Proposed Action Alternative

4.9.2.1 Archaeological Resources

Impacts

A survey conducted in 2007 identified no archaeological sites on the 148 FW base and found that there is low likelihood for such sites to be present due to prior disturbance. Following the standard operating procedures pertaining to inadvertent discovery measures discussed below would ensure that, in case of inadvertent discovery, no National Register-eligible resources are adversely affected. Therefore, the proposed action is not anticipated to result in adverse effects on archaeological resources under Section 106 or significant adverse impacts under NEPA.

Best Management Practices and Minimization Measures

In the case of inadvertent discovery of archeological materials or human remains during construction and demolition activities, the standard operating procedures for the protection of archaeological resources outlined in the 148 FW's ICRMP would be followed. These procedures require that all work cease upon discovery and the cultural resources manager be notified and implement a series of steps to address the discovery. These steps include the identification and documentation of the materials; development of an appropriate mitigation strategy in consultation with the SHPO and other consulting parties; and consultation with tribal

representatives consistent with the Native American Graves Protection and Repatriation Act, as applicable.

4.9.2.2 Architectural Resources

Impacts

Building 500 is NRHP-eligible. The proposed action includes no projects that would directly affect Building 500. Project 5, which would replace three existing aircraft shelters (Buildings 497, 498, and 499) with a single new facility, is located in the vicinity of Building 500. The three shelters are among the properties assessed in the 2007 Cultural Resources Survey and were determined not to be NRHP-eligible either individually or as part of a historic district. Although constructed in 1956, they were moved to their current location on the 148 FW installation in 1984; their doors were replaced circa 2000 and canopies were added to the walkways between the three shelters in 2003 (ANGRC 2007). The proposed new facility would be of similar in size and appearance to the three existing shelters, including three bay doors, and would fulfill a similar function. On this basis, Project 5 is not anticipated to result in any indirect adverse effects on Building 500 that could reduce its historic integrity. The other projects included in the proposed action have no potential for indirect effects, as they are located well away from Building 500 and would not introduce any new visual or functional elements that could affect the integrity of the building.

For these reasons, the proposed action would have no adverse effect on National Register-eligible architectural resources under Section 106 and no significant adverse impacts under NEPA.

Best Management Practices and Minimization Measures

No BMP or minimization measures would be required for historic properties under the Proposed Action Alternative.

4.9.2.3 Traditional Cultural Resources

Impacts

No sites of historical or cultural significance to Native American tribes are known to exist on the 148 FW base. Thus, the implementation of the proposed action is not anticipated to have adverse effects on such sites.

In compliance with the 1999 Department of Defense *American Indian and Alaska Native Policy* and DoDI 4710.02, the 148 FW sent letters to the federally-recognized tribes and bands listed in Section 3.9.5 to request their comments. The Draft EA was sent to the same tribes for further review.

In a letter dated September 28, 2015 the Prairie Island Indian Community stated that there is a low likelihood of encountering intact cultural resources at the 148 FW base and Duluth IAP. A copy of this letter is included in Appendix A. In its letter, the Prairie Island Indian Community also requested a copy of the cultural resources survey conducted at the 148 FW base in 2007

(ANGRC 2007) as well as a copy of the standard operating procedures (SOP) from the 148 FW's integrated cultural resources management plan (ICRMP) (MNANG & NGB 2012) pertaining to inadvertent discovery of cultural resources. No other tribal responses were received

Best Management Practices and Minimization Measures

In the event of inadvertent discovery of traditional cultural resources during construction activities, the standard operating procedures described in Section 4.9.2.1 would be followed.

4.10 Hazardous Substances

Adverse impacts pertaining to hazardous substances may occur if a proposed action would result in the intentional or accidental release into the environment of such substances; would substantially increase the use or generation of hazardous substances at the project location; or would compromise the procedures in place to acquire, store, use, or dispose of hazardous substances in a manner that increases the likelihood of future releases.

4.10.1 No Action Alternative

4.10.1.1 Impacts

The No Action Alternative would represent the continuation of existing conditions on the 148 FW base. This would have no effect on hazardous materials and wastes.

4.10.1.2 Best Management Practices and Minimization Measures

No BMP or minimization measures would be required for hazardous materials and wastes under the No Action Alternative.

4.10.2 Proposed Action Alternative

4.10.2.1 Hazardous Materials

Impacts

In the short term, construction, renovation, and demolition operations would require the storage and use of some hazardous substances such as oils, lubricants, paints, or similar products on the work sites. Quantities stored and used on project sites would be limited and typical of small- to medium-size construction projects. Adherence to the BMP and minimization measures pertaining to hazardous substances and potentially contaminated soils discussed below would ensure that short-term, construction-related impacts from hazardous materials would be minimal and non-significant.

In the long term, implementation of the Proposed Action Alternative would not change the quantity or type of hazardous substances stored and used at the 148 FW base. All hazardous materials would continue to be used and managed in accordance with AFI 32-7086, *Hazardous Materials Management*. Thus, the proposed action would have no long-term adverse impacts on hazardous materials.

Best Management Practices and Minimization Measures

Construction contractors would manage hazardous substances in accordance with federal, state, and ANG regulations and procedures. Standard measures would be taken to prevent pollutants from reaching the soil, groundwater, or surface water. Examples include requiring contractors to perform daily inspections of equipment, maintain appropriate spill-containment materials onsite, and store all fuels and other materials in appropriate containers. Further, construction contractors would be prohibited from performing equipment maintenance activities on the project sites.

4.10.2.2 Hazardous Wastes

Impacts

In the short term, small amounts of hazardous waste may be produced at the construction sites as each project is being implemented. Given the scale of the projects comprising the proposed action and their staggered implementation, this increase would be small in the context of the 148 FW and Duluth IAP. Adherence to the BMP discussed below would further minimize impacts from hazardous waste generated by construction activities. Excavated soils would be characterized prior to re-use on the project sites or disposed of at appropriate off-base facilities. Following the completion of the proposed projects, there would be no long-term increase in the amount of hazardous wastes produced on the 148 FW base because the intensity and frequency of operations would not change. Thus, the proposed action would have no long-term adverse impacts on hazardous waste management at the 148 FW base.

Best Management Practices and Minimization Measures

During construction activities associated with the Proposed Action Alternative, contractors would be required to manage and dispose of hazardous wastes in accordance with all applicable federal, state, DoD and ANG procedures and regulations. In the long term, the 148 FW would continue to follow all established storage and disposal procedures pertaining to hazardous waste. Excavated soils that would not be reused on site would be evaluated prior to disposal to identify any regulated contaminants that may be present and whether the soils must be treated as hazardous waste or exceed the applicable limitations set by WLSSD. If soils are hazardous waste, they would be disposed of at a disposal facility permitted to accept hazardous waste. If the soils are non-hazardous waste but do not meet the limitations of WLSSD, they would be disposed of at a facility permitted to accept such waste.

4.10.2.3 Pesticides

Impacts

No impacts pertaining to pesticides are anticipated. None of the proposed projects have the potential to draw more pest species to the installation or to affect how pesticides are stored, handled, and used.

Best Management Practices and Minimization Measures

No BMP or minimization measures for pesticides would be required under the Proposed Action Alternative.

4.10.2.4 Storage Tanks and Oil/Water Separators

Impacts

With one exception, the implementation of the Proposed Action Alternative would not involve the removal, modification or alteration of existing AST or OWS on the 148 FW base, nor would it involve the installation of new AST, UST or OWS. The exception is Project 6, which would include the installation of new AST and the demolition of the AST supporting the existing ground vehicle fueling station. The capacity of and substances stored in the new AST would be similar to the existing tanks, and the 148 FW would adhere to the BMP pertaining to AST described below. Thus, the proposed action would have no short-term or long-term adverse impacts on AST, UST or OWS on the 148 FW base.

Best Management Practices and Minimization Measures

The new AST would include all necessary secondary containment and life safety equipment, and would be installed and operated in accordance with all applicable federal and state regulations.

4.10.2.5 Asbestos Containing Materials, Lead-Based Paints and Polychlorinated Biphenyls

Impacts

Prior to beginning construction or renovation activities, Building 250 and Building 520 would be evaluated for the presence of ACM and LBP. Adherence to the BMP described below would ensure that there would be no adverse short-term impacts from ACM and LBP. In the long term, the removal of ACM and LBP would constitute a positive impact.

No impacts from PCB-contaminated materials are anticipated from the implementation of the Proposed Action Alternative because all such materials have been removed from the 148 FW base, as noted in Section 3.11.5.

Best Management Practices and Minimization Measures

If ACM and/or LBP are determined to be present, they would be handled, removed and disposed of in accordance with applicable federal, state and DoD regulations and procedures.

4.10.2.6 Environmental Restoration Program Sites

Impacts

None of the proposed projects or associated activities (e.g., equipment staging/laydown areas) would interfere with ongoing ERP remediation activities. As noted in Section 3.10.6, none of the proposed projects would be located in the wooded area east of Building 250 and north of Building 252 where exceedances of human health PRG for lead and antimony associated with the former skeet range were detected; thus, the Proposed Action Alternative would have no potential to impede or interfere with the implementation of the remediation alternatives proposed for that site. Adherence to the BMP and minimization measures described below would ensure that the Proposed Action Alternative has no adverse effects on ERP sites or remediation activities, including those occurring on the former skeet range.

Best Management Practices and Minimization Measures

Projects 8, 16 and 17 would be designed in a way to avoid impacting wells used for long-term groundwater monitoring on ERP Sites 21 and 25. Prior to the implementation of the Proposed Action Alternative, the 148 FW's BCE would review all project plans to confirm that there are no conflicts with ERP sites and remediation activities. If contaminated soils or other materials from undocumented releases are encountered, the base would respond appropriately and dispose of such materials in accordance with all applicable federal, state, DoD and ANG regulations.

5. Cumulative Impacts

Cumulative impact is the impact on the environment which results 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. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time (40 CFR 1508.7).

5.1 148 FW Installation

Impacts on resources from past projects occurring on the 148 FW base have been incorporated into the discussion of existing conditions presented in Chapter 3. As discussed in Section 1.1.2, the only other reasonably foreseeable future projects planned for the 148 FW installation are subject to categorical exclusions from the requirements for environmental impact analysis under NEPA as defined in 32 CFR 989, Appendix B. By definition, these projects would have no or negligible adverse impacts on the human environment and would have no potential to generate significant cumulative adverse impacts when considered with the projects evaluated in this EA.

5.2 Duluth IAP and Vicinity

Impacts on resources from past projects occurring on Duluth IAP and in the area surrounding the airport and 148 FW base have been incorporated into the discussion of existing conditions presented in Chapter 3. Current and reasonably foreseeable future projects planned for Duluth IAP and its vicinity include the following:

- **Extend Runway 3/21:** The extension of Runway 3/21 would provide adequate length to support continued civilian and ANG aircraft operations while Runway 9/27 is being rebuilt (see next project). This project is scheduled to occur in approximately five to seven years.
- **Repair Runway 9/27:** Duluth IAP would undertake the complete reconstruction of Runway 9/27 to address multiple structural and operational deficiencies. It is anticipated that this project would occur in approximately 10 years, and following the completion of the Runway 3/21 extension described above.
- **Repair Taxiway Alpha:** Duluth IAP would reconstruct Taxiway Alpha over the next two to three years to address multiple structural and operational deficiencies.
- **Construct Taxiway:** This project would revise access to Runway 3/21 from the 148 FW installation by building a new taxiway extending west past the site of existing Buildings 497, 498 and 499. This project would enable the removal of the existing taxiway

connecting the north end of the flightline to the northern end of Runway 3/21. That taxiway is in poor condition and inefficient in terms of circulation.

- **Paving of Ridgeview Road:** It is anticipated that the City of Duluth will pave Ridgeview Road from Rice Lake Road/Route 4 to the site of Project 14 in the northeastern corner of the main base. The area to be paved is approximately 0.75 mile in length. It is anticipated that the paving would occur in the next five to seven years.

- **Highway 53 Resurfacing and Accessibility Improvement:** The Minnesota Department of Transportation (MNDOT) is planning to repave an approximately 0.75-segment of Highway 53 from its intersection with Highway 194 to Anderson Road. Additional improvements would include new sidewalks and new pedestrian ramps. This segment of Highway 53 is located approximately three miles southeast of the 148 FW base. The work is planned to occur in the fall of 2015 (MNDOT 2015a).

- **Highway 53 Resurfacing, Accessibility and Signal Improvements:** MNDOT is planning to repave an approximately six-mile segment of Highway 53 from its intersection with Haines road to its intersection with Midway Road. Improvements would also be made to signals and accessibility along the corridor. This segment of Highway 53 is located approximately 1.7 miles south of the 148 FW base. The work is planned to occur in the fall of 2015 (MNDOT 2015b).

- **Highway 61 Resurfacing, Safety, and Drainage Improvements:** MNDOT is planning to repave an approximately one-mile segment of Highway 61 between the Lester River Bridge and Superior Street in Duluth. The work would also include improvements to guardrails and drainage systems along the road. This segment of Highway 61 is located approximately 7.7 miles east of the 148 FW base. The work is planned to occur from September to November 2015 (MNDOT 2015c).

- **Retail Development:** An approximately 183,000-square-foot retail store is proposed for construction at the intersection of Loberg Avenue and Market Street (formerly Mall Drive) in the City of Hermantown, approximately 2.5 miles south of the 148 FW base. The development of the store would disturb approximately 200,000 square feet (4.6 acres) of soils and would include the extension of Market Street approximately 0.25 mile to connect to Westberg Road (Fulton, pers. comment, April 21, 2015).

- **Hotel Development:** A five-story hotel is proposed for construction at the intersection of Market Street (formerly Mall Drive) and Prospect Boulevard in the City of Hermantown, approximately 2.5 miles south of the 148 FW base (Fulton, pers. comment, April 21, 2015).

- **New High School:** A new high school is proposed for construction along Rice Lake Road in the City of Duluth, approximately 2 miles southeast of the 148 FW base. The proposed high school would be built on an approximately 10- to 15-acre site that is currently undeveloped and densely vegetated (Deming, pers. comment, April 21, 2015).

The following paragraphs summarize the potential long-term cumulative impacts on resources from the proposed action when combined with the past, present and reasonably foreseeable future projects described above.

5.2.1 Safety

The proposed action would have no adverse impacts on safety and, therefore, has no potential to cause cumulative impacts when considered with other past, present, or foreseeable future projects.

5.2.2 Air Quality

Air quality is a regional concern and is the result of regional cumulative emissions from past and current activities, including motor vehicle traffic and industrial, commercial, and residential fuel combustion. The proposed action would result in temporary, minor emissions from construction activities, and some additional emissions from the operations of the new facilities. A GCR applicability analysis was conducted showing that anticipated emissions would be well below the *de minimis* levels applicable to a nonattainment area for CO. Therefore, when considered along with past, present, and foreseeable future projects, the proposed action has no potential to result in significant adverse impacts on air quality.

5.2.3 Noise

The proposed action would have no long-term adverse impacts on noise on or in the vicinity of the 148 FW base or Duluth IAP because the number and type of aircraft operating at the base would not change, nor would the intensity of operations. Noise from the proposed small arms range is not anticipated to be noticeable from the nearest noise sensitive receptors. Thus, when considered along with past, present and foreseeable future projects, the proposed action has no potential to result in significant cumulative adverse impacts on noise levels.

5.2.4 Land Use

The proposed action would have no adverse impacts on land use on or off base. Therefore, when considered along with past, present, and foreseeable future projects, it has no potential to result in significant cumulative adverse impacts.

5.2.5 Geological Resources

The proposed action would have no or negligible impacts on geology and topography, and minor impacts on soils. In the long term, the proposed action would result in an increase in impervious surface on the installation of up to approximately 1.8 acres. Some of the present and foreseeable projects would also likely result in an increase in impervious surface, although quantitative

information on the scale of their respective impacts is not available. However, in the context of Duluth IAP and the surrounding region, the cumulative loss of soils would not be significant.

5.2.6 Water Resources

The proposed action would have negligible long-term adverse effects associated with the increase in impervious surfaces (approximately 1.8 acres) and resulting increase in stormwater runoff. Some of the present and foreseeable projects would also likely result in an increase in impervious surface and stormwater runoff. Quantitative information on the scale of their respective impacts is not available. However, it is anticipated that, as appropriate, each project will incorporate stormwater management techniques that will minimize the environmental risk from increased surface flows. Thus, while a cumulative increase in stormwater runoff can be anticipated, this increase in not likely to result in significant adverse impacts on water resources.

5.2.7 Biological Resources

The proposed action would have negligible or minor impacts on biological resources and these impacts would be confined to the 148 FW base. No valuable habitat would be lost and no federally listed threatened or endangered species would be affected. Present and foreseeable would be implemented in compliance with applicable federal, state, and local laws and regulations pertaining to the protection of natural resources. These projects would generally take place on airport property or on existing road rights-of-way, where natural areas are limited. Thus, the proposed action has no potential to generate significant cumulative impacts on biological resources.

5.2.8 Transportation and Circulation

There would be no long-term increase in the number of vehicles traveling to and from the 148 FW installation each day because the number of personnel and staff assigned to the installation would not increase under the proposed action. Thus, the proposed action would not generate cumulative impacts on transportation and circulation on or in the vicinity of the 148 FW base when considered together with past, present, and foreseeable future projects.

5.2.9 Cultural Resources

The proposed action would have no adverse effects on cultural resources. Other past, present, and foreseeable future projects would be implemented in compliance with applicable federal, state, and local historic preservation regulations, minimizing potential adverse effects. Thus, no significant cumulative adverse impacts on historic properties are anticipated.

5.2.10 Hazardous Substances

The proposed action would have no long-term impacts pertaining to hazardous substances. Therefore, it would not generate any significant cumulative impacts.

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6. Special Procedures

This chapter summarizes the permit requirements associated with the proposed action as well as the measures that would be implemented to avoid or minimize environmental impacts, as identified in Chapter 4.

6.1 Permits

Prior to beginning projects that would disturb one acre or more of land, the 148 FW or its contractor would obtain coverage under the Construction Stormwater General Permit (General Permit) of the Minnesota National Pollution Discharge Elimination System (NPDES) Permit Program. A copy of Minnesota's General Permit is included in Appendix D. Obtaining a General Permit would require the preparation of a construction SWPPP, which would specify best management practices (BMP) to minimize soil erosion and subsequent sediment runoff and pollution of downstream watercourses. Due to the proximity of Miller Creek, which is designated as Special Waters and Impaired Waters by the State of Minnesota, the 148 FW or its contractor would incorporate total maximum daily load (TMDL) requirements for construction stormwater into the project SWPPP, as applicable. It is anticipated that General Permit coverage would be required for Projects 9, 16, and 17.

6.2 Best Management Practices and Control Measures

Appropriate BMP would be used for all ground-disturbing projects. Standard BMP, such as silt fences, would be used for the smaller construction projects in mostly level areas. For projects anticipated to disturb a substantial amount of soils, additional measures such as sediment basins, sediment traps, or gravel filter berms may be warranted. To minimize fugitive dust, water would be periodically applied to paved surfaces and exposed soils, and/or soils that would be exposed for extended periods would be vegetated.

All new construction with a footprint of 5,000 square feet or more would comply with Section 438 of the Energy Independence and Security Act (EISA) and incorporate, to the maximum extent technically feasible, low impact development (LID) techniques that would preserve the existing hydrology of the site.

Construction contracts would incorporate a clause to address the inadvertent discovery of archaeological resources during ground-moving operations. In case of such a discovery during ground-moving operations, work would immediately cease in the vicinity of the discovery and the ANG would conduct consultation with the SHPO and federally-recognized Native American tribes, as appropriate, to determine an appropriate course of action. Work would not resume until this additional consultation process is complete.

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7. Distribution and Review of the Draft EA

The public and agency review period for the Draft EA ran from September 1 through October 1, 2015.

7.1 Agency Coordination

The Draft EA for this proposed action was sent on August 26, 2015 to the 34 federal, state, and local agencies or tribal governments listed below (Table 7-1). A sample of the cover letter sent with the Draft EA is provided in Appendix A.

Table 7-1: Agencies and Organizations Receiving the Draft EA

Federal Agencies	
Federal Aviation Administration Dakota-Minnesota Airports District Office DMA-ADO-600 Attn.: Gordon Nelson 6020 28th Avenue, South, Room 102 Minneapolis, MN 55450	U.S. Fish and Wildlife Service Ecological Services Field Office 4101 American Boulevard East Bloomington, MN 55425-1665
U.S. Environmental Protection Agency Region 5 Attn.: NEPA Review 77 West Jackson Boulevard Chicago, IL 60604	U.S. Department of Agriculture Natural Resource Conservation Service Duluth Field Office Attn.: Dan Weber, NRCS District Conservationist 4850 Miller Trunk Hwy, Suite 2B Duluth MN 55811
U.S. Army Corps of Engineers Saint Paul District 180 5th Street East, Suite 700 St. Paul, MN 55101-1678	(blank)
Federally-recognized Indian/Native American Tribes	
Minnesota Indian Affairs Council Attn.: Jim Jones, Cultural Resource Director 3801 Bemidji Avenue, Suite 5 Bemidji, MN 56601	Lower Sioux Indian Community Attn.: Grace Goldtooth-Campos Tribal Historic Preservation Office r 39527 Res. Highway 1 P.O. Box 308 Morton, MN 56270
Prairie Island Indian Community Victoria Winfrey, Tribal Council President 5636 Sturgeon Lake Road Welch, MN 55089	Shakopee Mdewakanton Sioux Community Cultural Resources Attn.: Leonard Wabasha, Director 2330 Sioux Trail NW Prior Lake, MN 555372

Upper Sioux Community Kevin Jensvold, Chairman 5722 Travers Lane P.O. Box 147 Granite Falls, MN 56241	Red Lake Nation Darrell G. Seki, Sr., Chairman P.O. Box 279 Red Lake, MN 56671
Minnesota Chippewa Tribe (six component Bands)	
Minnesota Chippewa Tribe Gary Frazer, Executive Director P.O. Box 217 Cass Lake, MN 56633	Bois Forte Band of Chippewa Indians Attn.: William Latady Tribal Historic Preservation Officer 1500 Bois Forte Road Tower, MN 55790
Fond du Lac Band of Lake Superior Chippewa Attn.: Leah Savage, Tribal Historic Preservation Officer 1720 Big Lake Road Cloquet, MN 55720	Grand Portage of Lake Superior Chippewa Attn.: Preservation Officer P.O. Box 428 Grand Portage, MN 55604
Leech Lake Band of Ojibwe Division of Resource Management Attn.: Gina Lemon, Tribal Historic Preservation Officer 15756 State 371 NW Cass Lake, MN 56633	Mille Lacs Band of Ojibwe Indians Attn.: Natalie Weyaus, Tribal Historic Preservation Officer 43408 Oodena Drive Onamia, MN 56359
White Earth Band of Minnesota Chippewa Attn.: Renee Lampi, Tribal Historic Preservation Officer P.O. Box 418 White Earth, MN 56591	(blank)
State Agencies	
Minnesota Department of Natural Resources Natural Heritage Program Attn.: Richard Baker, Endangered Species Coordinator 500 Lafayette Road, Box 25 St. Paul, MN 55155-4040	Minnesota Department of Natural Resources Ecological & Water Resources Attn.: Project Review and Compliance 500 Lafayette Road, Box 25 St. Paul, MN 55155-4032
Minnesota Department of Natural Resources Division of Fish & Wildlife Attn.: Project Review and Compliance 500 Lafayette Road, Box 25 St. Paul, MN 55155-4032	Minnesota Board of Water and Soil Resources Attn.: Resource Management and Planning 394 South Lake Avenue, Room 403 Duluth, MN 55802
Minnesota Pollution Control Agency Attn.: Project Review and Compliance 525 Lake Avenue South, Suite 400 Duluth, MN 55802	Minnesota Department of Transportation Office of Environmental Stewardship Attn.: Lynn Clarkowski, Director 395 John Ireland Blvd, Mail Stop 620 St. Paul, MN 55155-1899

Minnesota Department of Transportation District 1 – Northeast Minnesota Attn.: Duane Hill, District Engineer 1123 Mesaba Avenue Duluth, MN 55811	Minnesota Historical Society Government Programs and Compliance Attn.: Sarah Beimers 345 Kellogg Blvd. W. St. Paul, MN 55102-1903
Federal Consistency Review Coordinator Minnesota Lake Superior Coastal Program 1568 Highway 2 Two Harbors, MN 55616	(blank)
Local Agencies	
South St. Louis Soil and Water Conservation District 215 North 1st Avenue East, Room 301 Duluth, MN 55082	City of Duluth Planning Division Attn.: Keith Hamre, Director City Hall, Room 208 411 West First Street Duluth, Minnesota 55802
St. Louis County Planning and Community Development Attn.: Barbara Hayden, Director 100 Missabe Building 227 W 1st Street Duluth, Minnesota 55802	City of Hermantown Community Development Attn.: Adam Fulton, AICP, Director 5105 Maple Grove Road Hermantown, MN 55811
Township of Rice Lake Building/Zoning 4107 W Beyer Road Duluth, MN 55803	Arrowhead Regional Development Commission Regional Planning Division Attn.: Andy Hubley, Director 221 West First Street Duluth, MN 55802
Steve Wabrowetz Duluth IAP Environmental Office (Hand Delivery)	(blank)
Public Library	
Duluth Public Library 520 W. Superior St. Duluth, MN 55802	(blank)

7.2 Public Notice

Consistent with NEPA and 32 CFR 989, which require public review of an EA before approval of the FONSI and implementation of the proposed action, a notice of availability of the Draft EA for public review was published in the *Duluth News Tribune* on September 1 and September 8, 2015. A copy is in Appendix A.

As indicated in the notice of availability, the Draft EA was made available for public review at the Duluth Public Library, 520 W. Superior St., Duluth, MN 55802. The notice also provided a point of contact to request a copy of the document.

7.3 Comments on the Draft EA

The comments received on the Draft EA, along with the ANG's response when applicable, are summarized below. Complete copies of the comments are included in Appendix A.

7.3.1 U.S. Environmental Protection Agency

In a letter dated September 28, 2015 the USEPA encourages the ANG to incorporate green infrastructure such as energy-efficient building materials and permeable pavement into the proposed projects. Further, the USEPA recommends the recycling of debris from structures proposed for demolition and the use of BMP – such as the use of low-sulfur fuel (no more than 15 ppm of sulfur) and limiting engine idling times – to reduce emissions from construction-related vehicles.

Response: The ANG will incorporate these recommendations into the proposed action to the extent technically feasible.

7.3.2 Prairie Island Indian Community

In a letter dated September 28, 2015 the Prairie Island Indian Community stated that there is a low likelihood of encountering intact cultural resources at the 148 FW base and Duluth IAP. The Prairie Island Indian Community also requested a copy of the cultural resources survey conducted at the 148 FW base in 2007 (ANGRC 2007) as well as a copy of the standard operating procedures (SOP) from the 148 FW's integrated cultural resources management plan (ICRMP) (MNANG & NGB 2012) pertaining to inadvertent discovery of cultural resources.

Response: Electronic copies of the requested documents will be sent to the Prairie Island Indian Community via email.

7.3.3 Minnesota SHPO

In a letter dated October 8, 2015, the Minnesota SHPO indicated that it had reviewed the Draft EA and found that it accurately reflected the status of the Section 106 review; the SHPO noted that it looked forward to continuing consultation with regard to "Project 3." (It must be noted that the "Project 3" referred to in the SHPO letter was the construction of an addition to Building 520, which was included in the proposed action addressed in the Draft EA, not the "Project 3" in this final EA [see response below and Section 1.3.2]).

Response: Draft EA Project 3 (Addition to Building 520) has been removed from the proposed action. If and when the ANG decides to move forward with this project, it will resume consultation with the Minnesota SHPO, as required.

7.3.4 Public Comment

In a letter dated September 25, 2015, Ms. Linda Ross Sellner of Duluth requested that present and future projects adding impervious surface at the 148 FW base result in no-net-gain so as to minimize increases in the volume of stormwater generated on the installation and corresponding impacts on wetlands and bodies of surface water in the vicinity of the installation and airport.

Response: As stated in the EA, projects with a footprint of 5,000 square feet or greater would incorporate, to the maximum extent technically feasible, LID techniques to maintain the pre-development hydrology of the site in accordance with Section 438 of the EISA. Adherence to this requirement would ensure that impacts on water quality resulting from increases in stormwater generated on the installation are minimized.

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9. Preparers

This Environmental Assessment was prepared by AECOM for the National Guard Bureau. Key personnel included:

Laurent Cartayrade, Project Manager: 14 years of experience in environmental planning. University of Paris IV-Sorbonne, BA; University of Maryland-College Park, MA, History; PhD, History.

Craig Carver, AICP, Environmental Planner/Urban Planner: 4 years of experience in environmental planning and impact assessment. Virginia Commonwealth University, BA, Music; Virginia Commonwealth University, Master of Urban and Regional Planning.

Katherine Weber, Geographic Information Systems/Cartography: 11 years of experience in mapping using ArcView, ArcGIS, and Global Positioning Systems. Mary Washington College, BA, Geography.

Fang Yang, Senior Air and Noise Engineer: Over 20 years of experience in air quality and noise impact analyses for NEPA documents. Fudan University, 1982, BS, Physics; New York University, 1988, MS, Atmospheric Science.

National Guard Bureau Coordinator

Kevin Marek: Asset Management Division - Plans and Requirements Branch, National Guard Bureau (NGB)/A7AM.

Felicia Johnson: Asset Management Division - Plans and Requirements Branch, National Guard Bureau (NGB)/A7AM.

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APPENDIX A – AGENCY COORDINATION

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AIR NATIONAL GUARD
DRAFT ENVIRONMENTAL ASSESSMENT
INSTALLATION
DEVELOPMENT PROJECTS
148TH FIGHTER WING BASE
DULUTH INTERNATIONAL AIRPORT, DULUTH, MINNESOTA

The National Guard Bureau invites the public to review and comment on a Draft Environmental Assessment (DEA) and Draft Finding of No Significant Impact (FONSI) for the proposed implementation of multiple construction, demolition, and infrastructure improvement projects at the Minnesota Air National Guard's 148th Fighter Wing Base at Duluth International Airport, Duluth, Minnesota.

The DEA evaluates the potential environmental impacts resulting from implementing the proposed action and the no action alternatives. The DEA concludes that the proposed action would not result in significant impacts on the environment. The DEA and Draft FONSI are available for review at the Duluth Public Library, 520 W. Superior Street, Duluth, MN 55802. A copy of the DEA may also be requested by emailing the NGB at ang.env.comments@ang.af.mil.

Please send written comments on the DEA and Draft FONSI to Ms. Felicia Johnson, NGB/A7AM, Shepperd Hall, 3501 Fetchet Avenue, Joint Base Andrews, Maryland, 20762-5157, or ang.env.comments@ang.af.mil. Comments must be sent before October 2, 2015.

PRIVACY ADVISORY

As required by law, comments will be addressed in the Final EA and made available to the public. Any submitted comments may be published in the Final EA. Any personal information provided will be used only to identify your desire to make a statement during the public comment period or to fulfill requests for copies of the Final EA or associated documents. Private addresses will be compiled to develop a mailing list of those requesting copies of the Final EA. Only the names of the individuals making comments and the specific comments may be disclosed in the Final EA. Personal home addresses and phone numbers will not be published.

D.N.T. Sept. 1 and Sept. 8, 2015

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NATIONAL GUARD BUREAU
3501 FETCHET AVENUE
JOINT BASE ANDREWS MD 20762-5157

NGB/A7AM

26 August 2015

U.S. Environmental Protection Agency
Region 5
Attn.: NEPA Review
77 West Jackson Boulevard
Chicago, IL 60604

SAMPLE

Dear Sir/Madam

The National Guard Bureau (NGB) is preparing an environmental assessment (EA) to assess the potential impacts of proposed installation development projects at the Minnesota Air National Guard's 148th Fighter Wing (148 FW) installation Duluth International Airport (IAP), Duluth, Minnesota. The EA is being prepared in accordance with the Council on Environmental Quality's regulations to implement the National Environmental Policy Act (NEPA) of 1969.

Consistent with Executive Order 12372, Intergovernmental Review of Federal Programs, we request your assistance in reviewing the enclosed Draft EA and providing comments. We also request your assistance in advising appropriate agencies of this proposed action and soliciting their comments. Persons and agencies on the Distribution List included in the Draft EA (Appendix A) have already received this package; if there are additional agencies you think should review the EA, please include them in your distribution of these materials.

The Final EA and, if applicable, the Finding of No Significant Impact (FONSI) will be available upon request. Comments on the Draft EA and requests for the Final EA and FONSI should be sent within 30 calendar days.

Please send your comments to: Felicia Johnson, NGB/A7AM, Shepperd Hall, 3501 Fetchet Avenue, Joint Base Andrews, Maryland, 20762-5157, ang.env.comments@ang.af.mil.

Thank you for your assistance.

Sincerely

FELICIA JOHNSON
Plans and Requirements Branch

Enclosure: Draft Environmental Assessment

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

SEP 28 2015

REPLY TO THE ATTENTION OF:

E-19J

Felicia Johnson
National Guard Bureau
NGB/A7AM, Shepperd Hall
3501 Fetchet Avenue
Joint Base Andrews, Maryland 20762-5157

Re: Draft Environmental Assessment for Proposed Installation Development Projects at the Minnesota Air National Guard's 148th Fighter Wing at Duluth International Airport, Duluth, St. Louis County, Minnesota

Dear Ms. Johnson:

The U.S. Environmental Protection Agency (EPA) has reviewed the referenced draft environmental assessment (EA), dated August 26, 2015, which was prepared by the National Guard Bureau (NGB). We are providing comments pursuant to our authorities under the National Environmental Policy Act (NEPA), Council on Environmental Quality regulations (40 CFR Parts 1500-1508), and Section 309 of the Clean Air Act.

The proposed project involves implementation of eighteen separate construction, demolition, and renovation projects at the Minnesota Air National Guard's 148th Fighter Wing installation at Duluth International Airport. Projects include building construction, building demolition, building renovation, road reconfiguration, and construction of parking lots and sidewalks.

Based on our review, we have comments relating to green infrastructure, emissions reductions, and reuse/recycling/disposal of demolition debris, as stated below.

Green Infrastructure

For new structures and renovation projects, we encourage the use of energy-efficient and/or sustainable building materials, such as south-facing skylights and windows, motion-sensored lighting, Energy Star certified windows and doors, and installation of renewable energy sources.

Recent studies have indicated that installing "green" stormwater systems is often more cost efficient than traditional "gray" stormwater systems.[1] We encourage on-site green stormwater

[1] See *Reducing Stormwater Costs through Low Impact Development (LID) Strategies and Practices* at: http://water.epa.gov/polwaste/green/costs07_index.cfm

management via use of bioswales and plant communities that will not attract wildlife. We particularly encourage installation of permeable pavement to the maximum extent possible. In addition to the cost savings described above, permeable pavement is particularly useful at airports because natural groundwater infiltration will occur with permeable pavement without posing an increased risk of bird/animal aircraft strike hazard (BASH) incidents.

Emissions Reductions

We recommend emissions from internal combustion vehicles be reduced to the maximum extent possible during the construction phase of these projects. Specifically, we recommend several diesel reduction best management practices (BMPs) in the enclosed document *U.S. Environmental Protection Agency Diesel Emission Reduction Checklist.*

Reuse/Recycling/Disposal of Demolition Debris

We recommend demolition debris be reused or recycled when possible. We are pleased to see the BMPs being proposed for disposal of non-recyclable debris, including hazardous materials such as lead paint and asbestos.

We are available to discuss these comments at your convenience. Please feel free to contact Mike Sedlacek of my staff at 312-886-1765, or by email at sedlacek.michael@epa.gov.

Sincerely,

Kenneth A. Westlake, Chief
NEPA Implementation Section
Office of Enforcement and Compliance Assurance

Encl: U.S. Environmental Protection Agency Diesel Emission Reduction Checklist

U.S. Environmental Protection Agency
Diesel Emission Reduction Checklist

- Use low-sulfur diesel fuel (15 ppm sulfur maximum) in construction vehicles and equipment.
- Retrofit engines with an exhaust filtration device to capture diesel particulate matter before it enters the construction site.
- Position the exhaust pipe so that diesel fumes are directed away from the operator and nearby workers, reducing the fume concentration to which personnel are exposed.
- Use catalytic converters to reduce carbon monoxide, aldehydes, and hydrocarbons in diesel fumes. These devices must be used with low sulfur fuels.
- Use enclosed, climate-controlled cabs pressurized and equipped with high efficiency particulate air (HEPA) filters to reduce the operators' exposure to diesel fumes. Pressurization ensures that air moves from inside to outside. HEPA filters ensure that any incoming air is filtered first.
- Regularly maintain diesel engines, which is essential to keep exhaust emissions low. Follow the manufacturer's recommended maintenance schedule and procedures. Smoke color can signal the need for maintenance. For example, blue/black smoke indicates that an engine requires servicing or tuning.
- Reduce exposure through work practices and training, such as turning off engines when vehicles are stopped for more than a few minutes, training diesel-equipment operators to perform routine inspection, and maintaining filtration devices.
- Repower older vehicles and/or equipment with diesel- or alternatively-fueled engines certified to meet newer, more stringent emissions standards. Purchase new vehicles that are equipped with the most advanced emission control systems available.
- Use electric starting aids such as block heaters with older vehicles to warm the engine reduces diesel emissions.
- Use respirators, which are only an interim measure to control exposure to diesel emissions. In most cases, an N95 respirator is adequate. Workers must be trained and fit-tested before they wear respirators. Depending on work being conducted, and if oil is present, concentrations of particulates present will determine the efficiency and type of mask and respirator. Personnel familiar with the selection, care, and use of respirators must perform the fit testing. Respirators must bear a NIOSH approval number.
- Per Executive Order 13045 on Children's Health[2], EPA recommends operators and workers pay particular attention to worksite proximity to places where children live, learn, and play, such as homes, schools, daycare centers, and playgrounds. Diesel emission reduction measures should be strictly implemented near these locations in order to be protective of children's health.

---

[2] Children may be more highly exposed to contaminants because they generally eat more food, drink more water, and have higher inhalation rates relative to their size. Also, children's normal activities, such as putting their hands in their mouths or playing on the ground, can result in higher exposures to contaminants as compared with adults. Children may be more vulnerable to the toxic effects of contaminants because their bodies and systems are not fully developed and their growing organs are more easily harmed. EPA views childhood as a sequence of lifestages, from conception through fetal development, infancy, and adolescence.

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PRAIRIE ISLAND INDIAN COMMUNITY
Dept. of Land and Environment
Tribal Historic Preservation Office
5636 Sturgeon Lake Road, Welch, MN 55089

September 28, 2015

Ms. Felicia Johnson
National Guard Bureau
JBA Maryland

The Prairie Island Indian Community THPO office has received your notice of August 26, 2015 referencing the draft Environmental Assessment (EA) associated with proposed developments projects at the Minnesota Air National Guard 148th Fighter Wing Installation. We appreciate the opportunity to comment on this EA.

We agree, based on the evidence presented in your draft EA that there is a low likelihood of encountering intact cultural resources on a working air-field that has been in active operation and on-going construction since 1948. However, we would like to review a copy of the 2007 archaeological study referenced on pg.63 of your draft EA prior to issuing final tribal comment and recommendations on your FONSI.

In addition, although we agree the likelihood of encountering intact cultural resources is low, there is always a chance that an inadvertent discovery (such as isolated or disturbed human skeletal remains) could be encountered in your construction. We recommend the development of an Inadvertent Discovery Plan of Action (IDPOA) for the discovery, preservation and reaction to such an inadvertent burial discovery. Such an IDPOA may already be part of the 148th Fighter Wing Installation's ICRMP, if this is so we would also request a copy of this section of the ICRMP prior to issuing our final FONSI comments.

Sincerely,

Ryan J. Howell
Tribal Historic Preservation Officer
Prairie Island Indian Community
5636 Sturgeon Lake Rd
Welch, MN 55089
651-385-4116
Ryan.howell@piic.org

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September 25, 2015

My name is Linda Ross Sellner. I reside in Duluth, Minnesota. I am currently serving my second term on the Duluth Public Utilities Commission. That Commission oversees four publicly owned Utilities–the Natural Gas, Sanitary Sewer, Water and Stormwater Utilities. I have a degree in Geology-Land Use Planning and am certified in GIS. I wish to make comments on the Draft Environmental Assessment for the Air National Guard Development Projects at the 148th Fighter Wing Base, Duluth International Airport, Duluth, MN. My comments are my own.

INTRODUCTION

It is important to understand the regional geography of this area in which the projects are to occur. Duluth has remarkable topography and is over 20 miles long but just 3-4 miles wide. It occupies the shoreline of Lake Superior—an EPA Outstanding Resource. Most of the city is on the steep incline of basalt bedrock rising up from lake level. This rise is bisected by 42 streams, 16 of them, DNR designated "Trout Streams". All streams serve the Stormwater Utility for the reception of overland flow of precipitation from the impervious surfaces of the Duluth urban environment. It is a separate flowage system from the Sanitary Sewer System and requires a MS4 permit from the MPCA for discharge to Waters of the State. That permit also stipulates that non-degradation of these public, Catagory 1 waters be upheld. Hermantown lies to the northwest of Duluth and above the ridgeline of 500' above Lake Superior. It is mostly flat and of glacial terrain. It also contains many of the headwaters of the 40-some creeks that run through Duluth. Its stormwater flow is channeled to the headwaters and underground conveyance system of the above, Duluth streams. Its water, gas and sanitary sewer system are connected to ours. Therefore, what happens with development and their impervious surface it creates, affects Duluth's water quality, stream flow and temperature of runoff. Half the streams that run through Duluth empty into the St. Louis River Estuary west of Lake Superior and separated from it by a mile long sandbar. It is an EPA "Area of Concern" for serious pollution and contains toxic hot spots. Eleven of Duluth's 16 Trout Streams are impaired for water quality. The Miller Creek, which runs by the Air National Guard Base, is one of these and has the greatest number of impediments out of all impaired streams in Duluth.

DISCOURSE

It was good to see on pp.97, Section 5.2, Cumulative Impacts, that the Draft stated: "Cumulative impact is impact on the environment which results from the incremental impact of the action when added to other past, present and reasonably foreseeable future actions...". It also stated "Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time (40 CFR 1508.7)".This is the main point of my comments. It is stated many times throughout the draft that only 1.8Acres of new impervious surface will be created. While I do recognize this to be relatively smaller than most current development going on or

coming forward, it is indeed cumulative to our Stormwater system. On pp. 99, Section5.2.5, under Geological Resources, the 1.8 Acre impervious surface is mentioned in association with "some of the foreseeable projects would also likely result in an increase in impervious surface but quantitative information is not available". I presume this refers to future projects on the Air National Guard Base and I have no knowledge of these. Here is what is documented to have additional, cumulative impact under 5.2, Current and Future Projects Planned for Duluth IAP and its Vicinity:

(1) Extending runway 3/21

(2) Paving 0.75 miles of Ridgeview Road, northeast corner of main base.

(3) Retail development of Mills Fleet Farm, 2.5 miles south of base; Wetland destruction is also implicated with this store site for a total of 4.6 Acres of impervious surface.

(4) A hotel footprint, probably 1/3 of the store size, in the same location.

(5) A possible High School, similar to planned retail footprint, 2 miles southeast of the 148thBase.

Hermantown has historically welcomed any and all development with little or no consideration of the effect on water quality downstream. Their Economic Development Director holds a place on our Regional Stormwater Protection Team, which I find to be a conflict of interest and evidence of delusion. As indicated by the wetland map included in the DEA, the148th was probably built in wetlands (dredged and filled) as the remnants surround the 148th base site currently. Wetlands serve to retain, slow and clean stormwater flow before release to the Miller Creek. Abundant, pre-development wetlands in Hermantown have been substantially reduced by explosive development there and with our Miller Hill Mall footprint at the northwest border of Duluth, proximal to Hermantown. It should be easy to associate loss of wetlands and increased impervious surface with current impairment of Miller Creek and at its confluence at the St. Louis River Estuary. This is why you must TRULY take into account the addition of any and all impervious surface to an already degraded environment.

We had a devastating flood in Duluth in June of 2012. Our stormwater infrastructure was overwhelmed and Lake Superior–usually blue and clear, became muddy and brown for miles around Duluth and evidenced by satellite imagery afterwards. We can expect more frequent, intense and violent episodes of precipitation in the future with a warming climate. It is my scientific and professional opinion that we must face the consequences of our urban development and take new and bold action to counteract devastating environmental consequences with whatever we have left in the way of wetlands and greenspace preservation. For this reason, I am humbly asking that the present and future plans for impervious surface at the Air National Guard Base equal no-net-gain.

On pp.56 of the DEA, under 3.6-Water Resources, development in the Miller Creek 100 year floodplain is verified for Bulldog Blvd., the installation perimeter road and the service road

between Haines Rd. & Bulldog Blvd. at the southern end of the Base. You will need to get Shoreland/Floodplain encroachment permitting in defiance of our Duluth Comprehensive Plan for the Sensitive Lands Overlay, Future Land-use Map, to do so. Unfortunately, this usually occurs at the Planning Department level; thus, another reason for our dismal water quality levels. I would advise the project developers to work boldly in flood protection strategies that do not make the situation worse and offer some protection for infrastructure that shouldn't be there in the first place.

Respectfully Submitted,

Linda R Sellner

Linda Ross Sellner

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NATIONAL GUARD BUREAU
3501 FETCHET AVENUE
JOINT BASE ANDREWS MD 20762-5157

NGB/A7AM

26 August 2015

Minnesota Historical Society
Government Programs and Compliance
Attn.: Sarah Beimers
345 Kellogg Blvd. W.
St. Paul, MN 55102-1903

Dear Ms. Beimers

The National Guard Bureau (NGB) is preparing an environmental assessment (EA) to assess the potential impacts of multiple proposed installation development projects at the Minnesota Air National Guard's 148th Fighter Wing (148 FW) installation at Duluth International Airport, Duluth, Minnesota. The EA is being prepared in accordance with the Council on Environmental Quality's regulations to implement the National Environmental Policy Act (NEPA) of 1969.

NGB is also reviewing the proposed projects in accordance with Section 106 of the National Historic Preservation Act. The EA analyzes the potential effects of the projects for the purposes of both NEPA and Section 106. The relevant analyses, including definition of the area of potential effects (APE), identification of historic properties within the APE, and assessment of effects are provided for your review in Sections 3.9 and 4.9 of the enclosed Draft EA.

Based on these analyses, NGB finds that the proposed project would not result in an adverse effect on historic properties protected under Section 106 provided the following steps are followed: before implementing Project 3 (Construct Addition to Building 520), in consultation with your office, the Air National Guard will re-evaluate the National Register-eligibility of Building 520 and determine whether the Munitions Storage Area (MSA), where Building 520 is located, contains an eligible historic district. If Building 520 is found to be eligible individually or as part of a historic district, the Air National Guard will work your office to establish design guidelines and requirements to avoid, minimize, or mitigate any potential adverse effects on Building 520 or the MSA historic district, if one is found to exist. At a minimum, such requirements would include designing Project 3 in a manner consistent with the Secretary of the Interior's *Standards for the Treatment of Historic Properties*.

Please send your comments within 30 days to: Felicia Johnson, NGB/A7AM, Shepperd Hall, 3501 Fetchet Avenue, Joint Base Andrews, Maryland, 20762-5157, ang.env.comments@ang.af.mil.

Thank you for your assistance.

Sincerely

FELICIA JOHNSON
Plans and Requirements Branch

Enclosure: Draft Environmental Assessment

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Minnesota Historical Society

Using the Power of History to Transform Lives
PRESERVING | SHARING | CONNECTING

STATE HISTORIC PRESERVATION OFFICE

October 8, 2015

Ms. Felicia Johnson
NGB/A7AM, Shepperd Hall
3501 Fetchet Avenue
Joint Base Andrews, MD 20762-5157

RE: Minnesota Air National Guard, 148th Fighter Wing
Environmental Assessment for Installation Development Projects
Duluth International Airport, Duluth, Saint Louis County
SHPO Number: 2015-1419

Dear Ms. Johnson:

Thank you for the opportunity to comment on the draft Environmental Assessment (EA) for the above project. It is our understanding that this document has been prepared in accordance with the National Environmental Policy Act (NEPA) and that we are continuing consultation with your agency pursuant to the responsibilities given the State Historic Preservation Officer by Section 106 of the National Historic Preservation Act of 1966 (NHPA) and implementing federal regulations at 36 CFR 800.

We last wrote to your agency on April 7, 2015, with initial recommendations and comments pursuant to our review of the Federal undertaking under Section 106 of the NHPA. We agree that the information provided in the draft EA under *Section 4.9 Cultural Resources* accurately reflects the status of the Section 106 review for the proposed 148th Fighter Wing Installation Development Projects. We look forward to continuing consultation with your agency specifically in regards to the identification and evaluation of historic properties and assessment of effects for "Project 3" of the Federal undertaking.

Please feel free to contact me at 651-259-3456 or sarah.beimers@mnhs.org if you have any questions regarding this comment letter. We look forward to continuing consultation on this project.

Sincerely,

Sarah J. Beimers

Sarah J. Beimers, Manager
Government Programs and Compliance

Minnesota Historical Society, 345 Kellogg Boulevard West, Saint Paul, Minnesota 55102
651-259-3000 • 888-727-8386 • www.mnhs.org

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NATIONAL GUARD BUREAU
3501 FETCHET AVENUE
JOINT BASE ANDREWS MD 20762-5157

NGB/A7AM 24 February 2015

Minnesota Historical Society
Attn.: Sarah Beimers, Manager of Government Programs and Compliance
345 W. Kellogg Boulevard
St. Paul, Minnesota 55102

Subject: Minnesota Air National Guard, 148th Fighter Wing
Environmental Assessment for Installation Development Projects
Duluth International Airport, Duluth MN

Dear Ms. Beimers

The National Guard Bureau (NGB) is preparing an environmental assessment (EA) in accordance with the National Environmental Policy Act (NEPA) to evaluate the potential impacts on the human environment from the implementation of multiple installation development projects at the 148th Fighter Wing (148 FW) in Duluth, Minnesota. The NGB is also reviewing the project under Section 106 of the National Historic Preservation Act.

The 148 FW installation occupies approximately 174 acres at Duluth International Airport, which is located approximately six miles northwest of downtown Duluth. The installation consists of a 55-acre main base and three smaller outparcels located on the north and south sides of the airport. The proposed projects consist of new construction, additions to existing buildings, demolitions, and infrastructure enhancement within the most densely developed parts of the installation. These projects are intended to provide the facilities and infrastructure necessary to support the mission of the 148 FW as well as to consolidate functions to improve operational efficiencies.

Table 1 summarizes the projects included in the proposed action. Figures 1 and 2 show the location and layout of the 148 FW installation at Duluth International Airport. Figures 3 and 4 show the locations of the proposed projects.

The proposed action constitutes an undertaking for the purposes of Section 106. The 148 FW base constitutes the Area of Potential Effect for the project.

A cultural resources survey of the 148 FW installation was completed in May 2007. The survey was prepared in compliance with Section 110 of the National Historic Preservation Act. A Phase I archaeological field survey was conducted to identify any intact archaeological sites and to verify reportedly disturbed areas on the installation. No archaeological resources were identified and the survey concluded that no further archaeological investigations on the 148 FW installation are warranted.

The 2007 survey also recorded 47 buildings erected prior to 1990. The following resources were recommended as eligible for listing in the National Register of Historic Places: Building 500, a first generation alert hangar; Buildings 520 and 521, which comprise the Weapons Checkout and Storage Facility; and Buildings 522, 523, 524, and 525, which are missile storage magazines covered under the *Program Comment for World War II and Cold War (1939-1974) Ammunition Storage Facilities*. Appendix 1, excerpted from the 148 FW's *Integrated Cultural Resources Management Plan* (ICRMP, March 2012), shows the location of those resources. The ICRMP indicates that Buildings 500, 520 and 521 are managed as historic properties and maintained in accordance with *The Secretary of the Interior's Standards for Rehabilitation*.

Only one of the proposed projects has the potential to directly affect one of the buildings recommended for eligibility in the 2007 survey: the construction of an addition to Building 520. Building 520 as it is documented in the 2007 survey is shown in Appendix 2, excerpted from the survey report.

It should be noted that prior to the completion of the 2007 survey and associated eligibility determination, Building 520 had been programmed for renovation, including replacement of the roof, insulation, and external steel siding. Design had been completed by 2004 but due to a delay in funding, the project was not implemented until after the 2007 survey was performed. As a result, the appearance of the building today differs from what it was in 2007, as shown in Appendix 2.

Thank you for provide any preliminary comments or concerns you may have on the potential effects of the proposed action on historic properties. Please direct your response to my attention at the address above or by email to: ang.env.comments@ang.af.mil

Thank you for your assistance.

Sincerely,

JOHNSON.FELICIA.K.1085531588

Digitally signed by JOHNSON.FELICIA.K.1085531588
DN: c=US, o=U.S. Government, ou=DoD, ou=PKI, ou=USAF, cn=JOHNSON.FELICIA.K.1085531588
Date: 2015.02.24 15:55:11 -05'00'

FELICIA JOHNSON
Plans and Requirements Branch

Attachments: Table 1 – Proposed Action Summary
Figure 1 – Location Map
Figure 2 - 148 FW Installation
Figure 3 – 148 FW Main Base – Proposed Action
Figure 4 – Project 3 Location
Appendix 1 – Location of National Register-Eligible Buildings
Appendix 2 – Building 520.

Table 1: Summary of Proposed Action

EA Project Number[1]	Project	148 FW Project Number	Year**
Construction Projects			
1	Expand, Renovate and Modify Building 250	FMKM082035 FMKM022020	2018 2020
2	Construct Addition to Building 280	FMKM112030	2016
3	Construct Addition to Building 520	FMKM112020	TBD
4	Construct Hydrazine Facility	FMKM082029	2015
5	Expand and Renovate Building 222 and Construct DRMO[3] Yard	FMKM112035	2018
6	Demolish Aircraft Shelters 497, 498, 499 and Construct New Aircraft Shelter	FMKM112032	2020
7	Construct Ground Vehicle Fueling Station and Demolish Existing Fueling Station	FMKM092032	2015
8	Construct New PMEL Facility and Demolish Existing PMEL Facility	FMKM039122	2022
9	Construct Mail Facility	FMKM072019	2020
10	Construct Small Arms Range	FMKM052013	2017
11	Construct Addition to Building 223	FMKM102013	2017
12	Construct Addition to Building 252 and Relocate Security Forces from Building 255	FMKM112006	2017
13	Construct Recycling Facility	TBD	TBD
Infrastructure Projects			
14	Demolish Building 224, LOX Storage and Relocate Building 270, Hush House	FMKM082029 FMKM112003	2018
15	Construct Secondary Access/Industrial Gate	FMKM062039	2015
16	Complete Pedestrian Sidewalk Network	NA[4]	2020
17	Improve On-base Road Network	NA	2020
18	Demolish Buildings 231, 238 and Expand AT/FP[5]-compliant Non-organizational Vehicle Parking	FMKM082019[6] FMKM082030[7]	2019

Notes:
1. Numbers indicate approximate project locations as shown on Figures 3 and 4.
2. TBD = To Be Determined
3. DRMO = Defense Reutilization and Marketing Office
4. NA = Not Applicable
5. AT/FP = Antiterrorism/Force Protection
6. Project number is for the demolition of Building 231.
7. Project number is for the demolition of Building 238.

** May change.

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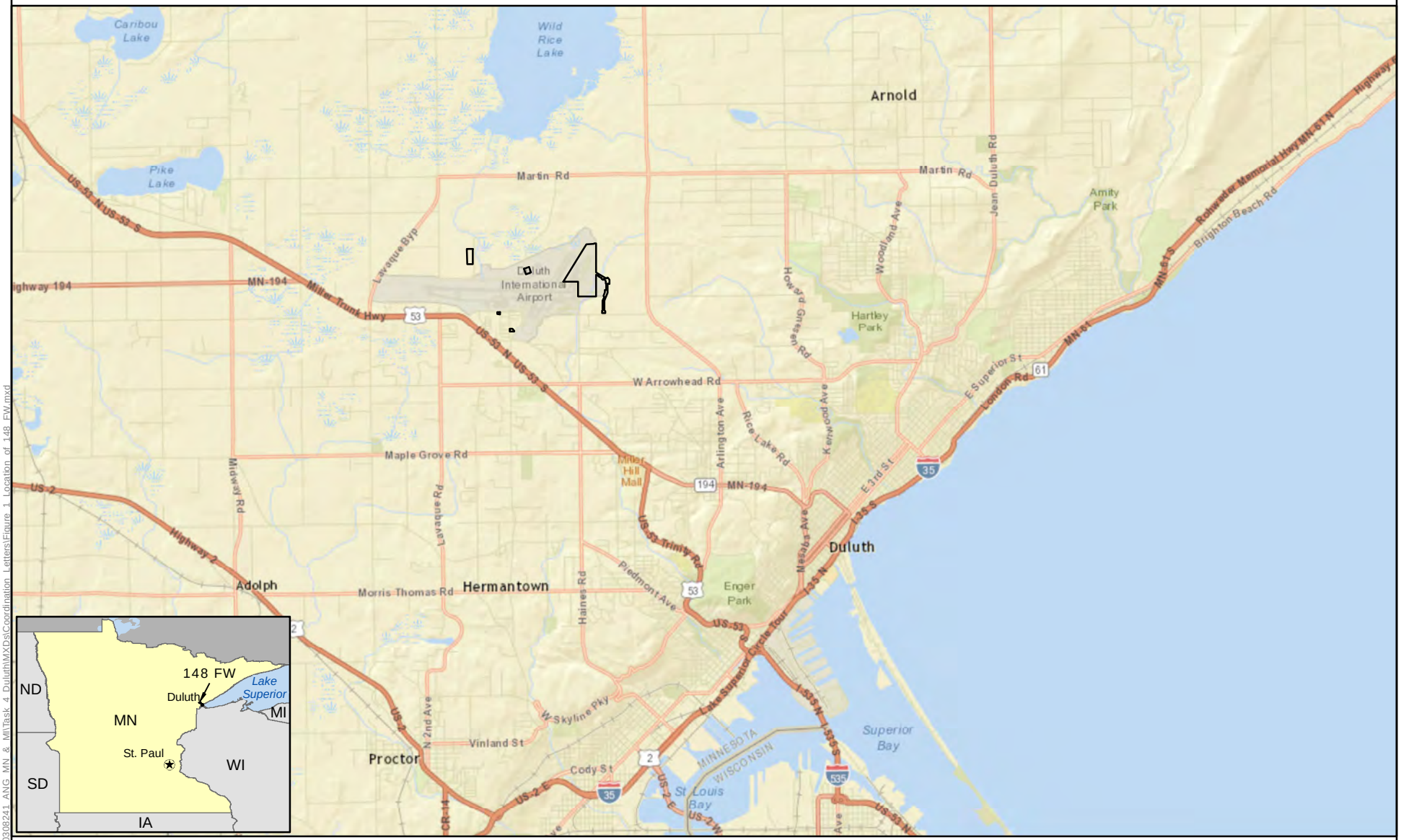
Location of the 148 FW Installation at Duluth International Airport



148 FW Installation Boundary

0 1 2 4

Miles

N

Figure 1

Source: Duluth ANG CIP 2013; ESRI Data & Maps 2006.

Path: L:_Common\GIS_Data\60308241 ANG MN & MI\Task 4 Duluth\MXDs\Coordination Letters\Figure 1 Location of 148 FW.mxd

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148 FW Installation at Duluth International Airport

148 FW Installation Boundary (Approximate)

0 1,000 2,000 4,000
Feet

N

Figure 2

Source: Duluth ANG CIP 2013; ESRI Data & Maps 2006.

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Project Locations on the Main Base

Figure 3

Source: Duluth ANG CIP 2013; ESRI Data & Maps 2006.

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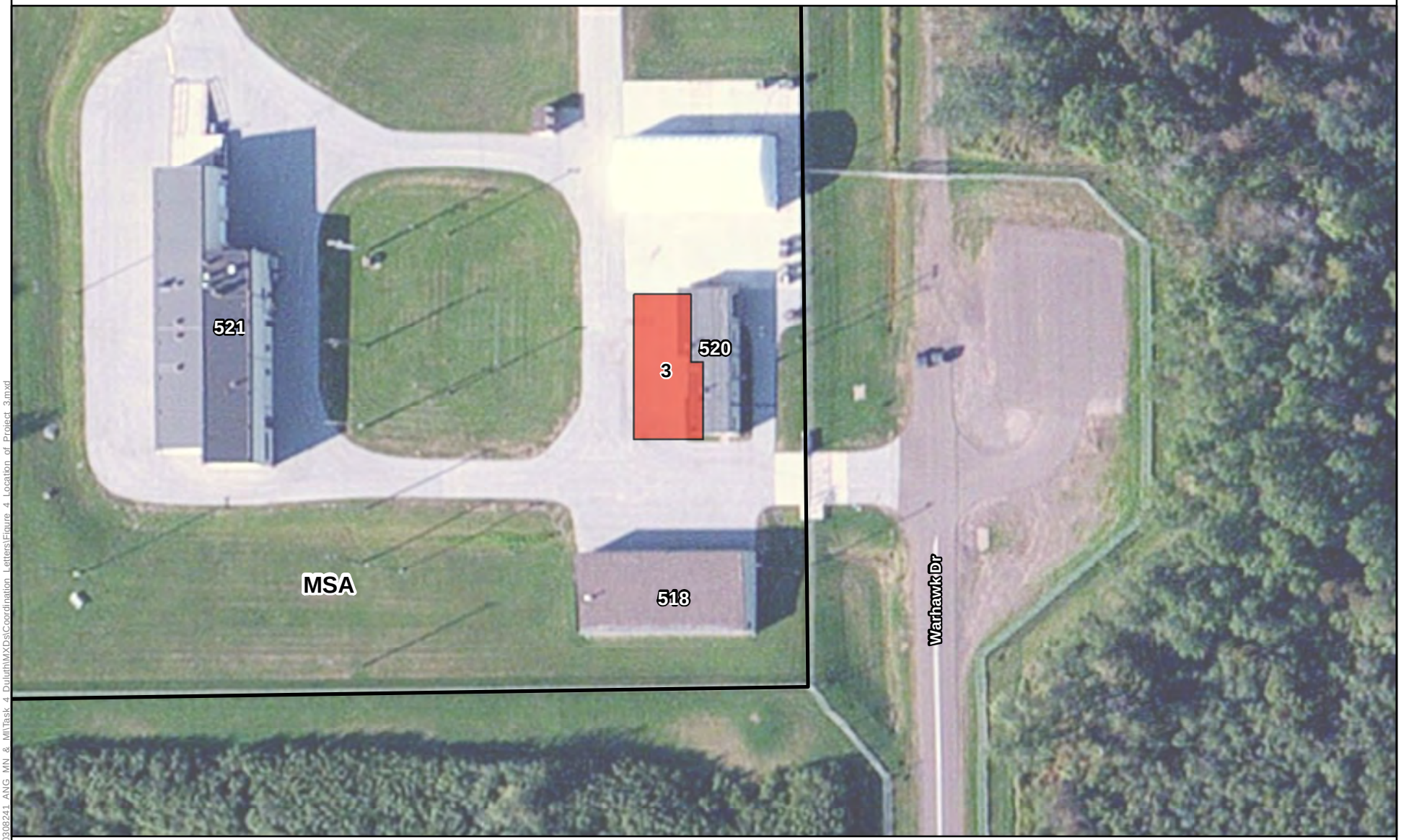
Location of Project 3



Construction Project

Installation Boundary (Approximate)

0 50 100 200

Feet

N

Figure 4

Source: Duluth ANG CIP 2013; ESRI Data & Maps 2006.

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Appendix 1 - Location of Historic Buildings at 148 FW Installation

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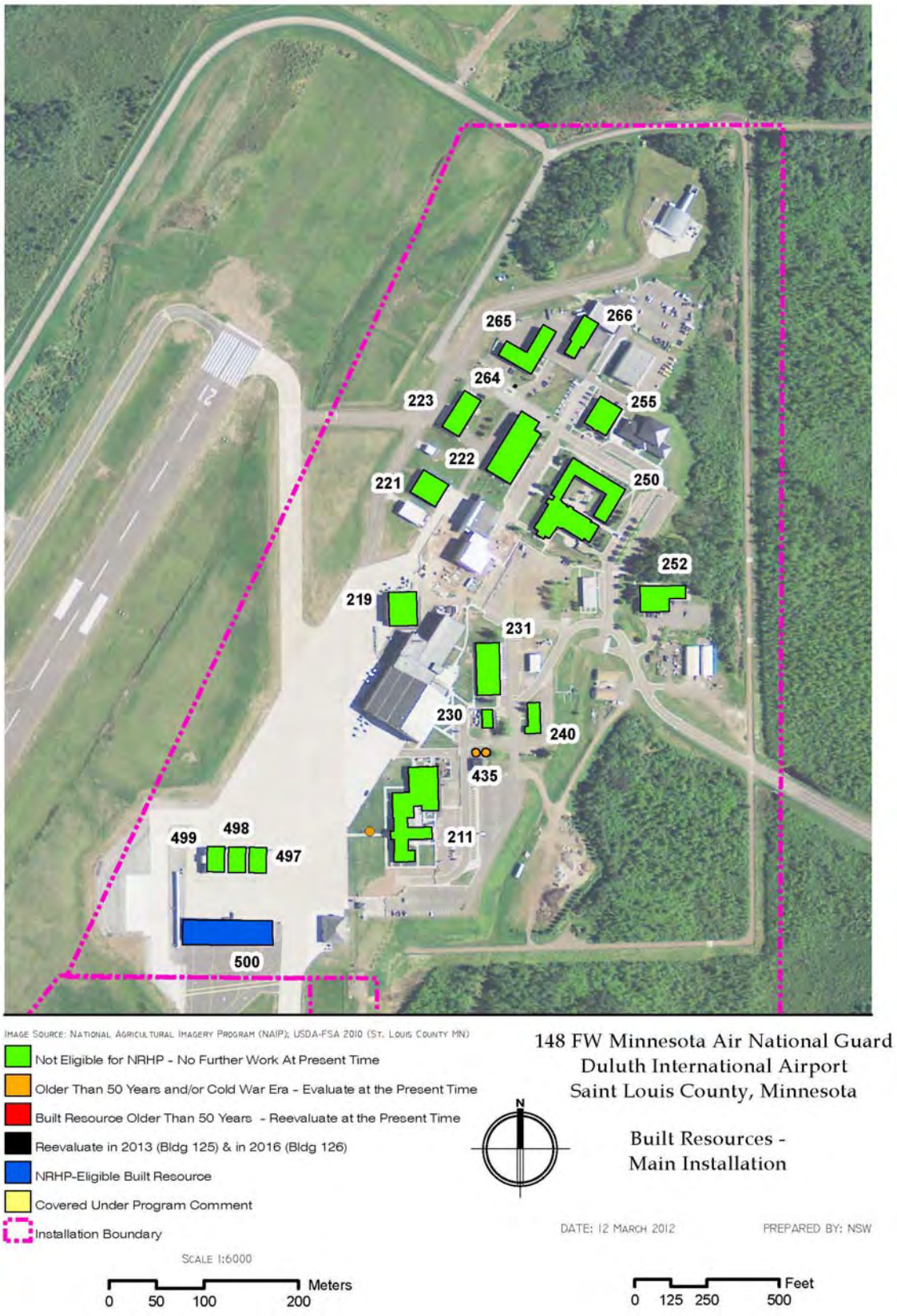

Figure 2-1. Map depicting built resources at 148FW/MNANG at Duluth IAP (Main Installation)

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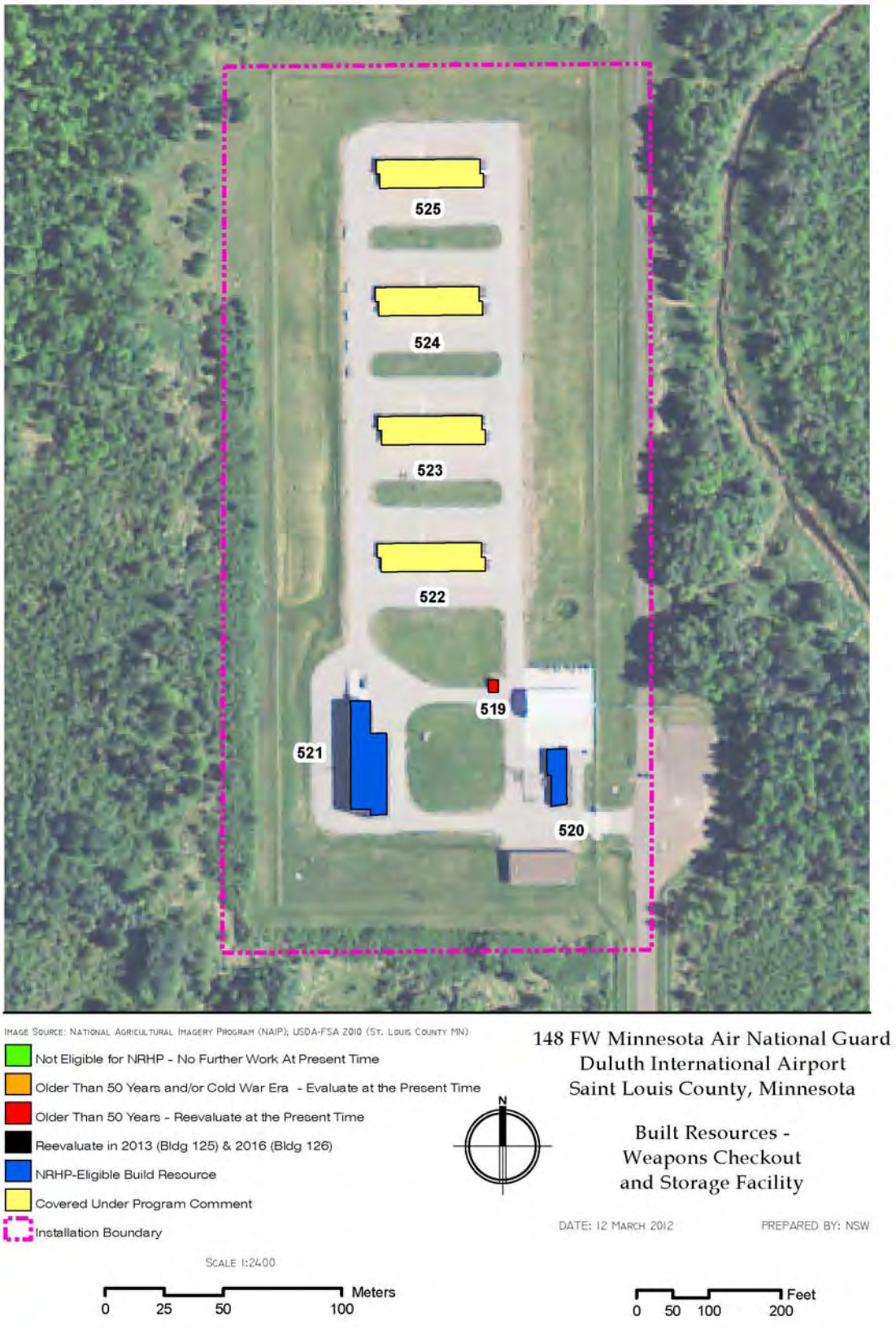

Figure 2-2. Map depicting built resources at 148FW/MNANG at Duluth IAP (Weapons Checkout and Storage Facility)

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Appendix 2 - Building 520

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Building 520 in 2007 (excerpted from *Cultural Resources Survey of the 148th Fighter Wing*, May 2007)

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MINNESOTA HISTORY/ARCHITECTURE INVENTORY FORM

Project: Duluth ANGB

Hermantown, St. Louis County, Minnesota

Identification

Historic Name Gate House

Current Name Building 520

Field # 520

Address 4623 Warhawk Drive

City/Twp Hermantown

County St. Louis

Legal Desc. **Twp** 50 **Range** 15 **Sec** 2

USGS Quad Duluth Heights/1991

UTM **Zone** 15N **Datum** NAD 83

Easting 560457.2276 **Northing** 5188532.84692

Property ID (PIN)

SHPO Inventory Number SL-HER-007

Review and Compliance Number

Form (New or Updated) New

Description

Resource Type Military Base Building

Architect/Engineer Black & Veatch

Style Utilitarian

Construction Date 1958

Original Use Gate House

Current Use Munitions Trailer Maintenance

Description

The long, narrow one-story rectangular building stands near the entrance to the weapons storage complex. It has an exposed concrete frame and a flat roof edged with a metal fascia. Its walls of concrete block are parged. The south end of the building houses offices and shops and has solid metal doors and small windows filled with several types of sash. The vehicle bays at the north end of the building are accessed by openings with overhead garage doors. A lattice tower holding radio antennas stands immediately east of the building.

Related Outbuildings

Integrity

This building appears to have had few alterations and its overall integrity is good.

EVALUATION AND ANALYSIS

Historical Context

See context in survey report.

Historical Narrative

This building was built in 1958, at the time that the weapons checkout and storage facility was established. The 148th Fighter Wing has used the facility since 1960.

Significance and Recommendations

The weapons checkout and storage facility, built by USAF near the west end of the main runway, documents the incorporation of nuclear weapons into the ADC air defense alert program. The facility's primary significance derives from the fact that the 148th Fighter Group (148 FG) was the first ANG unit qualified to operate with MB-1 Genie air-to-air missiles (Genies) on the F-89 aircraft. Further, the 148 FG's Safety Officer developed safety and security procedures for Genies that were adopted as standards by the ANG and the USAF. The 148 FG maintained this critical Cold Warmission for 16 years, from 1960 to 1976, in which two aircraft were loaded with Genie missiles and were to fly only if the U.S. was under attack. This building is eligible based on its association with the magazines (Buildings 522 through 525) and Building 521.

Sources

National Register Status

Not Previously Evaluated

National Register Eligibility Recommendation

Eligible

Prepared By	**Date**
Betsy Bradley The 106 Group Ltd.	8/30/2005

Property Photograph

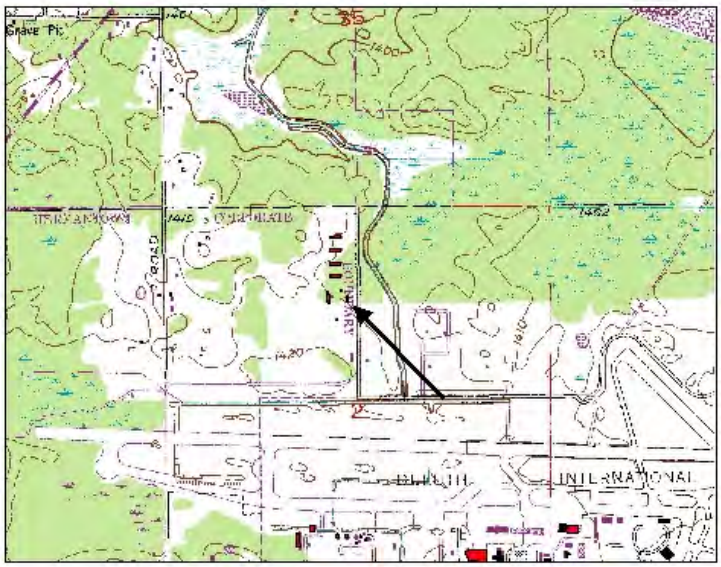
Property Photograph

MINNESOTA HISTORY/ARCHITECTURE INVENTORY FORM

Project: Duluth ANGB

Hermantown, St. Louis County, Minnesota

Property Location Map



Building 520 in July 2014

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Building 520 Southwest Corner (July 2014)

Building 520 Southeast Corner (July 2014)

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STATE HISTORIC PRESERVATION OFFICE

April 7, 2015

Ms. Felicia Johnson
Plans and Requirements Branch
National Guard Bureau
3501 Fetchet Avenue
Joint Base Andrews, MD 20762-5157

RE: Minnesota Air National Guard, 148th Fighter Wing
Environmental Assessment for Installation Development Projects
Duluth International Airport, Duluth, Saint Louis County
SHPO Number: 2015-1419

Dear Ms. Johnson:

Thank you for the opportunity to comment on the above project. Information received in our office on 4 March 2014 has been reviewed pursuant to the responsibilities given the State Historic Preservation Officer by Section 106 of the National Historic Preservation Act of 1966 and implementing federal regulations at 36 CFR 800.

We have completed our review of your correspondence letter dated 24 February 2015 including all submittals: Table 1, Figures 1-4, and Appendices 1-2. Based on information provided to our office, it is our understanding that the Federal undertaking involves a multi-component construction project at the 148th Fighter Wing (148 FW) facility in Duluth, Minnesota. Your agency has provided a definition and documentation for the undertaking's area of potential effect (APE) and is described as the 148 FW installation including the Main Base and the former Weapons Checkout and Storage Facility.

Regarding identification of historic properties in the APE, you provided reference to the May 2007 report entitled *Cultural Resources Survey of the 148th Fighter Wing, Minnesota Air National Guard, Duluth International Airport, Duluth, St. Louis County, Minnesota* (Report). We have reviewed our copy of this Report along with the project information recently submitted. Our comments and recommendations are provided below.

Main Base
As indicated in your February 24th letter, Building 500, the **Alert Hangar** (SL-DUL-2640), was previously determined eligible for listing in the National Register of Historic Places (NRHP) under Criterion A. Although your agency has determined that the proposed undertaking does not have the potential to directly affect Building 500, it appears as though there is a proposed construction project adjacent to this historic property. Please provide clarification regarding your agency's assessment of potential indirect adverse effects caused by this new construction.

Weapons Checkpoint and Storage Facility
In 2007 the Report identified and we concurred with the recommendation that the Buildings 520-525 are eligible for listing in the NRHP under Criterion A for their association with the Cold War Aerospace Defense Command (ADC) mission. While we do understand that the missile storage Magazines A, B, C and D (Buildings 522, 523, 524 and 524) are technically included in the ACHP Program Comment *World War II and Cold War Era Ammunition Storage Facilities (1939-1974)* effective August 2006, we see repeated indication that the remaining buildings at the Weapons Checkpoint and Storage Facility (Facility) including the Gate House (Building 520) and Munition Assembly and Checkout Building (Building 521) are only eligible within the context of each other and the magazines. Also, although the entire 148 FW installation was apparently evaluated for NRHP eligibility as a discontiguous historic district and determined not to be eligible (Report p. 5-11), we see no indication that the Facility was ever evaluated on its own as a separate historic district. We believe that it may be eligible as a historic district as the Report indicates that this Facility is significant as the 148 FW was the first unit qualified to operate with MB-1 Genie air-to-air missiles on the F-89 aircraft and, at the time it was surveyed in 2005-6, the buildings had good historic integrity.

In order to clarify the significance of the individual buildings and a potential historic district, we recommend that the Weapons Checkpoint and Storage Facility be evaluated for NRHP eligibility as a historic district. Also, due to the fact that the Gate House (Building 520) appears to have been significantly modified in 2007 with the addition of exterior steel siding, which does not meet the Secretary of the Interior's *Standards for Rehabilitation*, the historic property's integrity may have been compromised at an individual level.

Please feel free to contact me at 651-259-3456 or sarah.beimers@mnhs.org if you have any questions regarding this comment letter. We look forward to continuing consultation on this project.

Sincerely,

Sarah J. Beimers

Sarah J. Beimers, Manager
Government Programs and Compliance

These aircraft shelters have rigid frames and gable roofs; they are enclosed with corrugated steel panels (Weitze 1999:54, 120).

4.6.2.2 Weapons Checkout and Storage Facilities

As the USAF planned for equipping FIS aircraft with nuclear rockets during the mid-1950s, it also developed weapons storage facilities for Genie missiles. The engineering firm of Black & Veatch developed a "third generation" standard weapons storage compound that included four or five storage magazines, an assembly and checkout building, and guard gatehouse enclosed by a chain link fence that was adopted in 1956. The ADC programmed for 23 Genie weapon storage sites and many of these facilities were constructed by 1958 (Weitze 1999:76-77).

The Genie weapons storage areas were sited away from alert flightlines, often near the opposite end of the runway. Facilities built after 1958 did not have berms between each magazine, or "igloo," that were a part of earlier installations. The reinforced-concrete magazines contained 30 storage stalls, set back-to-back in groups of 15; a concrete wall separating the rows of stalls rises above the flat-roofed sections on either side. A series of steel overhead doors with upper blowout panels, separated by concrete piers, constitute the long walls of the magazines (Weitze 1999:77).

4.6.2.3 Maintenance and Readiness Hangars

The maintenance and readiness hangars erected to support the air defense alert program are similar in design. Standardized designs for these building types were refined during the 1950s. In 1953, Strobel & Salzman altered slightly an earlier design provided by Mills & Petticord. The Strobel & Salzman hangar was characterized by interior cantilevered trusses and a façade with modernized recessing panel doors. Shops were positioned at the rear and sides of the hangar. These hangars, often erected in pairs, were positioned perpendicular to the flightline (Weitze 1999:63).

4.6.2.4 Electronics and Calibration Structures

The construction of armament and electronics shops and weapons calibration shelters accompanied the adoption of new fighter jets during the late 1950s. The Kuljian Corporation designed both building types. The armament and electronics shop supported the complex link between F-101B aircraft, their Genie missiles, and the SAGE operation. The shop is an unassuming one-story concrete block building. The type B weapons calibration shelter was a prefabricated 50- by 80-foot Butler Manufacturing Company building that has the form of a small hangar (Weitze 1999:72-73).

aprons, paved roads, terraces and drainage areas, and the small areas of lawn surrounding some of the buildings are the predominant elements of the base landscape. There are only a small number of mature trees on the base, though some trees have been planted in recent years. The landscaping of the enclosed courtyard of Building 250 and the grove of trees north of Building 252 stand out as areas of the base where vegetation contributes to the built environment.

The most important functional component of the base as a built environment is the relationship of many of the buildings to the flightline. The flightline, both conceptually and functionally, governs the placement of facilities and much of the operation of the base. The new hangar and maintenance facility under construction, Building 212, has altered the flightline portion of the base through the loss of the original main hangar and some nearby maintenance shops and the presence of the modern facility. The construction projects underway and planned for the base have altered the function of the road system on the base and will soon do so more emphatically when the plan to relocate the entrance road is completed. The properties under the jurisdiction of the 148 FW have the character of being designed for particular functions, rehabilitated as needed, and carefully maintained. Many of the buildings on the ANGB have brick exterior walls that establish a sense of dignity and permanence. The architectural detailing of these buildings reflects the functional aesthetics of engineers and the general influence of modernism more than architectural styling. Many of the buildings are adaptations of standard designs or pre-engineered buildings. The earlier buildings erected under the supervision of the Army Corps of Engineers utilize similar types of elements, such as cast-concrete sills. The later buildings, designed by architectural firms located in Duluth, have an updated, but similarly utilitarian aesthetic. The ANG and USAF buildings included in this survey are not exceptional examples of military base architecture and engineering.

5.2.3 Weapons Checkout and Storage Facility

The weapons checkout and storage facility, built by the USAF near the west end of the main runway, documents the incorporation of nuclear weapons into the ADC air defense alert program. The facility's primary significance derives from the fact that the 148 FG was the first ANG unit qualified to operate with MB-1 Genie air-to-air missiles (Genies) on the F-89 aircraft. Further, the 148 FG's Safety Officer developed safety and security procedures for Genies that were adopted as standards by the ANG and the USAF. The 148 FG maintained this critical Cold War mission for 16 years, from 1960 to 1976, in which two aircraft were loaded with Genie missiles and were to fly only if the U.S. was under attack.

5.2.6 INDIVIDUAL PROPERTY RECOMMENDATIONS

Forty-seven buildings were documented and evaluated for NRHP eligibility. One building is considered eligible for the NRHP. Fourteen buildings are key property types that, although thematically interesting, are not significant, since they do not meet the rigorous requirements of NRHP eligibility criteria, including those specific to the Cold War era. Thirty-two non-key property types were also evaluated and found to be ineligible for the NRHP.

Tables 5-1 through 5-3 summarize the architectural history properties included in the cultural resources survey and recommendations concerning eligibility for listing in the NRHP. The locations of the inventoried architectural history properties are identified on Figure 5-2. Table 5-4 provides a list of properties erected after 1989 and therefore not included in the cultural resources survey. Minnesota History/Architecture Inventory Forms in Volume 2 prepared for each building included in the survey provide descriptions and historical information.

5.2.6.1 NRHP-Eligible and Key Cold War Property Types

The following properties were identified during the cultural resources survey as representative of key Cold War property types; only Building 500, Alert Hangar, is potentially eligible for listing on the NRHP. The evaluations of these properties are summarized below. Additional information on each building is recorded on its Minnesota History/Architecture Inventory Form (Volume 2).

Building 500, a First Generation Alert Hangar
4602 Phantom Drive, SL-DUL-2640

Building 500 is a first generation alert hangar of the type designed by Strobel & Salzman for the USAF. The hangar has the setting of a fighter interceptor alert landscape, with an adjacent triangular concrete alert apron, short taxiway angled 45 degrees, and position near one end of the main runway. The hangar has the standard form of a four-pocket air defense alert hangar, a steel-frame bolted to a reinforced concrete pad, corrugated metal sheathing, front and rear doors for each aircraft pocket, and flat roof (Figure 5-7). The central portion of the building is a two-story alert crew quarters. The hangar has corrugated siding, painted nearly white, on the end walls and upper walls (parapet) above the hangar doors. Letters spelling "Minnesota Air National Guard" have been applied to the south parapet. The doors of the hangar have been replaced recently with units of heavy vinyl that are drawn upward similar to a Roman shade. Unpainted corrugated metal forms the walls between the aircraft pockets (Figure 5-8). Steel trusses are visible below the corrugated metal roof decking. The metal rails on which overhead doors were supported remain in place near the roof and modern heating and lighting fixtures also

February 1961 issue of "On Five" reported that plans were underway for the addition of two new wings to the Administration Building to provide additional classrooms and offices for the expanding sections at Group Headquarters. The plans included the division of the auditorium in the Administration Building into classrooms and offices. This work may have been delayed until 1976, when a 17,850-square foot wing was built on the north end of the building to provide space for the Photo Intelligence and Photo Processing units, as well as a flight simulator. This wing, designed by Architectural Resources, Inc., included offices in its western end, a space large enough to accommodate a flight simulator, and a storage area on its east side. A shortage of TF-4C simulators left the 148th without one until an F4 simulator was installed in the space in 1984. A new command post complex was built in the Operations Building during the winter of 1982-1983. In 1987 and 1988, Building 211 was remodeled to accommodate use by the weapons release and munitions sections. This work included the redesign of the interior of the building and the creation of different shops and offices.

Building 211 was erected as the squadron operations center and headquarters for the 179 FS. The building was one of the original facilities erected for the ANG unit and represents the operations of the 179 FS during the Cold War. It also documents the broad pattern of ANG base development at the beginning of the Cold War. The building, utilitarian in appearance and somewhat influenced by the turn to modernism, represents the type of architecture adopted for military bases earlier in the mid-twentieth century and does not appear to have any architectural significance related to the Cold War era. Building 211, which has only fair to good historical integrity, does not convey exceptionally well its potential historical significance related to the Cold War development of the 148 FW ANG installation. Since the primary historical significance of the Cold War era resources is the national military strategy, Building 211 is identified as a property that is not eligible for listing on the NRHP under Criterion A, nor does it qualify under the other NRHP criteria.

Buildings 519 through 525, Weapons Checkout and Storage Facility
Warhawk Drive, SL-HER-006-012

Buildings 519 through 525 are a "third generation" weapons checkout and storage facility as designed for MB-1 Genie air-to-air missiles. The facility built in 1958 is one of over 20 such installations constructed by the USAF. It has been used by the 148 FW since 1960 and has very good historical integrity. It consists of seven buildings generally dating to the original construction period (519, 520, 521, 522, 523, 524 and 525); six of the seven (520 through 525) were built in 1958, with 519 added in 1960. The one building added to the compound much later, a munitions trailer maintenance building erected in 1992, is located at the south end of the complex and is not documented here. It has a related function and appropriate scale, and therefore does not adversely affect the feeling and setting of the facility.

6.2 ARCHAEOLOGY

A Phase I archaeological survey was conducted of the 148 FW installation, including the Weapons Checkout and Storage Facility and surrounding Restrictive Easement and other Owned and Leased Properties. There were no previously recorded sites within the project area, nor were any archaeological resources encountered during the survey. The area was considered to have low potential to contain either precontact or post-contact (Euro-American) archaeological sites. Shovel testing was conducted in purportedly undisturbed areas of the main 148 FW installation and the Restrictive Easement around the Weapons Checkout and Storage Facility. Soil probes were used to verify reported disturbance in the Owned and Leased Properties. A total of 19 shovel tests and eight soil probes were used to investigate the survey areas. The tests and probes demonstrated an absence of archaeological sites in the area, and confirmed heavy disturbance in the project area from prior construction and drainage management activities on the base. Due to the lack of archaeological materials found within the surveyed areas, and the high degree of disturbance, no further archaeological work is recommended. However, although unlikely, there remains a remote possibility that subsurface construction activity could result in the discovery of archaeological resources. If such resources are located, construction should halt until the 148 FW EM is notified, and the EM will contact NGB/A7CV. The EM will also coordinate with the Minnesota SHPO to determine subsequent actions.

6.3 ARCHITECTURAL HISTORY

6.3.1 NRHP ELIGIBILITY

The architectural survey recorded 47 architectural properties within the project area dating to the Cold War Era; 11 of these are 50 years in age or older. Building 500, a first generation alert hangar, is recommended as eligible for listing on the NRHP. Fourteen additional key properties were identified. These included the Weapons Checkout and Storage Facility (encompassing Buildings 519, 520, 521 and four missile storage magazines, Buildings 522, 523, 524, and 525), a key property less than 50 years of age, and with very good historical integrity. The four magazines are covered by the Program Comment on World War II munitions and are considered NRHP eligible based on their association with the MB-1 Genies. Buildings 520 and 521 are eligible based on their key property status and their temporal association with the magazines and the MB-1 Genies, as well, since all six buildings date to 1958. Building 519, the paint storage facility, is not eligible, as it was built later and so its association with the Genies is more tenuous. The remaining seven buildings were determined to be not eligible for the NRHP, as they are without the exceptional historical significance necessary for properties of their age to be NRHP eligible under Cold War criteria. Evaluation of these properties based on non-Cold War criteria resulted in a determination of not eligible.

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NATIONAL GUARD BUREAU
3501 FETCHET AVENUE
JOINT BASE ANDREWS MD 20762-5157

NGB/A7AM 15 December 2014

US Fish and Wildlife Service
Twin Cities Ecological Services, Minnesota Field Office
4101 American Boulevard East
Bloomington, MN 55425-1665

Subject: Minnesota Air National Guard, 148th Fighter Wing
Environmental Assessment for Installation Development Projects
Duluth International Airport, Duluth MN

Dear Sir or Madam

The National Guard Bureau (NGB) is preparing an environmental assessment (EA) in accordance with the National Environmental Policy Act (NEPA) to evaluate the potential impacts on the human environment of implementing multiple installation development projects at the 148th Fighter Wing (148 FW) installation at Duluth International Airport, in Duluth, Minnesota. The location and layout of the 148 FW installation are shown in Figures 1 and 2, respectively. The proposed projects are summarized in Table 1 and illustrated in Figures 3 and 4.

The 148 FW installation occupies approximately 174 acres at Duluth International Airport, approximately six miles northwest of downtown Duluth. The installation consists of a 55-acre main base and three smaller outparcels located on the north and south sides of the airport. The proposed projects consist of new construction, additions to existing buildings, demolitions, and infrastructure enhancement within the most densely developed parts of the installation. These projects are intended to provide the facilities and infrastructure necessary to support the mission of the 148 FW as well as to consolidate functions to improve operational efficiencies.

As part of the scoping phase of the environmental assessment process, we request information on the rare, threatened and endangered species or their critical habitats that may occur in the vicinity of the project area as well as any comments or concerns you may have on the potential effects of the proposed action on those resources. The purpose of scoping is to determine the issues to be addressed in the EA. After the draft EA is completed, we will send you a copy for your further review and comments.

Please direct your response to my attention at the address above or by email to: ang.env.comments@ang.af.mil

Thank you for your assistance.

Sincerely,

JOHNSON.FELICIA.K.1085531588

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Date: 2014.12.15 10:12:05 -05'00'

FELICIA JOHNSON
Plans and Requirements Branch

Attachments: Table 1 – Proposed Action Summary
Figure 1 – Location Map
Figure 2 - 148 FW Installation
Figure 3 – 148 FW Main Base – Proposed Action
Figure 4 – Project 3 Location

Carver, Craig

From: Jaka, Jonathan <jonathan_jaka@fws.gov>
Sent: Thursday, April 23, 2015 11:31 AM
To: ang.env.comments@ang.af.mil
Cc: Carver, Craig; Andrew Horton
Subject: 148th FW Scoping Letter Response

Dear Ms. Johnson,

I have reviewed your scoping letter for your proposed project at 148th Fighter Wing installation, Duluth International Airport in St. Louis County, Minnesota. For the county listed, the following species may occur:

St. Louis	Canada lynx *(Lynx canadensis)*	Threatened	Northern forest
	Canada lynx *(Lynx canadensis)*	Critical Habitat	Map of lynx critical habitat in Minnesota
	Gray wolf *Canis lupus*	Threatened	Northern forest
	Northern long-eared bat *Myotis septentrionalis*	Threatened	Hibernates in caves and mines - swarming in surrounding wooded areas in autumn. Roosts and forages in upland forests during spring and summer.
	Piping Plover *(Charadrius melodus)* Great Lakes Breeding Population	Endangered andCritical Habitat Designated in this county	Sandy beaches, islands
	Rufa Red knot *(Calidris canutus rufa)*	Threatened	Coastal areas along Lake Superior

We have no known records for federally listed or proposed species and/or designated or proposed critical habitat within the action area.

If project plans change, additional information on listed or proposed species becomes available, or new species are listed that may be affected by the project, our office should be contacted. This concludes our technical assistance review of the proposed action at the above location. If you have any further endangered species questions, please contact Andrew Horton at andrew_horton@fws.gov or (612) 725-3548 x2208.

Thank you,

--
Jonathan JaKa
Pathways Student (Biologist)
Midwest Region
U.S. Fish and Wildlife Service
5600 American Blvd. West, Suite 990
Bloomington, MN 55437-1458

Telephone: 612-725-3548 x2214
jonathan_jaka@fws.gov

NATIONAL GUARD BUREAU
3501 FETCHET AVENUE
JOINT BASE ANDREWS MD 20762-5157

NGB/A7AM 15 December 2014

Lower Sioux Indian Community in the State of Minnesota
Grace Goldtooth-Campos, THPO
P.O. Box 308
Reservation Highway 1
Morton, MN 56270

SAMPLE

Subject: Minnesota Air National Guard, 148th Fighter Wing
Environmental Assessment for Installation Development Projects
Duluth International Airport, Duluth MN

Dear Ms. Goldtooth-Campos

The National Guard Bureau (NGB) is preparing an environmental assessment (EA) in accordance with the National Environmental Policy Act (NEPA) to evaluate the potential impacts on the human environment of implementing multiple installation development projects at the 148th Fighter Wing (148 FW) installation at Duluth International Airport, in Duluth, Minnesota. The location and layout of the 148 FW installation are shown in Figures 1 and 2, respectively. The proposed projects are summarized in Table 1 and illustrated in Figures 3 and 4.

The 148 FW installation occupies approximately 174 acres at Duluth International Airport, approximately six miles northwest of downtown Duluth. The installation consists of a 55-acre main base and three smaller outparcels located on the north and south sides of the airport. The proposed projects consist of new construction, additions to existing buildings, demolitions, and infrastructure enhancement within the most densely developed parts of the installation. These projects are intended to provide the facilities and infrastructure necessary to support the mission of the 148 FW as well as to consolidate functions to improve operational efficiencies.

A cultural resources survey of the 148 FW installation was completed in May 2007. The survey was prepared in compliance with Section 110 of the National Historic Preservation Act. A Phase I archaeological field survey was conducted to identify any intact archaeological sites and to verify reportedly disturbed areas on the installation. No archaeological resources were identified and the survey concluded that no further archaeological investigations on the 148 FW installation are warranted.

The 1999 Department of Defense American Indian and Alaska Native Policy recognizes the “importance of…addressing tribal concerns, past, present, and future” and states that “these concerns should be addressed prior to reaching decisions on matters that may have the potential to significantly affect protected tribal resources, tribal rights, or Indian lands.”

Consistent with this policy, we request any information you may have regarding potential tribal concerns or interests at or near the 148 FW installation or Duluth International Airport that may be affected by the proposed projects. This letter is being sent to you as part of the scoping phase of the environmental assessment process. The purpose of scoping is to determine the issues to be addressed in the EA. After the draft EA is completed, we will send you a copy for your further review and comments.

Thank you for provide any preliminary comments or concerns you may have on the potential effects of the proposed action on protected tribal resources, tribal rights, or Indian lands. Please direct your response to my attention at the address above or by email to: ang.env.comments@ang.af.mil

Thank you for your assistance.

Sincerely,

JOHNSON.FELICIA.K.1085531588

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Date: 2014.12.15 10:14:17 -05'00'

FELICIA JOHNSON
Plans and Requirements Branch

Attachments: Table 1 – Proposed Action Summary
Figure 1 – Location Map
Figure 2 - 148 FW Installation
Figure 3 – 148 FW Main Base – Proposed Action
Figure 4 – Project 3 Location

NATIONAL GUARD BUREAU
3501 FETCHET AVENUE
JOINT BASE ANDREWS MD 20762-5157

NGB/A7AM 15 December 2014

Richard Baker, Minnesota Endangered Species Coordinator
Department of Natural Resources, Natural Heritage Program
500 Lafayette Rd, Box 25
St. Paul, MN 55155-4040

Subject: Minnesota Air National Guard, 148th Fighter Wing
Environmental Assessment for Installation Development Projects
Duluth International Airport, Duluth MN

Dear Mr. Baker

The National Guard Bureau (NGB) is preparing an environmental assessment (EA) in accordance with the National Environmental Policy Act (NEPA) to evaluate the potential impacts on the human environment of implementing multiple installation development projects at the 148th Fighter Wing (148 FW) installation at Duluth International Airport, in Duluth, Minnesota. The location and layout of the 148 FW installation are shown in Figures 1 and 2, respectively. The proposed projects are summarized in Table 1 and illustrated in Figures 3 and 4.

The 148 FW installation occupies approximately 174 acres at Duluth International Airport, approximately six miles northwest of downtown Duluth. The installation consists of a 55-acre main base and three smaller outparcels located on the north and south sides of the airport. The proposed projects consist of new construction, additions to existing buildings, demolitions, and infrastructure enhancement within the most densely developed parts of the installation. These projects are intended to provide the facilities and infrastructure necessary to support the mission of the 148 FW as well as to consolidate functions to improve operational efficiencies.

As part of the scoping phase of the environmental assessment process, we request information on the rare, threatened and endangered species or their habitats that may occur in the vicinity of the project area as well as any comments or concerns you may have on the potential effects of the proposed action on those resources. The purpose of scoping is to determine the issues to be addressed in the EA. After the draft EA is completed, we will send you a copy for your further review and comments.

Please direct your response to my attention at the address above or by email to: ang.env.comments@ang.af.mil

Thank you for your assistance.

Sincerely,

JOHNSON.FELICIA.K.1085531588

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Date: 2014.12.15 10:13:07 -05'00'

FELICIA JOHNSON, A7AM
Plans and Requirements Branch

Attachments: Table 1 – Proposed Action Summary
Figure 1 – Location Map
Figure 2 - 148 FW Installation
Figure 3 – 148 FW Main Base – Proposed Action
Figure 4 – Project 3 Location

APPENDIX B – AIR QUALITY ANALYSIS

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B.1 Introduction

This appendix provides the following analyses of potential air quality impacts:

- Criteria and hazardous pollutants emissions and Clean Air Act general conformity rule applicability.
- Greenhouse gases.

B.2 Clean Air Conformity

The 1990 amendments to the Clean Air Act (CAA) require federal agencies to ensure that their actions conform to the appropriate state implementation plan (SIP) in a nonattainment or maintenance area. The SIP provides for implementation, maintenance, and enforcement of the National Ambient Air Quality Standards (NAAQS); it includes emission limitations and control measures to attain and maintain the NAAQS. Conformity to a SIP, as defined in the CAA, means conformity to a SIP's purpose of reducing the severity and number of violations of the NAAQS to achieve attainment of the standards. The federal agency responsible for a proposed action is required to determine if its proposed action conforms to the applicable SIP.

The United States Environmental Protection Agency (USEPA) has developed two sets of conformity regulations; federal actions are differentiated into transportation projects and non-transportation-related projects:

- Transportation projects, which are governed by the "transportation conformity" regulations (40 CFR Parts 51 and 93), effective on December 27, 1993 and revised on August 15, 1997.
- Non-transportation projects which are governed by the "general conformity" regulations (40 CFR Parts 6, 51 and 93) described in the final rule for *Determining Conformity of General Federal Actions to State or Federal Implementation Plans* published in the Federal Register on November 30, 1993. The general conformity rule became effective January 31, 1994 and was revised on March 24, 2010.

Since the proposed action is not a transportation project, the general conformity regulation applies.

B.3 General Conformity

B.3.1 Attainment and Nonattainment Areas

The general conformity rule applies to federal actions occurring in air basins designated as nonattainment for the NAAQS or in attainment areas subject to maintenance plans (maintenance areas). Federal actions occurring in air basins that are in attainment with the NAAQS are not subject to the conformity rule.

A criteria pollutant is a pollutant for which an air quality standard has been established under the CAA. Under the requirements of the 1970 Clean Air Act (CAA), as amended in 1977 and 1990, the USEPA established NAAQS for six criteria pollutants: carbon monoxide (CO), sulfur dioxide (SO_2), nitrogen dioxide (NO_2), ozone (O_3), inhalable particulate matter (PM_{10} and $PM_{2.5}$), and lead (Pb). The NAAAQS are shown in Table B-1.

Table B-1: National Ambient Air Quality Status

Pollutant	Primary/ Secondary	Averaging Time	Level[1]	Form
Carbon Monoxide (CO)	Primary	8-hour	9 ppm	Not to be exceeded more than once per year
		1-hour	35 ppm	
Nitrogen Dioxide (NO_2)	Primary	1-hour	100 ppb	98th percentile, averaged over 3 years
	Primary and secondary	Annual	53 ppb	Annual Mean
Ozone (O_3)	Primary and secondary	8-hour	0.075 ppm	Annual fourth-highest daily maximum 8-hr concentration, averaged over 3 years
Particular Matter ($PM_{2.5}$)	Primary	Annual	12 µg/m^3	Annual mean, averaged over 3 years
	Secondary	Annual	15 µg/m^3	Annual mean, averaged over 3 years
	Primary and secondary	24-hour	35 µg/m^3	98th percentile, averaged over 3 years
Particular Matter (PM_{10})	Primary and secondary	24-hour	150 µg/m^3	Not to be exceeded more than once per year on average over 3 years
Lead (Pb)	Primary and secondary	Rolling 3 month average	0.15 µg/m^3	Not to be exceeded
Sulfur Dioxide (SO_2)	Primary	1-hour	75 ppb	99th percentile of 1-hour daily maximum concentrations, averaged over 3 years
	Secondary	3-hour	0.5 ppm	Not to be exceeded more than once per year

1. ppm = parts per million; ppb = parts per billion; µg/m^3 = micrograms per cubic meter
Source: USEPA, http://www.epa.gov/air/criteria.html.

Areas that meet the NAAQS for a criteria pollutant are designated as being in attainment; an area where a pollutant level exceeds the corresponding NAAQS is designated as being in nonattainment. O_3 nonattainment areas are further subcategorized based on the severity of their pollution problem (marginal, moderate, serious, severe, or extreme). PM_{10} and CO nonattainment areas are classified as moderate or serious. A maintenance area is one for which a maintenance plan is in place. A maintenance plan establishes measures to control emissions to ensure the air quality standard is maintained in areas that have been re-designated as attainment areas from a previous nonattainment status for one or more criteria pollutants.

The proposed action would take place at Duluth International Airport in St. Louis County, Minnesota, an area that is currently designated as a maintenance area for CO and an attainment/unclassified area for the other criteria pollutants.

B.3.2 *De Minimis* Emissions Levels

To focus general conformity requirements on those federal actions with the potential to have significant air quality impacts, threshold (*de minimis*) rates of emissions were established in the final rule. A formal conformity determination is required when the annual net total of direct and indirect emissions from a federal action occurring in a nonattainment or maintenance area for a given criteria pollutant would equal or exceed the annual *de minimis* level for that pollutant. Table B-2 lists the *de minimis* levels for each pollutant. O_3 is principally formed from nitrogen oxides (NO_x) and volatile organic compounds (VOC) through chemical reactions in the atmosphere. Therefore, the O_3 *de minimis* apply to these two precursors on the presumption that NO_x and VOC reductions will contribute to reductions in O_3 formation.

Table B-2: *De Minimis* Emission Levels for Criteria Air Pollutants

Pollutant	Nonattainment Designation	Tons/Year
Ozone*	Serious	50
	Severe	25
	Extreme	10
	Other nonattainment or maintenance areas outside ozone transport region	100
	Marginal and moderate nonattainment areas inside ozone transport region	50/100**
Carbon Monoxide	All	100
Sulfur Dioxide	All	100
Lead	All	25
Nitrogen Dioxide	All	100
Particulate Matter ≤ 10 microns	Moderate	100
	Serious	70
Particulate Matter ≤ 2.5 microns***	All	100
Notes: * Applies to ozone precursors – volatile organic compounds (VOC) and nitrogen oxides (NO_X); ** VOC/NO_X; *** Applies to $PM_{2.5}$ and its precursors.		

Since the project site is located in a CO maintenance area, the *de minimis* levels of 100 tons per year (tpy) of CO apply.

B.3.3 Analysis

This CAA General Conformity Rule (GCR) analysis was conducted according to the guidance provided by 40 CFR Parts 6, 51, and 93, *Determining Conformity of Federal Actions to State or Federal Implementation Plans* (USEPA, November 30, 1993 and March 24, 2010).

The GCR analysis was performed to determine whether a formal conformity analysis is required. Pursuant to the GCR, all reasonably foreseeable emissions (both direct and indirect) associated with the implementation of the proposed action were quantified and compared to the applicable annual *de minimis* levels to determine potential air quality impacts.

The conformity analysis for a federal action examines the impacts of the direct and indirect net emissions from mobile and stationary sources. Direct emissions are emissions of a criteria pollutant or its precursors that are caused or initiated by the federal action and occur at the same time and place as the action. Indirect emissions occur later in time or are further removed in distance from the action itself, but they must also be included in the determination if both of the following apply:

- The federal agency can practicably control the emissions and has continuing program responsibility to maintain control.
- The emissions caused by the federal action are reasonably foreseeable.

Direct and indirect CO emissions would potentially result from the following operational activities associated with the proposed action:

- Use of diesel-powered construction and demolition equipment.
- Movement of worker's commuting vehicles during the construction and operation of the proposed projects.
- Operation of new building space heating boilers.

B.4 Emissions Determination

The GCR requires that potential emissions generated by any project-related activity and/or increased operational activities be determined on an annual basis and compared to the annual *de minimis* levels for those pollutants (or their precursors) for which the area is classified as nonattainment or maintenance. Therefore, emissions attributable to activities related to the proposed action were analyzed for CO.

B.4.1 Construction Period Emissions Forecasts

B.4.1.1 Construction Activities Resource Data Estimates

Reasonable assumptions were made to identify the equipment, material, and manpower requirements for the various projects included in the proposed action based on the planning-level descriptions presented in Chapter 2 of the EA and on data presented in:

- *2003 RS Means Facilities Construction Cost Data*, R.S. Means Co., Inc., 2002
- *2011 RS Means Facilities Construction Cost Data*, R.S. Means Co., Inc., 2010

The proposed action includes 18 demolition and construction projects taking place over the course of eight years (2015 through 2022). The types of construction include new buildings, parking lot construction, sidewalk construction, and airfield construction. Most of the proposed

projects can be described using one of the following prototype designs and scaled to the size of each individual project:

- Typical Commercial/Institutional Building
- Vehicular Pavement
- Sidewalks
- Building Demolition

The full list of projects that will be addressed by use of prototypes, arranged by type and year of construction, is presented in Table B-3.

Certain projects or project elements require specific estimates because of unique or specific designs or applications. These projects (using the labeling nomenclature used in the EA) include:

- 7 – Ground Vehicle Fueling Station
- 10 – Small Arms Range
- 17 and 18 – On-base Road Network Improvements and Demolish Buildings 231 and 238

The construction items for the prototype elements will be described first, below, followed by the project-specific estimates.

Typical Commercial/Institutional Building Construction – New Construction Only

For the purposes of developing this estimate, it is assumed that the prototype building will have exterior dimensions of 160 feet (ft) by 160 ft, with 20-ft framing bays in both directions (therefore, a 9 x 9 column plan, or 8 x 8 framing bay plan). Interior spaces would be fitted out in a manner suitable for administrative uses. Utilities would be provided through connections to new or existing site infrastructure, as appropriate. Structural construction items for this structure include the following elements identified in RS Means guide:

- Grading
    - Grade subgrade for base course, roadways
    - Finishing grade slopes
- Foundation
    - Footprint site prep
    - Grade beams run along all girder lines
    - Slab-on-grade above pile caps for floor slab
    - Add rebar and reinforce in place
- Enclosure – One floor with roof to be framed:
    - Steel framing
    - Walls

- Use q-deck and concrete slab to complete roof platform
- External finish
- Windows

Table B-3: Summary of Prototype Projects

Project Name	Facility Footprint (SF)	Construction Start (FY)
1. Renovate and Modify Building 250	38,575 (Reno.) 19,935 (New)	2018-2020
2. Construct Addition to Building 280	7,962 (New)	2016
3. Construct Addition to Building 520[1]	2,725 (New)	TBD
4. Construct Hydrazine Facility	800 (New)	2015
5. Expand and Renovate Building 222 and Construct Defense Reutilization and Marketing Office (DRMO) Yard	45,000 (Reno.) 13,500 (New)	2018
6. Demolish Aircraft Shelters 497, 498, 499 and Construct New Aircraft Shelter	15,000 (New) 10,000 (Demo.)	2020
7. Construct Ground Vehicle Fueling Station and Demolish Existing Fueling Station	NA (Custom Items)	2015
8. Construct New PMEL Facility and Demolish Existing PMEL Facility	15,400 (New) 10,000 (Demo)	2022
9. Construct Mail Facility	300 (New)	2020
10. Construct Small Arms Range	NA (Custom Items)	2017
11. Construct Addition to Building 223	1,500 (New)	2017
12. Construct Addition to Building 252 and Relocate Security Forces from Building 255	2,500 (New)	2017
13. Construct Recycling Facility	1,800 (New)	TBD
14. Demolish Building 224, LOX Storage and Relocate Building 270, Hush House	10,000 (New) 7,500 (Demo.)	2018
15. Construct Secondary Access/Industrial Gate	2,000 (New) 36,000 (Pvmt.)	2015
16. Complete Pedestrian Sidewalk Network	34,200 (Sdwlk)	2020
17. Improve On-base Road Network	162,600 (Pvmt.) Plus Custom Items	2020
18. Demolish Buildings 231, 238 and Expand AT/FP-compliant Non-organizational Vehicle Parking	119,250 (Pvmt.) 17,500 (Demo.)	2019
1. This project was deleted from the proposed action following public and agency review of the Draft EA. This does not affect the conclusions of the applicability analysis.		

Typical Commercial/Institutional Building Construction – Renovation Projects Only

The following item applies to renovation projects only:

- Interior Demolition
  - Walls and partition demolition.

Typical Commercial/Institutional Building Construction – New Construction and Renovation Projects

The following items apply to both renovation and new construction projects:

- Mechanical systems:
    - Heating
    - Hot water
    - Air conditioning:
        - Chiller
        - Coolers
    - HVAC distribution
    - Sprinkler system
        - Piping
        - Pump
- Interior construction and finishes
    - Interior wall assembly
    - Painting
    - Door assemblies
        - Door
        - Frame
    - Subfloor
    - Flooring
- Interior utility installations
    - Electrical and lighting, based on wall length
        - Electrical wiring and connection
        - Lighting fixtures
        - Pull boxes
        - Conduit
    - Plumbing
        - Internal water plumbing
        - Internal sanitary plumbing
    - Communications

Vehicular Pavement and Sidewalk Prototypes

Pavement for vehicular use (parking, roadways, etc.) is estimated a typical cross-section over one acre:

- Grading
    - Grade subgrade for base course, roadways
    - Finishing grade slopes, gentle
- Parking surface
    - Footprint site prep: assume gravel placed over entire footprint
    - Asphalt pavement
- Sidewalks

Building Demolition

Building demolition is represented by two line items from the RS Means guide. The primary item employed for estimate purposes is based on cubic footage of the buildings; building areas have been specified, but building heights have not. For estimating purposes, it is assumed that a 15-ft building height is typical.

- Demolition
    - Assuming large urban project 20 mi haul route, mixed building type, not including foundation, based on cubic feet (assume 15-ft building heights)
    - Footing and foundation demo
- 7 – Ground Vehicle Fueling Station
- 10 – Small Arms Range
- 17 – On-base Road Network Improvements

Project 7 – Ground Vehicle Fueling Station

This project entails the construction of a new fueling station using above-ground storage tanks with secondary containment, and demolition of those existing tanks. For estimate purposes, it is assumed that the fueling station will have dimensions of 100 ft. by 200 ft.

Project 10 – Small Arms Range

This project entails the construction of an outdoor small arms range, which consists primarily of a graded site and wooden baffles overhead.

Project 17 – On-Base Road Network Improvements

Custom item for this project is the demolition of approximately one-half acre of pavement.

B.4.1.2 Construction Equipment Operations and Emissions

The quantify emissions, the quantity and type of equipment necessary were estimated based on the activities typically involved in implementing projects such as those included in the proposed action. All equipment was assumed to be diesel-powered unless otherwise noted. Pieces of equipment to be used include, but are not limited to:

- Backhoes.
- Compressors.
- Cranes.
- Bulldozer.
- Paver.
- Hammer.
- Front end loaders.
- Gas engine vibrators.
- Grader.
- Concrete pumps.
- Roller.
- Construction trucks.

Estimates of equipment emissions were based on estimated hours of usage and emission factors for each motorized source. Activity data were developed based on the worst-case total operating hours for each applicable piece of equipment for all projects combined. Emission factors for CO as well as other attainment criteria pollutants related to heavy-duty diesel equipment were obtained from the NONROAD emission factor model (USEPA, 2009).

The USEPA recommends the following formula to calculate hourly emissions for the ith pollutant from non-road engine sources:

Mi = N x HP x LF x EFi

where:

Mi = mass of emissions of ith pollutants during inventory period;

N = source population (units);

HP = average rated horsepower;

LF = typical load factor; and

EFi = average emissions of ith pollutant per unit of use (e.g., grams per horsepower-hour).

Estimated total project emissions from the operation of demolition and construction equipment are presented in Tables B-4 through B-11. The predicted emissions from those activities without specified construction schedule are lumped in Table B-11.

Table B-4: Construction Equipment Emissions – FY2015

Equipment Type	Number of Units	Days	Hours	Horsepower (hp)	Load Factor (%)	Emission Factor (grams/hp-hour)								Emission (tons)							
						VOC	NO_x	CO	$PM_{2.5}$	PM_{10}	SO_2	HAP	CO_2	VOC	NO_x	CO	$PM_{2.5}$	PM_{10}	SO_2	HAP	CO_2
Asphalt paver, 130 HP	1	1	8	130	59	0.37	4.54	1.60	0.32	0.33	0.12	0.24	536.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.36
Compressor, 250 cfm	1	9	72	90	43	0.32	4.01	2.63	0.37	0.38	0.13	0.24	589.94	0.00	0.01	0.01	0.00	0.00	0.00	0.00	1.81
Concrete pump, small	1	5	40	53	43	0.75	6.18	3.03	0.56	0.57	0.12	0.24	567.14	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.57
Crane, 90-ton	1	6	48	225	43	0.33	4.69	0.94	0.20	0.21	0.11	0.24	530.54	0.00	0.02	0.00	0.00	0.00	0.00	0.00	2.71
Crane, hydraulic, 33 ton	1	1	8	315	43	0.34	5.59	1.55	0.25	0.25	0.11	0.24	530.50	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.63
Crane, SP, 5 ton	1	2	16	175	43	0.33	4.69	0.94	0.20	0.21	0.11	0.24	530.54	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.70
Diesel hammer, 41k ft-lb	1	4	32	101	43	0.34	4.10	0.87	0.18	0.17	0.16	0.24	539.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.82
Dozer, 300 HP	1	3	24	300	59	0.33	4.72	1.93	0.29	0.30	0.12	0.24	539.34	0.00	0.02	0.01	0.00	0.00	0.00	0.00	2.52
Front end loader, 1.5 cy, crl	1	3	24	243	59	0.37	5.05	2.09	0.32	0.33	0.12	0.24	539.44	0.00	0.02	0.01	0.00	0.00	0.00	0.00	2.04
Gas engine vibrator	1	16	128	2	55	57.01	1.42	291.97	7.03	7.64	0.22	0.24	1053.35	0.01	0.00	0.04	0.00	0.00	0.00	0.00	0.13
Gas welding machine	1	3	24	17	68	11.35	3.24	642.74	0.10	0.11	0.21	0.24	996.20	0.00	0.00	0.20	0.00	0.00	0.00	0.00	0.31
Grader, 30,000 lb	1	6	48	204	59	0.32	4.26	1.45	0.27	0.28	0.12	0.24	537.25	0.00	0.03	0.01	0.00	0.00	0.00	0.00	3.43
Pneumatic wheel roller	1	1	8	99	59	0.37	4.70	2.37	0.23	0.24	0.18	0.24	559.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.29
Roller, vibratory	1	3	24	92	59	0.42	4.77	2.49	0.40	0.41	0.12	0.24	558.97	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.80
Rollers, steel wheel	1	2	16	92	59	0.42	4.77	2.49	0.40	0.41	0.12	0.24	558.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.54
Tractor truck, 240 HP	1	3	24	240	59	0.32	4.28	1.33	0.26	0.27	0.12	0.24	536.35	0.00	0.02	0.00	0.00	0.00	0.00	0.00	2.01
Water tank truck, 5000 gal	1	3	24	783	59	0.27	4.81	1.58	0.22	0.23	0.12	0.24	536.51	0.00	0.06	0.02	0.00	0.00	0.00	0.00	6.55
Total Equipment Emissions														**0.03**	**0.22**	**0.32**	**0.01**	**0.01**	**0.01**	**0.01**	**26.23**

Table B-5: Construction Equipment Emissions – FY2016

Equipment Type	Number of Units	Days	Hours	Horsepower (hp)	Load Factor (%)	Emission Factor (grams/hp-hour)								Emission (tons)							
						VOC	NO_x	CO	$PM_{2.5}$	PM_{10}	SO_2	HAP	CO_2	VOC	NO_x	CO	$PM_{2.5}$	PM_{10}	SO_2	HAP	CO_2
Compressor, 250 cfm	1	24	192	90	43	0.32	4.01	2.63	0.37	0.38	0.13	0.24	589.94	0.00	0.03	0.02	0.00	0.00	0.00	0.00	4.83
Concrete pump, small	1	8	64	53	43	0.75	6.18	3.03	0.56	0.57	0.12	0.24	567.14	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.91
Crane, 90-ton	1	14	112	225	43	0.33	4.69	0.94	0.20	0.21	0.11	0.24	530.54	0.00	0.06	0.01	0.00	0.00	0.00	0.00	6.33
Crane, hydraulic, 33 ton	1	1	8	315	43	0.34	5.59	1.55	0.25	0.25	0.11	0.24	530.50	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.63
Crane, SP, 5 ton	1	5	40	175	43	0.33	4.69	0.94	0.20	0.21	0.11	0.24	530.54	0.00	0.02	0.00	0.00	0.00	0.00	0.00	1.76
Diesel hammer, 41k ft-lb	1	10	80	101	43	0.34	4.10	0.87	0.18	0.17	0.16	0.24	539.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	2.06
Dozer, 300 HP	1	1	8	300	59	0.33	4.72	1.93	0.29	0.30	0.12	0.24	539.34	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.84
Front end loader, 1.5 cy, crl	1	1	8	243	59	0.37	5.05	2.09	0.32	0.33	0.12	0.24	539.44	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.68
Gas engine vibrator	1	12	96	2	55	57.01	1.42	291.97	7.03	7.64	0.22	0.24	1053.35	0.01	0.00	0.03	0.00	0.00	0.00	0.00	0.10
Gas welding machine	1	7	56	17	68	11.35	3.24	642.74	0.10	0.11	0.21	0.24	996.20	0.01	0.00	0.47	0.00	0.00	0.00	0.00	0.72
Grader, 30,000 lb	1	3	24	204	59	0.32	4.26	1.45	0.27	0.28	0.12	0.24	537.25	0.00	0.01	0.00	0.00	0.00	0.00	0.00	1.71
Roller, vibratory	1	1	8	92	59	0.42	4.77	2.49	0.40	0.41	0.12	0.24	558.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.27
Tractor truck, 240 HP	1	1	8	240	59	0.32	4.28	1.33	0.26	0.27	0.12	0.24	536.35	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.67
Water tank truck, 5000 gal	1	1	8	783	59	0.27	4.81	1.58	0.22	0.23	0.12	0.24	536.51	0.00	0.02	0.01	0.00	0.00	0.00	0.00	2.18
Total Equipment Emissions														**0.03**	**0.19**	**0.56**	**0.01**	**0.01**	**0.01**	**0.01**	**23.70**

Table B-6: Construction Equipment Emissions – FY 2017

Equipment Type	Number of Units	Days	Hours	Horsepower (hp)	Load Factor (%)	Emission Factor (grams/hp-hour)								Emission (tons)							
						VOC	NO_x	CO	$PM_{2.5}$	PM_{10}	SO_2	HAP	CO_2	VOC	NO_x	CO	$PM_{2.5}$	PM_{10}	SO_2	HAP	CO_2
Compressor, 250 cfm	1	13	104	90	43	0.32	4.01	2.63	0.37	0.38	0.13	0.24	589.94	0.00	0.02	0.01	0.00	0.00	0.00	0.00	2.61
Concrete pump, small	1	4	32	53	43	0.75	6.18	3.03	0.56	0.57	0.12	0.24	567.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.45
Crane, 90-ton	1	18	144	225	43	0.33	4.69	0.94	0.20	0.21	0.11	0.24	530.54	0.01	0.07	0.01	0.00	0.00	0.00	0.00	8.14
Crane, hydraulic, 33 ton	1	1	8	315	43	0.34	5.59	1.55	0.25	0.25	0.11	0.24	530.50	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.63
Crane, SP, 5 ton	1	3	24	175	43	0.33	4.69	0.94	0.20	0.21	0.11	0.24	530.54	0.00	0.01	0.00	0.00	0.00	0.00	0.00	1.06
Diesel hammer, 41k ft-lb	1	5	40	101	43	0.34	4.10	0.87	0.18	0.17	0.16	0.24	539.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	1.03
Dozer, 300 HP	1	1	8	300	59	0.33	4.72	1.93	0.29	0.30	0.12	0.24	539.34	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.84
Front end loader, 1.5 cy, crl	1	1	8	243	59	0.37	5.05	2.09	0.32	0.33	0.12	0.24	539.44	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.68
Gas engine vibrator	1	6	48	2	55	57.01	1.42	291.97	7.03	7.64	0.22	0.24	1053.35	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.05
Gas welding machine	1	5	40	17	68	11.35	3.24	642.74	0.10	0.11	0.21	0.24	996.20	0.01	0.00	0.33	0.00	0.00	0.00	0.00	0.52
Grader, 30,000 lb	1	4	32	204	59	0.32	4.26	1.45	0.27	0.28	0.12	0.24	537.25	0.00	0.02	0.01	0.00	0.00	0.00	0.00	2.28
Roller, vibratory	1	1	8	92	59	0.42	4.77	2.49	0.40	0.41	0.12	0.24	558.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.27
Tractor truck, 240 HP	1	1	8	240	59	0.32	4.28	1.33	0.26	0.27	0.12	0.24	536.35	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.67
Water tank truck, 5000 gal	1	1	8	783	59	0.27	4.81	1.58	0.22	0.23	0.12	0.24	536.51	0.00	0.02	0.01	0.00	0.00	0.00	0.00	2.18
Total Equipment Emissions														**0.02**	**0.18**	**0.40**	**0.01**	**0.01**	**0.00**	**0.01**	**21.42**

Table B-7: Construction Equipment Emissions – FY2018

Equipment Type	Number of Units	Days	Hours	Horsepower (hp)	Load Factor (%)	Emission Factor (grams/hp-hour)								Emission (tons)							
						VOC	NO_x	CO	$PM_{2.5}$	PM_{10}	SO_2	HAP	CO_2	VOC	NO_x	CO	$PM_{2.5}$	PM_{10}	SO_2	HAP	CO_2
Compressor, 250 cfm	1	357	2856	90	43	0.32	4.01	2.63	0.37	0.38	0.13	0.24	589.94	0.04	0.49	0.32	0.05	0.05	0.02	0.01	71.81
Concrete pump, small	1	38	304	53	43	0.75	6.18	3.03	0.56	0.57	0.12	0.24	567.14	0.01	0.05	0.02	0.00	0.00	0.00	0.00	4.31
Crane, 90-ton	1	66	528	225	43	0.33	4.69	0.94	0.20	0.21	0.11	0.24	530.54	0.02	0.26	0.05	0.01	0.01	0.01	0.00	29.85
Crane, hydraulic, 33 ton	1	5	40	315	43	0.34	5.59	1.55	0.25	0.25	0.11	0.24	530.50	0.00	0.03	0.01	0.00	0.00	0.00	0.00	3.17
Crane, SP, 5 ton	1	27	216	175	43	0.33	4.69	0.94	0.20	0.21	0.11	0.24	530.54	0.01	0.08	0.02	0.00	0.00	0.00	0.00	9.50
Diesel hammer, 41k ft-lb	1	50	400	101	43	0.34	4.10	0.87	0.18	0.17	0.16	0.24	539.00	0.01	0.08	0.02	0.00	0.00	0.00	0.00	10.31
Dozer, 300 HP	1	2	16	300	59	0.33	4.72	1.93	0.29	0.30	0.12	0.24	539.34	0.00	0.01	0.01	0.00	0.00	0.00	0.00	1.68
Front end loader, 1.5 cy, crl	1	2	16	243	59	0.37	5.05	2.09	0.32	0.33	0.12	0.24	539.44	0.00	0.01	0.01	0.00	0.00	0.00	0.00	1.36
Front end loader, TM, 2.5cy	1	8	64	243	59	0.37	5.05	2.09	0.32	0.33	0.12	0.24	539.44	0.00	0.05	0.02	0.00	0.00	0.00	0.00	5.44
Gas engine vibrator	1	60	480	2	55	57.01	1.42	291.97	7.03	7.64	0.22	0.24	1053.35	0.03	0.00	0.14	0.00	0.00	0.00	0.01	0.51
Gas welding machine	1	55	440	17	68	11.35	3.24	642.74	0.10	0.11	0.21	0.24	996.20	0.06	0.02	3.66	0.00	0.00	0.00	0.02	5.68
Grader, 30,000 lb	1	5	40	204	59	0.32	4.26	1.45	0.27	0.28	0.12	0.24	537.25	0.00	0.02	0.01	0.00	0.00	0.00	0.00	2.85
Pavement breaker	1	30	240	124	59	0.38	4.59	2.07	0.35	0.36	0.12	0.24	550.19	0.01	0.09	0.04	0.01	0.01	0.00	0.00	10.67
Roller, vibratory	1	2	16	92	59	0.42	4.77	2.49	0.40	0.41	0.12	0.24	558.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.54
Tractor truck, 240 HP	1	2	16	240	59	0.32	4.28	1.33	0.26	0.27	0.12	0.24	536.35	0.00	0.01	0.00	0.00	0.00	0.00	0.00	1.34
Water tank truck, 5000 gal	1	2	16	783	59	0.27	4.81	1.58	0.22	0.23	0.12	0.24	536.51	0.00	0.04	0.01	0.00	0.00	0.00	0.00	4.37
Total Equipment Emissions														**0.19**	**1.26**	**4.34**	**0.09**	**0.09**	**0.04**	**0.05**	**163.37**

Table B-8: Construction Equipment Emissions – FY2019

Equipment Type	Number of Units	Days	Hours	Horsepower (hp)	Load Factor (%)	Emission Factor (grams/hp-hour)								Emission (tons)							
						VOC	NO_x	CO	$PM_{2.5}$	PM_{10}	SO_2	HAP	CO_2	VOC	NO_x	CO	$PM_{2.5}$	PM_{10}	SO_2	HAP	CO_2
Compressor, 250 cfm	1	243	1944	90	43	0.32	4.01	2.63	0.37	0.38	0.13	0.24	589.94	0.03	0.33	0.22	0.03	0.03	0.01	0.01	48.88
Concrete pump, small	1	60	480	53	43	0.75	6.18	3.03	0.56	0.57	0.12	0.24	567.14	0.01	0.07	0.04	0.01	0.01	0.00	0.00	6.80
Crane, 90-ton	1	105	840	225	43	0.33	4.69	0.94	0.20	0.21	0.11	0.24	530.54	0.03	0.42	0.08	0.02	0.02	0.01	0.01	47.49
Crane, hydraulic, 33 ton	1	3	24	315	43	0.34	5.59	1.55	0.25	0.25	0.11	0.24	530.50	0.00	0.02	0.01	0.00	0.00	0.00	0.00	1.90
Crane, SP, 5 ton	1	43	344	175	43	0.33	4.69	0.94	0.20	0.21	0.11	0.24	530.54	0.01	0.13	0.03	0.01	0.01	0.00	0.00	15.13
Diesel hammer, 41k ft-lb	1	81	648	101	43	0.34	4.10	0.87	0.18	0.17	0.16	0.24	539.00	0.01	0.13	0.03	0.01	0.01	0.01	0.00	16.71
Dozer, 300 HP	1	3	24	300	59	0.33	4.72	1.93	0.29	0.30	0.12	0.24	539.34	0.00	0.02	0.01	0.00	0.00	0.00	0.00	2.52
Front end loader, 1.5 cy, crl	1	3	24	243	59	0.37	5.05	2.09	0.32	0.33	0.12	0.24	539.44	0.00	0.02	0.01	0.00	0.00	0.00	0.00	2.04
Front end loader, TM, 2.5cy	1	18	144	243	59	0.37	5.05	2.09	0.32	0.33	0.12	0.24	539.44	0.01	0.11	0.05	0.01	0.01	0.00	0.00	12.24
Gas engine vibrator	1	92	736	2	55	57.01	1.42	291.97	7.03	7.64	0.22	0.24	1053.35	0.04	0.00	0.21	0.01	0.01	0.00	0.01	0.77
Gas welding machine	1	46	368	17	68	11.35	3.24	642.74	0.10	0.11	0.21	0.24	996.20	0.05	0.02	3.06	0.00	0.00	0.00	0.01	4.75
Grader, 30,000 lb	1	7	56	204	59	0.32	4.26	1.45	0.27	0.28	0.12	0.24	537.25	0.00	0.03	0.01	0.00	0.00	0.00	0.00	4.00
Pavement breaker	1	70	560	124	59	0.38	4.59	2.07	0.35	0.36	0.12	0.24	550.19	0.02	0.21	0.09	0.02	0.02	0.01	0.00	24.89
Roller, vibratory	1	3	24	92	59	0.42	4.77	2.49	0.40	0.41	0.12	0.24	558.97	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.80
Tractor truck, 240 HP	1	3	24	240	59	0.32	4.28	1.33	0.26	0.27	0.12	0.24	536.35	0.00	0.02	0.00	0.00	0.00	0.00	0.00	2.01
Water tank truck, 5000 gal	1	3	24	783	59	0.27	4.81	1.58	0.22	0.23	0.12	0.24	536.51	0.00	0.06	0.02	0.00	0.00	0.00	0.00	6.55
Total Equipment Emissions														**0.22**	**1.60**	**3.87**	**0.11**	**0.11**	**0.04**	**0.05**	**197.47**

Table B-9: Construction Equipment Emissions – FY2020

Equipment Type	Number of Units	Days	Hours	Horsepower (hp)	Load Factor (%)	Emission Factor (grams/hp-hour)								Emission (tons)							
						VOC	NO_x	CO	$PM_{2.5}$	PM_{10}	SO_2	HAP	CO_2	VOC	NO_x	CO	$PM_{2.5}$	PM_{10}	SO_2	HAP	CO_2
Asphalt paver, 130 HP	1	4	32	130	59	0.37	4.54	1.60	0.32	0.33	0.12	0.24	536.21	0.00	0.01	0.00	0.00	0.00	0.00	0.00	1.45
Backhoe loader, 48hp	1	4	32	48	21	1.49	5.75	6.20	0.97	1.00	0.15	0.24	692.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25
Compressor, 250 cfm	1	66	528	90	43	0.32	4.01	2.63	0.37	0.38	0.13	0.24	589.94	0.01	0.09	0.06	0.01	0.01	0.00	0.00	13.28
Concrete pump, small	1	14	112	53	43	0.75	6.18	3.03	0.56	0.57	0.12	0.24	567.14	0.00	0.02	0.01	0.00	0.00	0.00	0.00	1.59
Crane, 90-ton	1	24	192	225	43	0.33	4.69	0.94	0.20	0.21	0.11	0.24	530.54	0.01	0.10	0.02	0.00	0.00	0.00	0.00	10.85
Crane, hydraulic, 33 ton	1	1	8	315	43	0.34	5.59	1.55	0.25	0.25	0.11	0.24	530.50	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.63
Crane, SP, 5 ton	1	10	80	175	43	0.33	4.69	0.94	0.20	0.21	0.11	0.24	530.54	0.00	0.03	0.01	0.00	0.00	0.00	0.00	3.52
Diesel hammer, 41k ft-lb	1	18	144	101	43	0.34	4.10	0.87	0.18	0.17	0.16	0.24	539.00	0.00	0.03	0.01	0.00	0.00	0.00	0.00	3.71
Dozer, 300 HP	1	11	88	300	59	0.33	4.72	1.93	0.29	0.30	0.12	0.24	539.34	0.01	0.08	0.03	0.00	0.01	0.00	0.00	9.25
Front end loader, 1.5 cy, crl	1	11	88	243	59	0.37	5.05	2.09	0.32	0.33	0.12	0.24	539.44	0.01	0.07	0.03	0.00	0.00	0.00	0.00	7.48
Front end loader, 2.5cy	1	4	32	243	59	0.37	5.05	2.09	0.32	0.33	0.12	0.24	539.44	0.00	0.03	0.01	0.00	0.00	0.00	0.00	2.72
Front end loader, TM, 2.5cy	1	11	88	243	59	0.37	5.05	2.09	0.32	0.33	0.12	0.24	539.44	0.01	0.07	0.03	0.00	0.00	0.00	0.00	7.48
Gas engine vibrator	1	23	184	2	55	57.01	1.42	291.97	7.03	7.64	0.22	0.24	1053.35	0.01	0.00	0.05	0.00	0.00	0.00	0.00	0.19
Gas welding machine	1	11	88	17	68	11.35	3.24	642.74	0.10	0.11	0.21	0.24	996.20	0.01	0.00	0.73	0.00	0.00	0.00	0.00	1.14
Grader, 30,000 lb	1	20	160	204	59	0.32	4.26	1.45	0.27	0.28	0.12	0.24	537.25	0.01	0.09	0.03	0.01	0.01	0.00	0.00	11.42
Hydraulic hammer, 1200 lb	1	4	32	62	43	0.56	5.41	2.43	0.44	0.45	0.12	0.24	576.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.54
Pavement removal bucket	1	4	32	70	59	0.47	5.00	2.64	0.42	0.44	0.12	0.24	555.84	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.80
Pavement breaker	1	40	320	124	59	0.38	4.59	2.07	0.35	0.36	0.12	0.24	550.19	0.01	0.12	0.05	0.01	0.01	0.00	0.00	14.22
Pneumatic wheel roller	1	4	32	99	59	0.37	4.70	2.37	0.23	0.24	0.18	0.24	559.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	1.15
Roller, vibratory	1	11	88	92	59	0.42	4.77	2.49	0.40	0.41	0.12	0.24	558.97	0.00	0.03	0.01	0.00	0.00	0.00	0.00	2.95
Rollers, steel wheel	1	8	64	92	59	0.42	4.77	2.49	0.40	0.41	0.12	0.24	558.97	0.00	0.02	0.01	0.00	0.00	0.00	0.00	2.14
Tractor truck, 240 HP	1	11	88	240	59	0.32	4.28	1.33	0.26	0.27	0.12	0.24	536.35	0.00	0.06	0.02	0.00	0.00	0.00	0.00	7.36
Water tank truck, 5000 gal	1	11	88	783	59	0.27	4.81	1.58	0.22	0.23	0.12	0.24	536.51	0.01	0.22	0.07	0.01	0.01	0.01	0.00	24.02
Total Equipment Emissions														**0.10**	**1.08**	**1.20**	**0.07**	**0.07**	**0.03**	**0.02**	**128.15**

Table B-10: Construction Equipment Emissions – FY 2022

Equipment Type	Number of Units	Days	Hours	Horsepower (hp)	Load Factor (%)	Emission Factor (grams/hp-hour)								Emission (tons)							
						VOC	NO_x	CO	$PM_{2.5}$	PM_{10}	SO_2	HAP	CO_2	VOC	NO_x	CO	$PM_{2.5}$	PM_{10}	SO_2	HAP	CO_2
Compressor, 250 cfm	1	66	528	90	43	0.32	4.01	2.63	0.37	0.38	0.13	0.24	589.94	0.01	0.09	0.06	0.01	0.01	0.00	0.00	13.28
Concrete pump, small	1	14	112	53	43	0.75	6.18	3.03	0.56	0.57	0.12	0.24	567.14	0.00	0.02	0.01	0.00	0.00	0.00	0.00	1.59
Crane, 90-ton	1	24	192	225	43	0.33	4.69	0.94	0.20	0.21	0.11	0.24	530.54	0.01	0.10	0.02	0.00	0.00	0.00	0.00	10.85
Crane, hydraulic, 33 ton	1	1	8	315	43	0.34	5.59	1.55	0.25	0.25	0.11	0.24	530.50	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.63
Crane, SP, 5 ton	1	10	80	175	43	0.33	4.69	0.94	0.20	0.21	0.11	0.24	530.54	0.00	0.03	0.01	0.00	0.00	0.00	0.00	3.52
Diesel hammer, 41k ft-lb	1	18	144	101	43	0.34	4.10	0.87	0.18	0.17	0.16	0.24	539.00	0.00	0.03	0.01	0.00	0.00	0.00	0.00	3.71
Dozer, 300 HP	1	1	8	300	59	0.33	4.72	1.93	0.29	0.30	0.12	0.24	539.34	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.84
Front end loader, 1.5 cy, crl	1	1	8	243	59	0.37	5.05	2.09	0.32	0.33	0.12	0.24	539.44	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.68
Front end loader, TM, 2.5cy	1	11	88	243	59	0.37	5.05	2.09	0.32	0.33	0.12	0.24	539.44	0.01	0.07	0.03	0.00	0.00	0.00	0.00	7.48
Gas engine vibrator	1	23	184	2	55	57.01	1.42	291.97	7.03	7.64	0.22	0.24	1053.35	0.01	0.00	0.05	0.00	0.00	0.00	0.00	0.19
Gas welding machine	1	11	88	17	68	11.35	3.24	642.74	0.10	0.11	0.21	0.24	996.20	0.01	0.00	0.73	0.00	0.00	0.00	0.00	1.14
Grader, 30,000 lb	1	3	24	204	59	0.32	4.26	1.45	0.27	0.28	0.12	0.24	537.25	0.00	0.01	0.00	0.00	0.00	0.00	0.00	1.71
Pavement breaker	1	40	320	124	59	0.38	4.59	2.07	0.35	0.36	0.12	0.24	550.19	0.01	0.12	0.05	0.01	0.01	0.00	0.00	14.22
Roller, vibratory	1	1	8	92	59	0.42	4.77	2.49	0.40	0.41	0.12	0.24	558.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.27
Tractor truck, 240 HP	1	1	8	240	59	0.32	4.28	1.33	0.26	0.27	0.12	0.24	536.35	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.67
Water tank truck, 5000 gal	1	1	8	783	59	0.27	4.81	1.58	0.22	0.23	0.12	0.24	536.51	0.00	0.02	0.01	0.00	0.00	0.00	0.00	2.18
Total Equipment Emissions														**0.06**	**0.52**	**0.99**	**0.03**	**0.04**	**0.01**	**0.02**	**62.97**

Table B-11: Construction Equipment Emissions – FY (TBD)

Equipment Type	Number of Units	Days	Hours	Horsepower (hp)	Load Factor (%)	Emission Factor (grams/hp-hour)								Emission (tons)							
						VOC	NO_x	CO	$PM_{2.5}$	PM_{10}	SO_2	HAP	CO_2	VOC	NO_x	CO	$PM_{2.5}$	PM_{10}	SO_2	HAP	CO_2
Compressor, 250 cfm	1	14	112	90	43	0.32	4.01	2.63	0.37	0.38	0.13	0.24	589.94	0.00	0.02	0.01	0.00	0.00	0.00	0.00	2.82
Concrete pump, small	1	5	40	53	43	0.75	6.18	3.03	0.56	0.57	0.12	0.24	567.14	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.57
Crane, 90-ton	1	9	72	225	43	0.33	4.69	0.94	0.20	0.21	0.11	0.24	530.54	0.00	0.04	0.01	0.00	0.00	0.00	0.00	4.07
Crane, hydraulic, 33 ton	1	1	8	315	43	0.34	5.59	1.55	0.25	0.25	0.11	0.24	530.50	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.63
Crane, SP, 5 ton	1	3	24	175	43	0.33	4.69	0.94	0.20	0.21	0.11	0.24	530.54	0.00	0.01	0.00	0.00	0.00	0.00	0.00	1.06
Diesel hammer, 41k ft-lb	1	6	48	101	43	0.34	4.10	0.87	0.18	0.17	0.16	0.24	539.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	1.24
Dozer, 300 HP	1	1	8	300	59	0.33	4.72	1.93	0.29	0.30	0.12	0.24	539.34	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.84
Front end loader, 1.5 cy, crl	1	1	8	243	59	0.37	5.05	2.09	0.32	0.33	0.12	0.24	539.44	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.68
Gas engine vibrator	1	8	64	2	55	57.01	1.42	291.97	7.03	7.64	0.22	0.24	1053.35	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.07
Gas welding machine	1	5	40	17	68	11.35	3.24	642.74	0.10	0.11	0.21	0.24	996.20	0.01	0.00	0.33	0.00	0.00	0.00	0.00	0.52
Grader, 30,000 lb	1	3	24	204	59	0.32	4.26	1.45	0.27	0.28	0.12	0.24	537.25	0.00	0.01	0.00	0.00	0.00	0.00	0.00	1.71
Roller, vibratory	1	1	8	92	59	0.42	4.77	2.49	0.40	0.41	0.12	0.24	558.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.27
Tractor truck, 240 HP	1	1	8	240	59	0.32	4.28	1.33	0.26	0.27	0.12	0.24	536.35	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.67
Water tank truck, 5000 gal	1	1	8	783	59	0.27	4.81	1.58	0.22	0.23	0.12	0.24	536.51	0.00	0.02	0.01	0.00	0.00	0.00	0.00	2.18
Total Equipment Emissions														**0.02**	**0.14**	**0.40**	**0.01**	**0.01**	**0.00**	**0.00**	**17.32**

B.4.1.3 Construction Period On-road Vehicular Emissions

Truck and commuting vehicle operations during the construction period would result in indirect emissions. It was assumed that each truck or commuting vehicle would take a 20-mile round trip to and from the base. USEPA's Motor Vehicle Emission Simulator (MOVES) program was used to predict truck and commuter vehicle running emission factors for all criteria pollutants, HAPs, and CO_2. The national default input parameters applicable for St. Louis County area where the Duluth International Airport is located were used in emissions factor modeling. Estimated emissions from the operation of trucks associated with each element are presented in Tables B-12 through B-19.

B.4.1.4 Combined Total Construction Period Emissions

Construction equipment and truck and commuting vehicle operation total emissions during the construction period are summarized in Table B-20.

B.4.2 Operational Period Emissions Forecasts

After the completion of construction activities, the proposed new building space would need to be heated. For this, it was assumed that each building or building addition would have its own boilers or use existing boilers with increasing heating capacity. The anticipated annual emissions from potential new heating capacity for approximate 62,000 square feet (ft^2) additional space were predicted using the USEPA AP-42 emission factor handbook and the estimated boiler capacity.

The index of space heat input required for the new buildings was assumed to be 30 British Thermo Unit (BTU)/ft^2-hour with a 20% safety factor. The boilers would operate for a total of six months per year during the heating seasons. The estimated annual emissions from the proposed heating activities are presented in Table B-21.

Table B-12: Construction Vehicle Emissions - FY2015

			Emission Factor (lb/mi)								Emission (tons)							
Vehicle Type	**Number of Trips**	**Total Miles**	**VOC**	**NO_X**	**CO**	**$PM_{2.5}$**	**PM_{10}**	**SO_2**	**HAP**	**CO_2**	**VOC**	**NO_X**	**CO**	**$PM_{2.5}$**	**PM_{10}**	**SO_2**	**HAP**	**CO_2**
Trucks	306	20	0.00	0.02	0.01	0.00	0.00	0.00	0.01	4.64	0.00	0.06	0.02	0.00	0.01	0.00	0.02	14.18
Cars	754	20	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.86	0.00	0.01	0.05	0.00	0.00	0.00	0.02	6.46
Total motor vehicle emissions											**0.01**	**0.06**	**0.07**	**0.00**	**0.01**	**0.00**	**0.03**	**20.64**

Table B-13: Construction Vehicle Emissions - FY2016

			Emission Factor (lb/mi)								Emission (tons)							
Vehicle Type	**Number of Trips**	**Total Miles**	**VOC**	**NO_X**	**CO**	**$PM_{2.5}$**	**PM_{10}**	**SO_2**	**HAP**	**CO_2**	**VOC**	**NO_X**	**CO**	**$PM_{2.5}$**	**PM_{10}**	**SO_2**	**HAP**	**CO_2**
Trucks	356	20	0.00	0.02	0.01	0.00	0.00	0.00	0.01	4.64	0.00	0.07	0.02	0.00	0.01	0.00	0.02	16.50
Cars	1214	20	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.86	0.00	0.01	0.08	0.00	0.00	0.00	0.03	10.40
Total motor vehicle emissions											**0.01**	**0.08**	**0.10**	**0.01**	**0.01**	**0.00**	**0.04**	**26.90**

Table B-14: Construction Vehicle Emissions - FY2017

			Emission Factor (lb/mi)								Emission (tons)							
Vehicle Type	**Number of Trips**	**Total Miles**	**VOC**	**NO_X**	**CO**	**$PM_{2.5}$**	**PM_{10}**	**SO_2**	**HAP**	**CO_2**	**VOC**	**NO_X**	**CO**	**$PM_{2.5}$**	**PM_{10}**	**SO_2**	**HAP**	**CO_2**
Trucks	187	20	0.00	0.02	0.01	0.00	0.00	0.00	0.01	4.64	0.00	0.04	0.01	0.00	0.00	0.00	0.01	8.67
Cars	663	20	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.86	0.00	0.01	0.05	0.00	0.00	0.00	0.01	5.68
Total motor vehicle emissions											**0.00**	**0.04**	**0.06**	**0.00**	**0.00**	**0.00**	**0.02**	**14.35**

Table B-15: Construction Vehicle Emissions - FY2018

			Emission Factor (lb/mi)								Emission (tons)							
Vehicle Type	**Number of Trips**	**Total Miles**	**VOC**	**NO_X**	**CO**	**$PM_{2.5}$**	**PM_{10}**	**SO_2**	**HAP**	**CO_2**	**VOC**	**NO_X**	**CO**	**$PM_{2.5}$**	**PM_{10}**	**SO_2**	**HAP**	**CO_2**
Trucks	3655	20	0.00	0.02	0.01	0.00	0.00	0.00	0.01	4.64	0.04	0.70	0.20	0.04	0.07	0.00	0.19	169.43
Cars	14639	20	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.86	0.05	0.12	0.99	0.01	0.03	0.00	0.31	125.39
Total motor vehicle emissions											**0.09**	**0.82**	**1.20**	**0.05**	**0.10**	**0.00**	**0.51**	**294.82**

Table B-16: Construction Vehicle Emissions - FY2019

			Emission Factor (lb/mi)								Emission (tons)							
Vehicle Type	**Number of Trips**	**Total Miles**	**VOC**	**NO_X**	**CO**	**$PM_{2.5}$**	**PM_{10}**	**SO_2**	**HAP**	**CO_2**	**VOC**	**NO_X**	**CO**	**$PM_{2.5}$**	**PM_{10}**	**SO_2**	**HAP**	**CO_2**
Trucks	2990	20	0.00	0.02	0.01	0.00	0.00	0.00	0.01	4.64	0.03	0.57	0.17	0.04	0.06	0.00	0.16	138.60
Cars	10268	20	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.86	0.03	0.08	0.70	0.01	0.02	0.00	0.22	87.95
Total motor vehicle emissions											**0.07**	**0.66**	**0.86**	**0.04**	**0.08**	**0.00**	**0.38**	**226.56**

Table B-17: Construction Vehicle Emissions - FY2020

			Emission Factor (lb/mi)								Emission (tons)							
Vehicle Type	**Number of Trips**	**Total Miles**	**VOC**	**NO_X**	**CO**	**$PM_{2.5}$**	**PM_{10}**	**SO_2**	**HAP**	**CO_2**	**VOC**	**NO_X**	**CO**	**$PM_{2.5}$**	**PM_{10}**	**SO_2**	**HAP**	**CO_2**
Trucks	869	20	0.00	0.02	0.01	0.00	0.00	0.00	0.01	4.64	0.01	0.17	0.05	0.01	0.02	0.00	0.05	40.28
Cars	2740	20	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.86	0.01	0.02	0.19	0.00	0.01	0.00	0.06	23.47
Total motor vehicle emissions											**0.02**	**0.19**	**0.23**	**0.01**	**0.02**	**0.00**	**0.10**	**63.75**

Table B-18: Construction Vehicle Emissions - FY2022

			Emission Factor (lb/mi)								Emission (tons)							
Vehicle Type	**Number of Trips**	**Total Miles**	**VOC**	**NO_X**	**CO**	**$PM_{2.5}$**	**PM_{10}**	**SO_2**	**HAP**	**CO_2**	**VOC**	**NO_X**	**CO**	**$PM_{2.5}$**	**PM_{10}**	**SO_2**	**HAP**	**CO_2**
Trucks	711	20	0.00	0.02	0.01	0.00	0.00	0.00	0.01	4.64	0.01	0.14	0.04	0.01	0.01	0.00	0.04	32.96
Cars	2431	20	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.86	0.01	0.02	0.17	0.00	0.00	0.00	0.05	20.82
Total motor vehicle emissions											**0.02**	**0.16**	**0.20**	**0.01**	**0.02**	**0.00**	**0.09**	**53.78**

Table B-19: Construction Vehicle Emissions - FYTBD

			Emission Factor (lb/mi)								Emission (tons)							
Vehicle Type	**Number of Trips**	**Total Miles**	**VOC**	**NO_X**	**CO**	**$PM_{2.5}$**	**PM_{10}**	**SO_2**	**HAP**	**CO_2**	**VOC**	**NO_X**	**CO**	**$PM_{2.5}$**	**PM_{10}**	**SO_2**	**HAP**	**CO_2**
Trucks	208	20	0.00	0.02	0.01	0.00	0.00	0.00	0.01	4.64	0.00	0.04	0.01	0.00	0.00	0.00	0.01	9.64
Cars	729	20	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.86	0.00	0.01	0.05	0.00	0.00	0.00	0.02	6.24
Total motor vehicle emissions											**0.00**	**0.05**	**0.06**	**0.00**	**0.01**	**0.00**	**0.03**	**15.89**

Table B-20: Total Construction Annual Emissions

Year	**Pollutant Emissions (tons)**							
	VOC	**NO_X**	**CO**	**$PM_{2.5}$**	**PM_{10}**	**SO_2**	**HAP**	**CO_2**
2015	0.03	0.29	0.38	0.02	0.02	0.01	0.04	46.88
2016	0.04	0.27	0.66	0.02	0.02	0.01	0.05	50.60
2017	0.03	0.22	0.46	0.01	0.02	0.00	0.03	35.77
2018*	0.30	2.27	6.00	0.15	0.21	0.04	0.58	491.40
2019	0.28	2.26	4.74	0.15	0.19	0.05	0.43	424.03
2020	0.12	1.27	1.44	0.08	0.09	0.03	0.13	191.90
2022	0.08	0.67	1.19	0.05	0.05	0.01	0.11	116.75
*Emissions from the projects without specific schedules were conservatively combined with the 2018 emissions.								

Table B-21: Space Heating Boiler Emissions

Proposed Action	Pollutant	Unit Size Square Feet	Total Heat input per ft^2 for 30 Btu/ft^2 - hr (BTU/hr)	20% Safety Factor (BTU/hr)	Emission factor (lb/106 scf)	Hourly Gas Volume (scf/hr)	Emission Rate (lb/hr)	Tons per month	Months of Heat Usage	Emissions (tons)
Space Heating	VOC	62,100	1,863,000	2,235,000	5.50	2191.76	0.01	0.00	6.00	0.03
	NOx				100.00		0.22	0.08	6.00	0.48
	CO				84.00		0.18	0.07	6.00	0.40
	PM_{10}				7.60		0.02	0.01	6.00	0.04
	$PM_{2.5}$				7.60		0.02	0.01	6.00	0.04
	SO_2				0.60		0.00	0.00	6.00	0.00
	HAP				1.88		0.00	0.00	6.00	0.01
	CO_2				120000.00		263.01	96.00	6.00	576.00

B.5 Compliance Analysis

Based on the above, estimates of CO emissions calculated on an annual basis in conjunction with the Final Rule of Determining Conformity of Federal Actions to State or Federal Implementation Plans, (USEPA, November 30, 1993 and March 24, 2010) show that the proposed action would not require a formal conformity determination. The estimated total net emissions are presented in Table B-22 and show no exceedance of the applicable *de minimis* criteria of 100 tpy for CO. These estimates should further be considered conservative, as they assume that all construction activities would occur within one year, that the new boilers would operate at full capacity for six months, and that the emergency generator would run for up to 500 hours a year. Therefore, the proposed action would have minimal air quality impacts and would not require a formal conformity determination.

Table B-22: Total Net Increase in Construction and Operational Emissions (tons) - All Pollutants

Activity	VOC	NO_x	CO	$PM_{2.5}$	PM_{10}	SO_2	HAP	CO_2 (metric tons)
Construction (worst-case FY 2018)	0.30	2.27	6.00	0.15	0.21	0.04	0.58	445.80
Operation (annual)	0.03	0.48	0.40	0.04	0.04	0.00	0.01	522.47
De minimis level	NA	NA	100	NA	NA	NA	NA	NA
Exceeding *de minimis* level	NA	NA	No	NA	NA	NA	NA	NA

B.6 Attainment Criteria Pollutants, Hazardous Pollutants, and Greenhouse Gas Emissions

The construction and operation-related emissions of attainment pollutants (i.e., NOx and VOC as ozone precursors, $PM_{2.5}$, PM_{10}, and SO_2) and greenhouse gas emissions in terms of CO_2 levels were estimated in the same way as used for predicting the nonattainment criteria pollutant emissions. The results are presented in Table B-22. Since the NONROAD model cannot predict HAPs emission factors for nonroad equipment, the nonroad equipment HAP emissions inventory methodology established in the USEPA-sponsored document, Documentation for Aircraft, Commercial Marine Vessel, Locomotive, and Other Nonroad Components of the National Emissions Inventory (E.H. Pechan & Associates, Inc. 2005) was used to predict HAPs emissions from construction equipment. Specific HAP speciation factors for each available toxic in terms of VOC or PM_{10} fraction are summarized in Table B-23.

Table B-23: HAP Speciation Factors

HAP	National Diesel Exhaust HAP/VOC or HAP/PM_{10} Fraction
1,3-Butadiene	0.0018616
2,2,4-Trimethylpentane	0.000719235
Acetaldehyde	0.05308
Acrolein	0.00303
Benzene	0.020344
Ethylbenzene	0.0031001
Formaldehyde	0.11815
n-Hexane	0.0015913
PAH (fraction of PM_{10})	0.0004
Propionaldehyde	0.011815
Styrene	0.00059448
Toluene	0.014967
Xylenes	0.010582
Total VOC Fraction	0.24
Total PM_{10} Fraction	0.0004

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APPENDIX C – FEDERAL CONSISTENCY DETERMINATION

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Federal Coastal Consistency Determination
Installation Development Projects
Minnesota Air National Guard
148th Fighter Wing
Duluth International Airport, Minnesota

Pursuant to Section 307 of the Coastal Zone Management Act of 1972, as amended, and 15 Code of Federal Regulations (CFR) Subpart C, a Federal Consistency Determination has been prepared for the Minnesota Air National Guard's Proposed Action to implement installation development projects at the 148th Fighter Wing (148 FW) at Duluth International Airport, Duluth, Minnesota. The Proposed Action would occur entirely within the boundaries of the 148 FW installation and would not require the acquisition or excessing of land. The Minnesota Air National Guard is required to determine the consistency of the Proposed Action and potential effects on Minnesota's coastal resources or coastal uses with Minnesota's Lake Superior Coastal Program (MLSCP).

This consistency determination presents an analysis of the Proposed Action in light of established MLSCP Enforceable Policies and Programs. Submission of this consistency determination reflects the commitment of the Minnesota Air National Guard to comply to the maximum extent practicable with those Enforceable Policies and Programs. The Proposed Action would be implemented and operated in a manner consistent with the MLSCP. The Minnesota Air National Guard has determined that the Proposed Action would have less than significant effects on land and water uses and natural resources within the State of Minnesota's coastal zone and is consistent to the maximum extent practicable with the enforceable policies of the MLSCP.

The Minnesota Air National Guard has prepared a Draft Environmental Assessment (EA) for this Proposed Action, to which this consistency determination is an appendix. The information included in this consistency determination is based on the analyses presented in the Draft EA.

Proposed Action

The Proposed Action is to implement the construction and infrastructure projects summarized in Attachment 1. The projects included in the Proposed Action would be implemented over a period of five to seven years. All of the projects would be contained within the existing boundaries of the 148 FW installation at Duluth International Airport, Duluth, Minnesota. The 148 FW and Duluth International Airport are located approximately 5 miles northwest of downtown Duluth (Figure 1).

The 148 FW occupies approximately 239.4 acres and is comprised of the main base (221 acres, including easements), located on the northeast side of the airport; the Airfield Rescue and Firefighting (ARFF) facility (4 acres) and Munitions Storage Area (MSA) (12 acres), both located on the north side of the airport; and the Base Exchange (BX) (1 acre) and Precision Measurement Equipment Laboratory (PMEL) (1.4 acres), both located on the south side of the airport (Figure 2). All of the projects would occur within the main base with the exception of

Project 3, which would be implemented at the MSA. In addition, the existing PMEL facility on the south side of the airport would be demolished following the relocation of the facility to the main base.

The locations of the proposed projects are shown on Figure 3 and Figure 4.

Purpose and Need

The purpose of the Proposed Action is to provide the facilities and infrastructure necessary to support the mission of the 148 FW, as defined in the 148 FW's Installation Development Plan (IDP). The Proposed Action is needed because functional space for multiple activities is inadequate, fails to meet the space authorization for those activities, or is altogether lacking on the installation. In addition, the inadequate spatial arrangement of, and functional relationships between, multiple related facilities prohibits the 148 FW from achieving optimal operating efficiency.

Alternatives

The Minnesota Air National Guard is considering two alternatives:

- **Proposed Action Alternative:** All of the projects summarized in Attachment 1 would be implemented over a period of five to seven years and would fulfill the 148 FW's purpose and need as described above. The Proposed Action Alternative would include the implementation of one project-level option each for Projects 6, 7 and 9.
- **No Action Alternative:** None of the proposed projects would be implemented and conditions at the 148 FW installation would remain as they currently are. Although it does not meet the 148 FW's purpose and need, the No Action Alternative is included to provide a comparison of the Proposed Action Alternative against baseline conditions.

Enforceable Policies

The State of Minnesota has developed and implemented the federally-approved Lake Superior Coastal Program (MLSCP) which encompasses the following enforceable policies:

- Coastal Land Management
- Coastal Water Management
- Air Quality
- Water Quality
- Fish and Wildlife Management
- Forest Management
- Mineral Resources
- Energy
- Environmental Review

The 148 FW installation is located within the coastal boundary established by the MLSCP; therefore, projects included in the Proposed Action have the potential to affect resources within Minnesota's coastal zone. A summary analysis of how the Proposed Action would affect each of the applicable enforceable policies follows.

Coastal Land Management

Consistent to the Maximum Extent Practicable? **YES**

Analysis: The Proposed Action would not involve construction on lands regulated under the Shoreland Management Act or the North Shore Management Plan, nor would it involve construction in floodplains or result in displacement of water from existing floodplains. The projects included in the Proposed Action would occur entirely within the existing boundaries of the 148 FW installation and would not impede or prevent the fulfillment of local planning policies, goals and objectives, nor would they create land use inconsistencies or incompatibilities with land uses outside the installation. As there would be no increase in the number of personnel or staff assigned to the 148 FW installation as a result of the Proposed Action, there would be no corresponding increase in the demand on public facilities such as potable water or sewage treatment. Therefore, the Proposed Action is consistent to the maximum extent practicable with enforceable policies regarding coastal land management.

Coastal Water Management

Consistent to the Maximum Extent Practicable? **YES**

Analysis: The implementation of the Proposed Action would not increase water withdrawals, nor would it involve the alteration of existing watercourses; new water appropriations; the construction of dams; or the filling, alteration or disturbance of wetlands. In the long term, the installation of new and more efficient plumbing fixtures in the new or renovated facilities would partially offset any increase in water demand from the proposed new facilities. For these reasons, the Proposed Action is consistent to the maximum extent practicable with Minnesota's coastal policies concerning coastal water management.

Air Quality

Consistent to the Maximum Extent Practicable? **YES**

Analysis: The City of Duluth's status as a maintenance area for carbon monoxide (CO) and an attainment area for all other criteria pollutants regulated by the National Ambient Air Quality Standards (NAAQS) governs air quality conformity requirements for the Proposed Action.

In the short term, the projects included in the Proposed Action would generate fugitive dust from construction, demolition and renovation activities, and emissions of criteria pollutants from diesel-powered construction equipment and construction workers' commuting vehicles. Such criteria pollutant emissions would include CO, volatile organic compounds (VOC) and oxides of nitrogen (NO_x) (precursors of ozone [O_3]), and particulate matter (particulate matter $\leq$ 2.5 micrometers [$PM_{2.5}$] and its precursor sulfur dioxide [SO_2] and particulate matter $\leq$ 10 micrometers [PM_{10}]).

Standard best management practices (BMP), such as the application of water to paved surfaces and/or disturbed soils as well as vegetating soils that would be exposed for extended periods, would be used to minimize emissions of fugitive dust. The implementation of the proposed projects over a period of five to seven years would further minimize emissions impacts and,

based on the small to medium size of the proposed projects, would not be likely to significantly affect regional air quality.

In the long term, the net increase in built space would generate some additional emissions of criteria pollutants, hazardous air pollutants (HAP), and greenhouse gases (GHG). However, these emissions would be small and partly or wholly offset by the proposed demolitions and the use of newer, more efficient systems in the new facilities.

A General Conformity Applicability Analysis was conducted as part of the Draft EA being prepared for the Proposed Action. Quantitative estimates of the anticipated emissions are presented in Table 1. For both construction and operational emissions, the net increase is compared to the *de minimis* thresholds when applicable. Operational emissions are compared both to the applicable *de minimis* and to the existing St. Louis County emissions inventory, as available.

Table 1: Estimated Increases in Emissions[1] Resulting from the Proposed Action

	VOC	NO_X	CO	$PM_{2.5}$	PM_{10}	SO_2	HAP	CO_2[2]
Worst Year Construction Emissions								
Proposed Action	0.30	2.27	6.00	0.15	0.21	0.04	0.58	445.80
De minimis	NA	NA	100	NA	NA	NA	NA	NA
Annual Operations Emissions								
St. Louis County	104,281	31,754	78,146	8,679	18,821	6,656	NA	NA
Proposed Action	0.03	0.48	0.40	0.04	0.04	0.00	0.01	522.47
Net percent increase over St. Louis County emissions inventory	0.0000	0.0002	0.0005	0.0005	0.0000	0.0000	NA	NA
De minimis	NA[3]	NA	100	NA	NA	NA	NA	NA

Notes:
1. All emissions in tons except where noted.
2. Metric Tons
3. NA = Not Applicable

Source: www.epa.gov/air/emissions/index.htm

Based on the analysis of anticipated CO emissions performed consistent with the *Final Rule of Determining Conformity of Federal Actions to State or Federal Implementation Plans* (United States Environmental Protection Agency [USEPA], November 30, 1993 and March 24, 2010), the estimates of total net emissions of CO show no exceedance of the applicable *de minimis* threshold of 100 tons per year (see Table 1) under both construction and operation years. Therefore, the Proposed Action would have minimal air quality impacts and would not require a formal conformity determination.

Considered collectively, the projects comprising the Proposed Action would result in emissions that do not exceed the *de minimis* thresholds applicable to the criteria pollutants for which the

project area is in a maintenance area for CO; would constitute only a negligible fraction of the 2011 regional emissions for the other criteria pollutants; and, with regard to CO_2 emissions, would not be such as to have a meaningful effect on global climate change. On this basis, the Proposed Action can be anticipated to no more than minor impacts on air quality.

The Proposed Action does not include changes in the number or types of aircraft operating at the base or the number of operations occurring there. Thus, there would be no increases in mobile-source emissions at the base.

For the reasons stated above, the Proposed Action is consistent to the maximum extent practicable with Minnesota's enforceable policies pertaining to air quality.

Water Quality

Consistent to the Maximum Extent Practicable? **YES**

Analysis: As noted above, there would be no increases in the number of personnel or staff assigned to the 148 FW installation as a result of the Proposed Action. Therefore, there would be no increases in the use of potable water or volume of sewage generated on the base.

Prior to the beginning of construction activities disturbing more than one acre, the Air National Guard (ANG) would obtain a Construction Stormwater General Permit (General Permit) from the Minnesota Pollution Control Agency (MPCA). As part of the application for each permit, the ANG would prepare a construction stormwater pollution prevention plan (SWPPP) that would specify BMP to minimize the volume of stormwater and sediment generated on the project site. It is anticipated that it would be necessary to obtain a General Permit for Projects 10, 17 and 18. Due to the proximity of Miller Creek, which is designated as Special Waters and Impaired Waters by the State of Minnesota, the ANG would also incorporate total maximum daily load (TMDL) requirements for construction stormwater into the project SWPPP, as applicable. The implementation of the proposed projects over a period of five to seven years would further minimize construction-related impacts on water quality.

In accordance with Section 438 of the Energy Independence and Security Act (EISA), projects disturbing 5,000 square feet or more of land would incorporate, to the maximum extent technically feasible, low impact development (LID) techniques to maintain the pre-development hydrology of the project site. Depending on which project-level alternatives are implemented for Projects 6, 7 and 9, impervious surfaces on the installation would increase by up to 1.8 acres. Following the implementation of the proposed projects, the 148 FW would modify the management and monitoring practices specified in its base-wide SWPPP as necessary to reflect any changes in the amount of impervious surface that result from the Proposed Action.

The Proposed Action would not involve the construction or modification of wastewater treatment facilities or the installation or modification of septic systems. No new potable water wells would be installed, and there would be no new or increased withdrawals of groundwater as part of the Proposed Action.

Solid and hazardous wastes generated on the 148 FW installation would continue to be managed as they currently are and in accordance with all applicable ANG policies, instructions and

procedures. There would be no long-term increases in the quantities of solid or hazardous wastes generated on the installation because there would be no increases in personnel or the intensity of operations. The implementation of the Proposed Action would not interfere with ongoing remediation efforts at Environmental Restoration Program (ERP) sites on the installation.

For these reasons, adverse impacts on water quality would be negligible, and the Proposed Action is consistent to the maximum extent practicable with Minnesota's enforceable policies regarding water quality.

Fish and Wildlife Management

Consistent to the Maximum Extent Practicable? **YES**

Analysis: Potential effects on fish from increased sedimentation during construction activities and increased runoff from increases in impervious surface would be minimized through the use of BMP specified in the General Permit and associated construction SWPPP for projects disturbing one acre or more of land. As noted above, the new facilities would incorporate low impact development (LID) techniques in accordance with Section 438 of the EISA, and stormwater management and monitoring practices specified in the installation's base-wide SWPPP would be updated to reflect the increase in impervious surface. Thus, any impacts on fish would be negligible.

Implementation of the Proposed Action would result in the loss of some low-quality habitat primarily consisting of maintained grass and landscape shrubs and trees. There would be no effects on critical habitat or the types of habitat preferred by federally listed threatened and endangered species. Some specimens of common species adapted to close human proximity and/or urbanized environments would be temporarily displaced during construction activities, but would likely return once such activities have ended. The distribution of the projects over a period of five to seven years would further minimize impacts on wildlife.

Thus, the Proposed Action is consistent to the maximum extent practicable with Minnesota's enforceable policies pertaining to fish and wildlife management.

Forest Management

Consistent to the Maximum Extent Practicable? **Not Applicable (NA)**

Analysis: The Proposed Action does not involve the clearing or harvesting of timber or other forestry operations. Thus, the policy is not applicable to the Proposed Action.

Mineral Resources

Consistent to the Maximum Extent Practicable? **NA**

Analysis: This policy is not applicable because the Proposed Action because it does not involve the construction of new mines, the expansion of existing mines, ongoing mining operations, or other activities related to mining or mineral extraction.

Energy

Consistent to the Maximum Extent Practicable? **NA**

Analysis: This policy is not applicable because the Proposed Action does not involve the siting, construction, operation or modification of new energy generation or transmission facilities.

Environmental Review

Consistent to the Maximum Extent Practicable? **Yes**

Analysis: As a federal undertaking, the Proposed Action is being evaluated in an environmental assessment (EA) in accordance with the National Environmental Policy Act (NEPA). The Draft EA is being made available for a 30-day agency and public review period. The Proposed Action is consistent to the maximum extent practicable with Minnesota's enforceable policies regarding public review.

Finding

The Minnesota Air National Guard has determined that the Proposed Action would be consistent to the maximum extent practicable with the federally-approved enforceable policies of the MLSCP, pursuant to the Coastal Zone Management Act of 196 1972, as amended, and in accordance with 15 CFR Part 930, Subpart C.

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Attachment 1: Summary of Proposed Action

EA Project Number[1]	Project	Year
Construction Projects		
1	Renovate and Modify Building 250	2018 2020
2	Construct Addition to Building 280	2016
3	Construct Addition to Building 520	TBD[2]
4	Construct Hydrazine Facility	2015
5	Expand and Renovate Building 222 and Construct DRMO[3] Yard	2018
6	Demolish Aircraft Shelters 497, 498, 499 and Construct New Aircraft Shelter	2020
7	Construct Ground Vehicle Fueling Station and Demolish Existing Fueling Station	2015
8	Construct New PMEL Facility and Demolish Existing PMEL Facility	2022
9	Construct Mail Facility	2020
10	Construct Small Arms Range	2017
11	Construct Addition to Building 223	2017
12	Construct Addition to Building 252 and Relocate Security Forces from Building 255	2017
13	Construct Recycling Facility	TBD
Infrastructure Projects		
14	Demolish Building 224, LOX[4] Storage and Relocate Building 270, Hush House	2018
15	Construct Secondary Access/Industrial Gate	2015
16	Complete Pedestrian Sidewalk Network	2020
17	Improve On-base Road Network	2020
18	Demolish Buildings 231, 238 and Expand AT/FP[5]-compliant Non-organizational Vehicle Parking	2019

Notes:
1. Numbers indicate approximate project locations as shown on Figures 2-1 and 2-2 and do not reflect priority.
2. TBD = To Be Determined
3. DRMO = Defense Reutilization and Marketing Office
4. LOX = Liquid Oxygen
5. AT/FP = Antiterrorism/Force Protection

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Location of the 148 FW Installation at Duluth International Airport

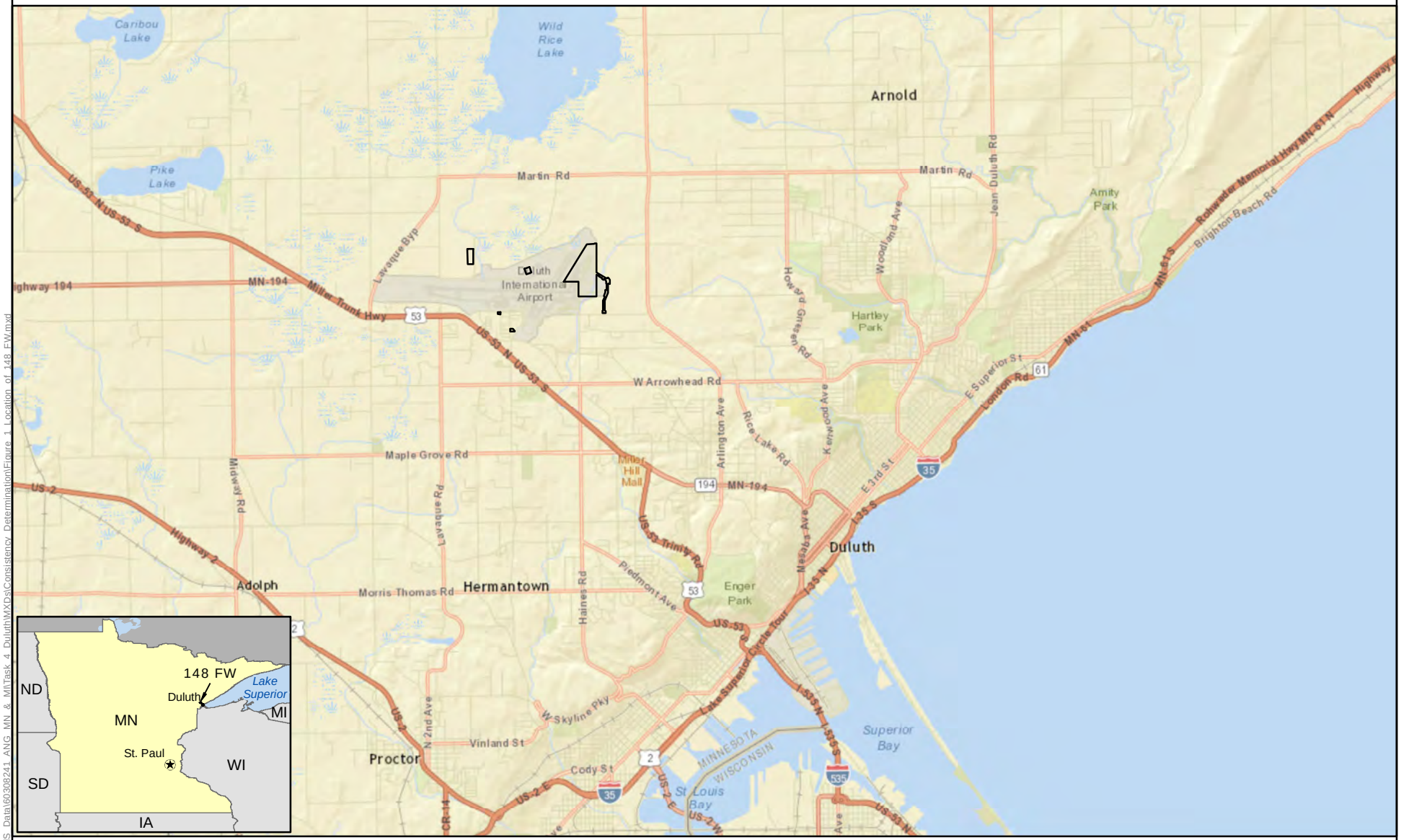

Figure 1

Source: Duluth ANG CIP 2013; ESRI Data & Maps 2006.

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148 FW Installation at Duluth International Airport

148 FW Installation Boundary (Approximate)

0 1,000 2,000 4,000
Feet

N

Figure 2

Source: Duluth ANG CIP 2013; ESRI Data & Maps 2006.

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Project Locations on the Main Base

Figure 3

Source: Duluth ANG CIP 2013; ESRI Data & Maps 2006.

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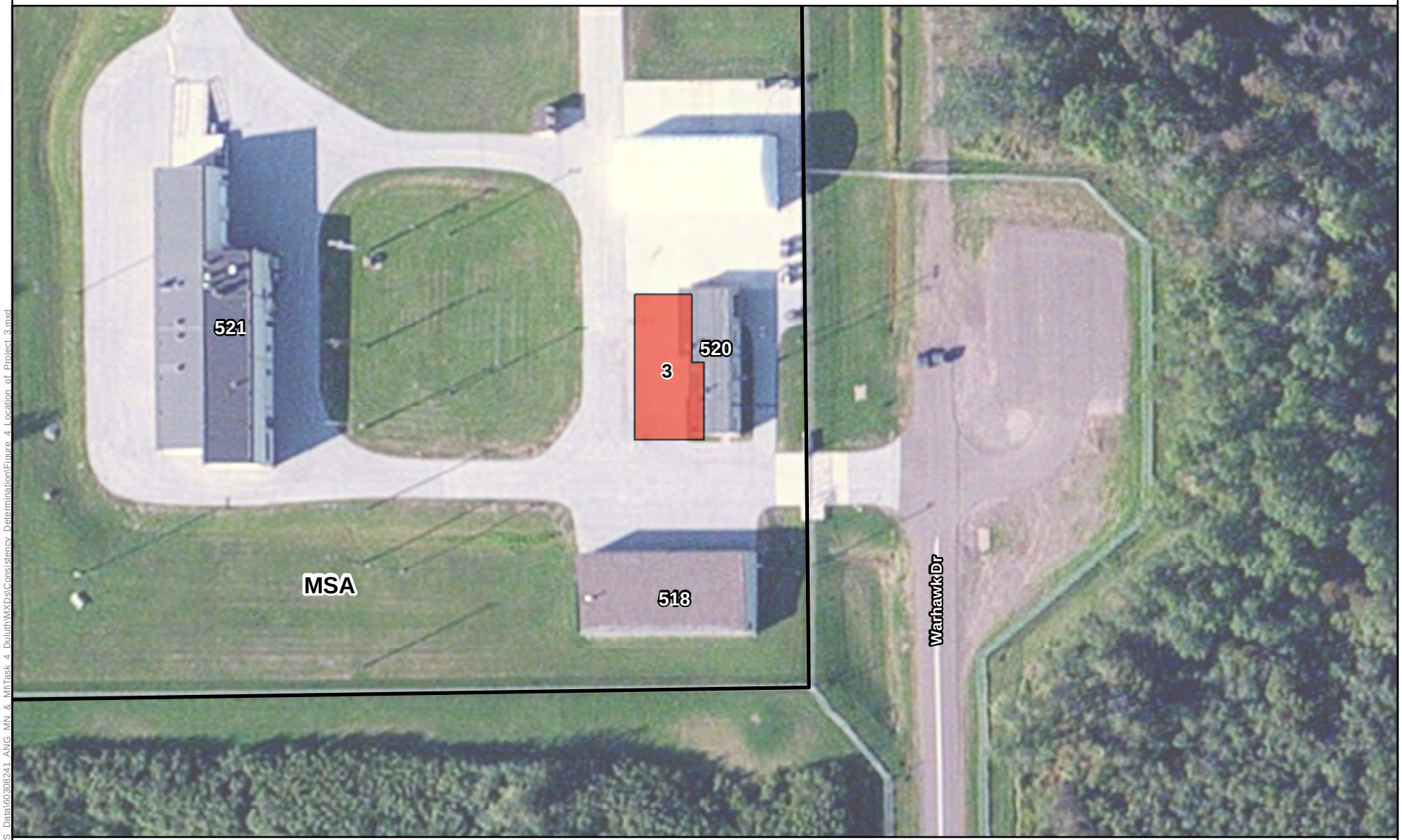
Location of Project 3



Construction Project

Installation Boundary (Approximate)

0 50 100 200

Feet

N

Figure 4

Source: Duluth ANG CIP 2013; ESRI Data & Maps 2006.

Path: A:\env_prod_Common\GIS_Data\60308241_ANG_MN_&_MI\Task_4_Duluth\MXDs\Consistency_Determination\Figure_4_Location_of_Project_3.mxd

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APPENDIX D – BACKGROUND INFORMATION

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Abbreviation or Acronym	Definition
OSD	Office of the Secretary of Defense
OSHA	Occupational Safety and Health Administration
PDEIS	Preliminary Draft Environmental Impact Statement
PGM	Product Group Manager
REO	Air Force Regional Environmental Office
ROD	Record of Decision
SAF/AQR	Deputy Assistant Secretary of the Air Force (Science, Technology, and Engineering)
SAF/GC	Air Force General Counsel
SAF/LL	Air Force Office of Legislative Liaison
SAF/IE	Assistant Secretary of the Air Force for Installations, Environment & Logistics
SAF/IEE	Deputy Assistant Secretary of the Air Force for Environment, Safety and Occupational Health (ESOH)
SAF/PA	Air Force Office of Public Affairs
SJA	Staff Judge Advocate
SM	Single Manager
SPD	Single Program Director
SPOC	Single Point of Contact
TDY	Temporary Duty
U.S.C.	United States Code

Terms

NOTE: All definitions in the CEQ Regulations, 40 CFR part 1508, apply to this part. In addition, the following definitions apply:

Best Management Practices (BMPs)—Under the EIAP, BMPs should be applied in furtherance of 32 CFR 989.22, Mitigations or to fulfill permit requirements (see also E.O. 12088, ''Federal Compliance with Pollution Control Standards).

Description of Proposed Action and Alternatives (DOPAA)—An Air Force document that is the framework for assessing the environmental impact of a proposal. It describes the purpose and need for the action, the alternatives to be considered, and the rationale used to arrive at the proposed action. The DOPAA often unfolds as writing progresses. The DOPAA can change during the internal scoping and public scoping process, especially as ideas and issues become clearer, and as new information makes changes necessary.

Environmental Impact Analysis Process (EIAP)—The Air Force program that implements the requirements of NEPA and requirements for analysis of environmental effects abroad under E.O. 12114.

Finding of No Practicable Alternative (FONPA)—Finding contained in a FONSI or ROD, according to Executive Orders 11988 and 11990, that explains why there are no practicable alternatives to an action affecting a wetland or floodplain, based on appropriate EIAP analysis or other documentation.

Interdisciplinary—An approach to environmental analysis involving more than one discipline or branch of learning.

Pollution Prevention—''Source reduction,'' as defined under the Pollution Prevention Act, and other practices that reduce or eliminate pollutants through increased efficiency in the use of raw materials, energy, water, or other resources, or in the protection of natural resources by conservation.

Proponent—Any office, unit, or activity that proposes to initiate an action.

Scoping—A process for proposing alternatives to be addressed and for identifying the significant issues related to a proposed action. Scoping includes affirmative efforts to communicate with other federal agencies, state, Tribal, and local governments, and the public.

Single Manager—Any one of the Air Force designated weapon system program managers, that include System Program Directors (SPDs), Product Group Managers (PGMs), and Materiel Group Managers (MGMs).

United States—All states, commonwealths, the District of Columbia, territories and possessions of the United States, and all waters and airspace subject to the territorial jurisdiction of the United States. The territories and possessions of the United States include American Samoa, Guam, Johnston Atoll, Kingman Reef, Midway Island, Navassa Island, Palmyra Island, the Virgin Islands, and Wake Island.

[64 FR 38129, July 15, 1999, as amended at 66 FR 16869, Mar. 28, 2001; 72 FR 37107, July 9, 2007]

APPENDIX B TO PART 989—CATEGORICAL EXCLUSIONS

A2.1. Proponent/EPF Responsibility

Although a proposed action may qualify for a categorical exclusion from the requirements for environmental impact analysis under NEPA, this exclusion does not relieve the EPF or the proponent of responsibility for complying with all other environmental requirements related to the proposal, including requirements for permits, and state regulatory agency review of plans.

A2.2. Additional Analysis

Circumstances may arise in which usually categorically excluded actions may have a significant environmental impact and, therefore, may generate a requirement for further environmental analysis. Examples of situations where such unique circumstances may be present include:

A2.2.1. Actions of greater scope or size than generally experienced for a particular category of action.

A2.2.2. Potential for degradation (even though slight) of already marginal or poor environmental conditions.

A2.2.3. Initiating a degrading influence, activity, or effect in areas not already significantly modified from their natural condition.

A2.2.4. Use of unproved technology.

A2.2.5. Use of hazardous or toxic substances that may come in contact with the surrounding environment.

A2.2.6. Presence of threatened or endangered species, archaeological remains, historical sites, or other protected resources.

A2.2.7. Proposals adversely affecting areas of critical environmental concern, such as prime or unique agricultural lands, wetlands, coastal zones, wilderness areas, floodplains, or wild and scenic river areas.

A2.2.8. Proposals with disproportionately high and adverse human health or environmental effects on minority populations or low-income populations.

A2.3. CATEX List

Actions that are categorically excluded in the absence of unique circumstances are:

A2.3.1. Routine procurement of goods and services.

A2.3.2. Routine Commissary and Exchange operations.

A2.3.3. Routine recreational and welfare activities.

A2.3.4. Normal personnel, fiscal or budgeting, and administrative activities and decisions including those involving military and civilian personnel (for example, recruiting, processing, paying, and records keeping).

A2.3.5. Preparing, revising, or adopting regulations, instructions, directives, or guidance documents that do not, themselves, result in an action being taken.

A2.3.6. Preparing, revising, or adopting regulations, instructions, directives, or guidance documents that implement (without substantial change) the regulations, instructions, directives, or guidance documents from higher headquarters or other Federal agencies with superior subject matter jurisdiction.

A2.3.7. Continuation or resumption of preexisting actions, where there is no substantial change in existing conditions or existing land uses and where the actions were originally evaluated in accordance with applicable law and regulations, and surrounding circumstances have not changed.

A2.3.8. Performing interior and exterior construction within the 5-foot line of a building without changing the land use of the existing building.

A2.3.9. Repairing and replacing real property installed equipment.

A2.3.10. Routine facility maintenance and repair that does not involve disturbing significant quantities of hazardous materials such as asbestos and lead-based paint.

A2.3.11. Actions similar to other actions which have been determined to have an insignificant impact in a similar setting as established in an EIS or an EA resulting in a FONSI. The EPF must document application of this CATEX on AF Form 813, specifically identifying the previous Air Force approved environmental document which provides the basis for this determination.

A2.3.12. Installing, operating, modifying, and routinely repairing and replacing utility and communications systems, data processing cable, and similar electronic equipment that use existing rights of way, easements, distribution systems, or facilities.

A2.3.13. Installing or modifying airfield operational equipment (such as runway visual range equipment, visual glide path systems, and remote transmitter or receiver facilities) on airfield property and usually accessible only to maintenance personnel.

A2.3.14. Installing on previously developed land, equipment that does not substantially alter land use (i.e., land use of more than one acre). This includes outgrants to private lessees for similar construction. The EPF must document application of this CATEX on AF Form 813.

A2.3.15. Laying-away or mothballing a production facility or adopting a reduced maintenance level at a closing installation when (1) agreement on any required historic preservation effort has been reached with the state historic preservation officer and the Advisory Council on Historic Preservation, and (2) no degradation in the environmental restoration program will occur.

A2.3.16. Acquiring land and ingrants (50 acres or less) for activities otherwise subject to CATEX. The EPF must document application of this CATEX on AF Form 813.

A2.3.17. Transferring land, facilities, and personal property for which the General Services Administration (GSA) is the action agency. Such transfers are excluded only if there is no change in land use and GSA complies with its NEPA requirements.

A2.3.18. Transferring administrative control of real property within the Air Force or to another military department or to another Federal agency, not including GSA, including returning public domain lands to the Department of the Interior.

A2.3.19. Granting easements, leases, licenses, rights of entry, and permits to use

Air Force controlled property for activities that, if conducted by the Air Force, could be categorically excluded in accordance with this Appendix. The EPF must document application of this CATEX on AF Form 813.

A2.3.20. Converting in-house services to contract services.

A2.3.21. Routine personnel decreases and increases, including work force conversion to either on-base contractor operation or to military operation from contractor operation (excluding base closure and realignment actions which are subject to congressional reporting under 10 U.S.C. 2687).

A2.3.22. Routine, temporary movement of personnel, including deployments of personnel on a TDY basis where existing facilities are used.

A2.3.23. Personnel reductions resulting from workload adjustments, reduced personnel funding levels, skill imbalances, or other similar causes.

A2.3.24. Study efforts that involve no commitment of resources other than personnel and funding allocations.

A2.3.25. The analysis and assessment of the natural environment without altering it (inspections, audits, surveys, investigations). This CATEX includes the granting of any permits necessary for such surveys, provided that the technology or procedure involved is well understood and there are no adverse environmental impacts anticipated from it. The EPF must document application of this CATEX on AF Form 813.

A2.3.26. Undertaking specific investigatory activities to support remedial action activities for purposes of cleanup of Environmental Restoration Account (ERA)—Air Force and Resource Conservation and Recovery Act (RCRA) corrective action sites. These activities include soil borings and sampling, installation, and operation of test or monitoring wells. This CATEX applies to studies that assist in determining final cleanup actions when they are conducted in accordance with legal agreements, administrative orders, or work plans previously agreed to by EPA or state regulators.

A2.3.27. Normal or routine basic and applied scientific research confined to the laboratory and in compliance with all applicable safety, environmental, and natural resource conservation laws.

A2.3.28. Routine transporting of hazardous materials and wastes in accordance with applicable Federal, state, interstate, and local laws.

A2.3.29. Emergency handling and transporting of small quantities of chemical surety material or suspected chemical surety material, whether or not classified as hazardous or toxic waste, from a discovery site to a permitted storage, treatment, or disposal facility.

A2.3.30. Immediate responses to the release or discharge of oil or hazardous materials in accordance with an approved Spill Prevention and Response Plan or Spill Contingency Plan or that are otherwise consistent with the requirements of the National Contingency Plan.

A2.3.31. Relocating a small number of aircraft to an installation with similar aircraft that does not result in a significant increase of total flying hours or the total number of aircraft operations, a change in flight tracks, or an increase in permanent personnel or logistics support requirements at the receiving installation. Repetitive use of this CATEX at an installation requires further analysis to determine there are no cumulative impacts. The EPF must document application of this CATEX on AF Form 813.

A2.3.32. Temporary (for less than 30 days) increases in air operations up to 50 percent of the typical installation aircraft operation rate or increases of 50 operations a day, whichever is greater. Repetitive use of this CATEX at an installation requires further analysis to determine there are no cumulative impacts.

A2.3.33. Flying activities that comply with the Federal aviation regulations, that are dispersed over a wide area and that do not frequently (more than once a day) pass near the same ground points. This CATEX does not cover regular activity on established routes or within special use airspace.

A2.3.34. Supersonic flying operations over land and above 30,000 feet MSL, or over water and above 10,000 feet MSL and more than 15 nautical miles from land.

A2.3.35. Formal requests to the FAA, or host-nation equivalent agency, to establish or modify special use airspace (for example, restricted areas, warning areas, military operating areas) and military training routes for subsonic operations that have a base altitude of 3,000 feet above ground level or higher. The EPF must document application of this CATEX on AF Form 813, which must accompany the request to the FAA.

A2.3.36. Adopting airfield approach, departure, and en route procedures that are less than 3,000 feet above ground level, and that also do not route air traffic over noise-sensitive areas, including residential neighborhoods or cultural, historical, and outdoor recreational areas. The EPF may categorically exclude such air traffic patterns at or greater than 3,000 feet above ground level regardless of underlying land use.

A2.3.37. Participating in ''air shows'' and fly-overs by Air Force aircraft at non-Air Force public events after obtaining FAA coordination and approval.

A2.3.38. Conducting Air Force ''open houses'' and similar events, including air shows, golf tournaments, home shows, and the like, where crowds gather at an Air

Force installation, so long as crowd and traffic control, etc., have not in the past presented significant safety or environmental impacts.

[64 FR 38129, July 15, 1999, as amended at 66 FR 16869, Mar. 28, 2001]

EDITORIAL NOTE: At 72 FR 37107, July 9, 2007, appendix B to part 989 was amended by revising ''AFLSA/JAJT'' to read ''AFLOA/JAJT'' in A3.1.1 and A3.1.2. However, the amendment could not be made because appendix B did not contain such sections.

APPENDIX C TO PART 989—PROCEDURES FOR HOLDING PUBLIC HEARINGS ON DRAFT ENVIRONMENTAL IMPACT STATEMENTS (EIS)

A.3.1. General Information

A3.1.1. The Office of the Judge Advocate General, through the Air Force Legal Services Agency/Trial Judiciary Division (AFLSA/JAJT) and its field organization, is responsible for conducting public hearings and assuring verbatim transcripts are accomplished.

A3.1.2. The EPF, with proponent, AFLSA/JAJT, and Public Affairs support, establishes the date and location, arranges for hiring the court reporter, funds temporary duty costs for the hearing officer, makes logistical arrangements (for example, publishing notices, arranging for press coverage, obtaining tables and chairs, etc.).

A3.1.3. The procedures outlined below have proven themselves through many prior applications. However, there may be rare instances when circumstances warrant conducting public hearings under a different format, e.g., public/town meeting, information booths, third party moderator, etc. In these cases, forward a request with justification to deviate from these procedures to HQ USAF/A7CI for SAF/IEE approval.

A3.2. Notice of Hearing (40 CFR 1506.6)

A3.2.1. Public Affairs officers:

A3.2.1.1. Announce public hearings and assemble a mailing list of individuals to be invited.

A3.2.1.2. Distribute announcements of a hearing to all interested individuals and agencies, including the print and electronic media.

A3.2.1.3. Place a newspaper display advertisement announcing the time and place of the hearing as well as other pertinent particulars.

A3.2.1.4. Distribute the notice in a timely manner so it will reach recipients or be published at least 15 days before the hearing date. Distribute notices fewer than 15 days before the hearing date when you have substantial justification and if the justification for a shortened notice period appears in the notice.

A3.2.1.5. Develop and distribute news release.

A3.2.2. If an action has effects of national concern, publish notices in the FEDERAL REGISTER and mail notices to national organizations that have an interest in the matter.

A3.2.2.1. Because of the longer lead time required by the FEDERAL REGISTER, send out notices for publication in the FEDERAL REGISTER to arrive at HQ USAF/A7CI no later than 30 days before the hearing date.

A3.2.3. The notice should include:

A3.2.3.1. Date, time, place, and subject of the hearing.

A3.2.3.2. A description of the general format of the hearing.

A3.2.3.3. The name, address, and telephone number of the Air Force point of contact.

A3.2.3.4. A suggestion that speakers submit (in writing or by return call) their intention to participate, with an indication of which environmental impact (or impacts) they wish to address.

A3.2.3.5. Any limitation on the length of oral statements.

A3.2.3.6. A suggestion that speakers submit statements of considerable length in writing.

A3.2.3.7. A summary of the proposed action.

A3.2.3.8. The location where the draft EIS and any appendices are available for examination.

A.3.3. Availability of the Draft EIS to the Public

The EPF makes copies of the Draft EIS available to the public at an Air Force installation and other reasonably accessible place in the vicinity of the proposed action and public hearing (e.g., public library).

A3.4. Place of the Hearing

The EPF arranges to hold the hearing at a time and place and in an area readily accessible to military and civilian organizations and individuals interested in the proposed action. Generally, the EPF should arrange to hold the hearing in an off-base civilian facility, which is more accessible to the public.

A3.5. Hearing Officer

A3.5.1. The AFLOA/JAJT selects a hearing officer to preside over hearings. The hearing officer does not need to have personal knowledge of the project, other than familiarity with the Draft EIS. In no event should the hearing officer be a judge advocate from the proponent or subordinate command, be assigned to the same installation with which the hearing is concerned, or have participated personally in the development of the project, or have rendered legal advice or assistance with respect to it (or be expected to

148th Fighter Wing
Duluth International Airport, Duluth, MN
Installation Development Projects Subject to Categorical Exclusion

During the EA site visit and kickoff meeting in July 2014, the following projects included in the IDP for the 148 FW were determined to be subject to Categorical Exclusion (CE) as defined in 32 CFR 989, Appendix B:

- **Renovate Building 219:** This facility would be renovated and upgraded to meet safety and operational requirements for weapons loading crew training. (A2.3.8)
- **Upgrade Munitions Storage Area (MSA) Utility Systems:** This project would involve improvements to water, sewer and electrical distribution systems serving the MSA. (A2.3.12)
- **Renovate Building 255:** This facility would be renovated to provide the full authorization for telecommunications functions on the base. (A2.3.8)
- **Renovate Building 211:** This facility would be renovated to provide an F-16 simulator and associated training space. (A2.3.8)
- **Improve municipal utility systems:** Multiple projects would be undertaken to improve the redundancy of off-base water, sewer and electrical distribution systems serving the 148 FW installation. (A2.3.12)
- **Provide water and electrical system redundancies:** Multiple improvements would be undertaken to improve the redundancy of water, sewer and electrical distribution networks within the boundaries of the 148 FW installation. (A2.3.12)
- **Control flightline access:** Fencing and gates would be erected at multiple locations on the 148 FW installation to restrict access to the flightline. (A2.3.14)
- **Construct Addition to Building 520:** Construct a one-story, 2,725-square-foot addition on the west side of Building 520. (A2.3.11) - *This project will require consultation with the Minnesota State Historic Preservation Officer in compliance with Section 106 of the National Historic Preservation Act.*

Additional information on these projects is included in *Installation Development Plan for the 148th Fighter Wing, Duluth, Minnesota – Task 5* (148 FW 2013) and *Installation Development Plan for the 148th Fighter Wing, Duluth, Minnesota – Interim Submittal* (148 FW 2014).

As noted in Chapter 1 of the EA, larger-scale IDP projects and/or those that would be implemented beyond the five- to seven-year scope of this EA will be the subject of future NEPA documentation.

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Figure 4.1

- Noise Contour
- Building Restriction Line
- Ridge Line
- Installation Boundary
- 86' AT/FP Perimeter Standoff
- 262' AT/FP Perimeter Standoff
- Existing Structure
- Quantity Distance Arc
- Primary Surface
- Approach/Departure Clearance
- Transitional Surface
- Wetland

Additional Constraints:
Building and infrastructure layout
300' Safety arcs at POL
AT/FP Roads and Parking standoffs
Climate
Soils may be marginal
1250' QD at MSA
BLDGS 520-525 at MSA eligible for historic register

N

0 200 400 800 1,200 ft

148th FW Constraints Composite

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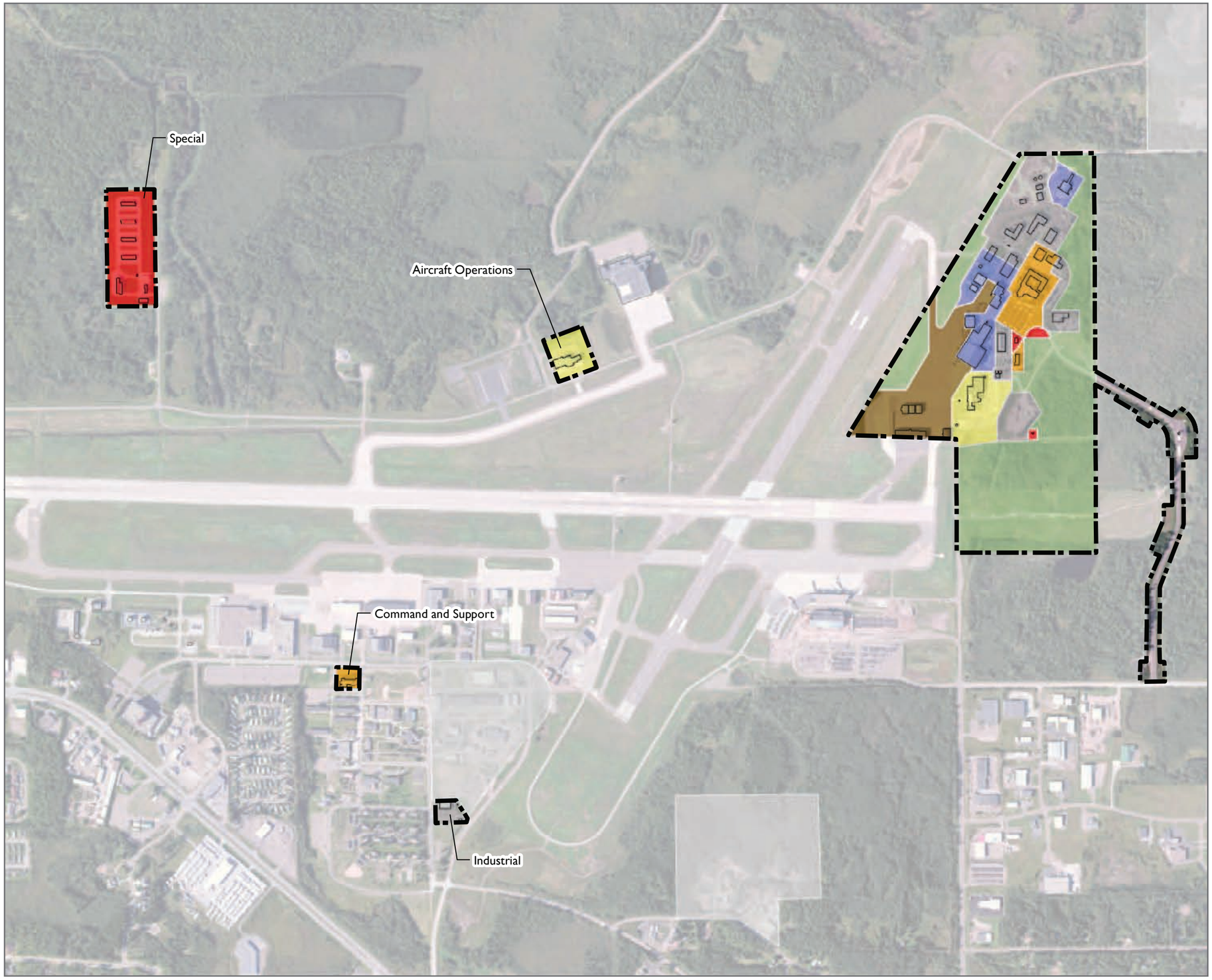

Figure 3.4

Installation Boundary

Existing Structure

Land Use

Aircraft Maintenance

Aircraft Operations

Airfield Pavement

Command and Support

Industrial

Open Space/Buffer Zone

Special Area

N

0 500 1,000 2,000 3,000 ft

148th FW
Existing Land Use
Installation Overview

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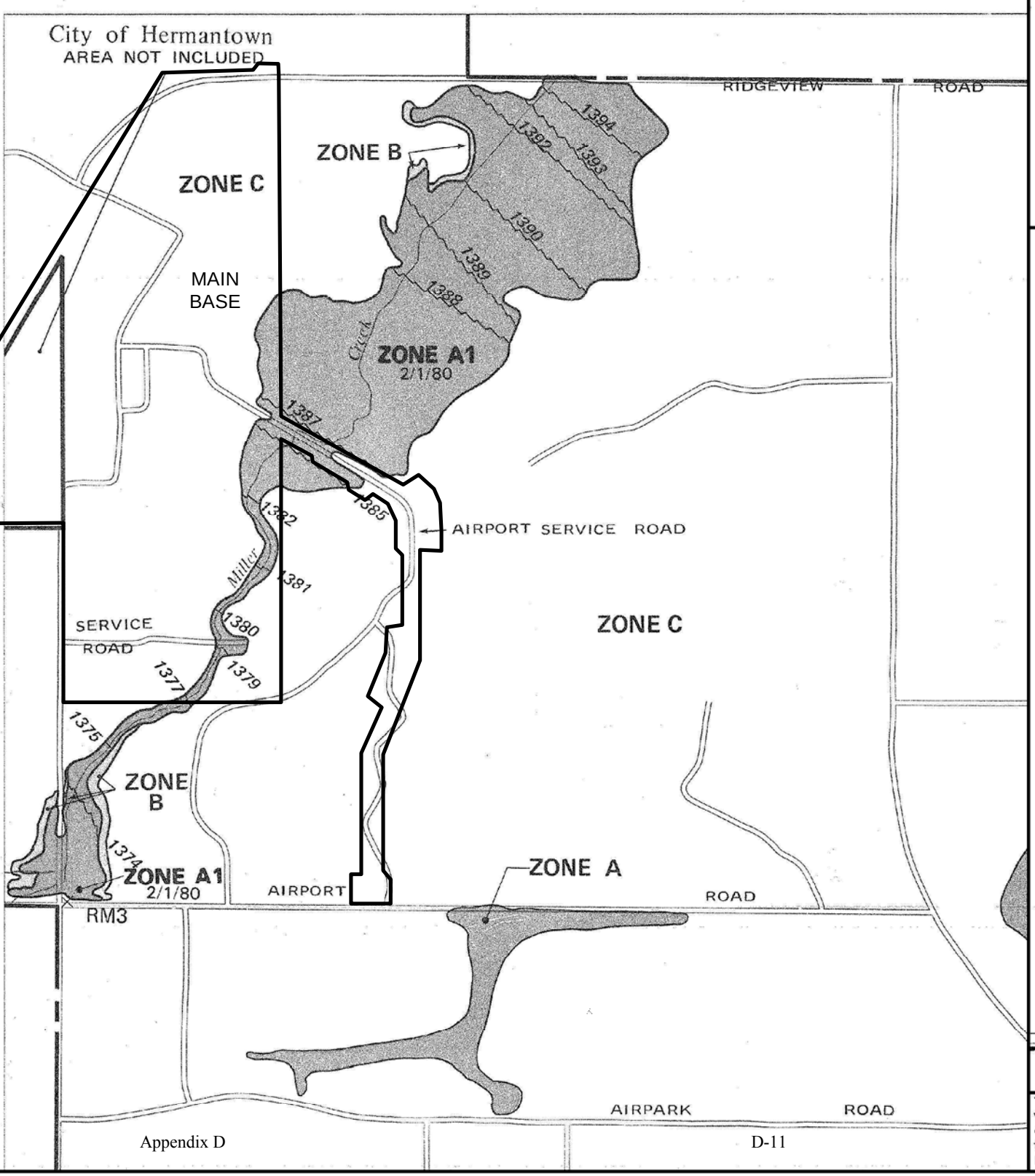

N

APPROXIMATE SCALE

1000 0 1000 FEET

NATIONAL FLOOD INSURANCE PROGRAM

FIRM

FLOOD INSURANCE RATE MAP

CITY OF
DULUTH,
MINNESOTA
ST LOUIS COUNTY

PANEL 25 OF 45
(SEE MAP INDEX FOR PANELS NOT PRINTED)

COMMUNITY-PANEL NUMBER
270421 0025 C

MAP REVISED:
APRIL 2, 1982

Federal Emergency Management Agency

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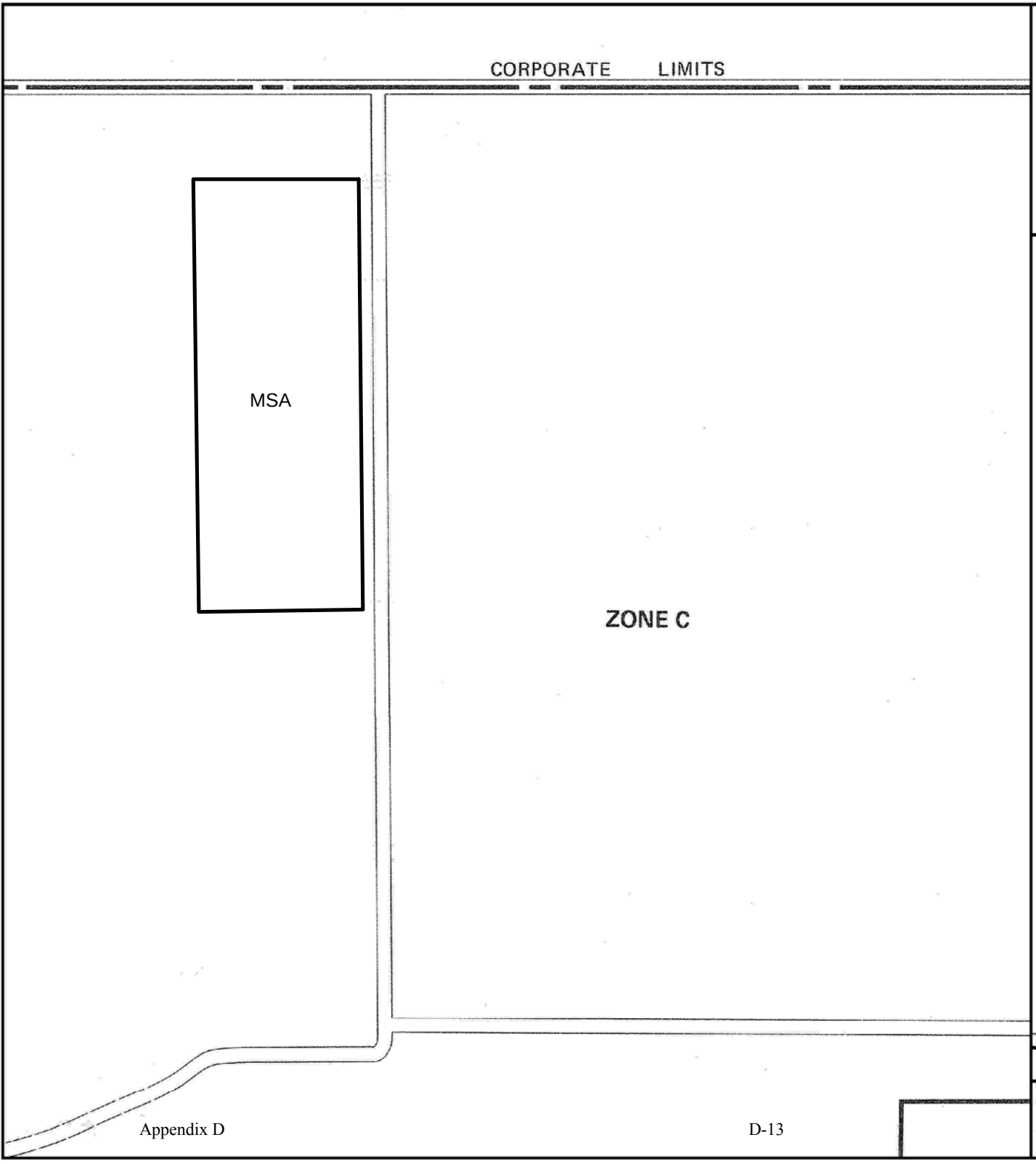

APPROXIMATE SCALE

400 0 400 FEET

NATIONAL FLOOD INSURANCE PROGRAM

FIRM

FLOOD INSURANCE RATE MAP

CITY OF
HERMANTOWN,
MINNESOTA
ST. LOUIS COUNTY

PANEL 3 OF 12
(SEE MAP INDEX FOR PANELS NOT PRINTED)

COMMUNITY-PANEL NUMBER
270708 0003 B

EFFECTIVE DATE:
NOVEMBER 18, 1981

federal emergency management agency
federal insurance administration

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GENERAL PERMIT
AUTHORIZATION TO DISCHARGE
STORMWATER ASSOCIATED WITH CONSTRUCTION ACTIVITY
UNDER THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM/
STATE DISPOSAL SYSTEM PROGRAM

ISSUANCE DATE: August 1, 2013 **EXPIRATION DATE: August 1, 2018**

This permit is issued in compliance with the provisions of the Clean Water Act, as amended, (33 U.S.C. 1251 et seq.), 40 Code of Federal Regulations (CFR) 122, 123, 124,and 450 as amended; Minnesota Statute chapters 115 and 116, as amended, and Minn. R. chs. 7001, 7050, 7060 and 7090.

This permit regulates discharges associated with **stormwater** affected by **construction activity** to **waters of the state** of Minnesota. This permit covers the **stormwater** discharges identified in Part I.A. of this permit. The limitations on permit coverage are identified in Part I.B. of this permit.

Minn. R. 7090.2040 requires **owner(s)** of a **construction activity** to complete a **Stormwater Pollution Prevention Plan (SWPPP)** prior to submitting an application for this permit and prior to conducting any **construction activity**. No person shall commence **construction activity** covered by Part I.A. until permit coverage under this permit is effective or, if applicable, until the Minnesota Pollution Control Agency (MPCA) has issued an individual **National Pollutant Discharge Elimination System (NPDES)**/State Disposal System (SDS) Construction **Stormwater** (CSW) Permit for the **project**.

Unless notified by the MPCA to the contrary, applicants who submit a complete and accurate application (including permit fee) in accordance with the requirements of this permit are authorized to discharge **stormwater** associated with construction activity under the terms and conditions of this permit as described in Part II.B.

Signature: _____

John Linc Stine
Commissioner

If you have questions on this permit, including the specific permit requirements, permit reporting or permit compliance status, please contact the appropriate MPCA offices. Note that **bolded** words throughout the permit are defined in Appendix B.

Minnesota Pollution Control Agency
Municipal Division
Construction Stormwater Program
520 Lafayette Road North
St. Paul, MN 55155-4194
Telephone: 651-296-6300
Toll free in MN: 800-657-3864

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PART I. PERMIT COVERAGE AND LIMITATIONS

I.A. PERMIT COVERAGE

1. This permit is required for **construction activity** that results in land disturbance of equal to or greater than one acre or a **common plan of development or sale** that disturbs greater than one acre, and authorizes, subject to the terms and conditions of this permit, the discharge of **stormwater** associated with **construction activity.**

   Construction activity does not include a disturbance to the land of less than five (5) acres for the purpose of routine maintenance that is performed to maintain the original line and grade, hydraulic capacity, or original purpose of the facility. Pavement rehabilitation that does not disturb the underlying soils (e.g., mill and overlay **projects**) is not considered construction activity.

2. This permit covers all areas of the State of Minnesota.

3. Coverage under this permit is not required when all stormwater from **construction activity** is routed directly to and treated by a "treatment works", as defined in Minn. Stat. § 115.01, subd. 21, that is operated under an individual **NPDES**/SDS permit with a Total Suspended Solids effluent limit for all treated runoff.

4. Previously Permitted Ongoing **Projects: Permittee(s)** of ongoing **projects** covered initially under the previous MPCA-issued **NPDES**/SDS Construction Stormwater General Permit (issuance date August 1, 2008) are granted coverage under this reissued permit.

   a. The **Permittee(s)** of those ongoing **projects** shall amend the **SWPPP** for the **project** to meet the requirements of this reissued permit no later than 18 months after the issuance date of this reissued permit if the termination-of-coverage requirements in Part II.C. will not be met within 18 months of the issuance date of this reissued permit and shall thereafter comply with this permit. However, additional permanent treatment required in this reissued permit is not required for previously permitted **projects**.

   b. If the previously permitted ongoing **project** will meet the termination-of-coverage requirements in Part II.C. within 18 months of the issuance date of this reissued permit, the **Permittee(s)** shall comply with the 2008 construction general permit until the **project** is complete and a **Notice of Termination (NOT)** consistent with Part II.C. of this reissued permit is submitted.

   c. If a previously permitted ongoing **project** will not be able to meet the terms and conditions of this reissued permit (other than the additional permanent treatment requirement) and will continue longer than 18 months after the issuance date of this permit, the **Permittee(s)** shall apply for an individual permit in accordance with Minn. R. ch. 7001.

I.B. LIMITATIONS OF COVERAGE

This permit does not authorize discharges related to the following activities:

1. Discharges or releases that are not **stormwater** (except those non-**stormwater** discharges

authorized under Part IV.D.).

2. The placement of fill into **waters of the state** requiring local, state or federal authorizations (such as U.S. Army Corps of Engineers Section 404 permits, Minnesota Department of Natural Resources Public Waters Work Permits or Local Governmental Unit Wetland Conservation Act replacement plans or determinations).

3. Discharges associated with industrial activity except for **construction activity**. Discharges associated with industrial activity may need to obtain coverage under a separate NPDES/SDS permit once day-to-day operational activities commence even if construction is ongoing.

4. Discharges from non-point source agricultural and silvicultural activities excluded from **NPDES** permit requirements under 40 CFR pt. 122.3(e).

5. Discharges to the waters identified below unless the requirements of Appendix A are complied with:

   a. Discharges into outstanding resource value waters as listed in Minn. R. 7050.0180, subp. 3, 4, 5, 6, 6a and 6b.

   b. Discharges into trout waters as listed in Minn. R. 6264.0050, subp. 2 and 4.

   c. Discharges into **wetlands** as defined in Minn. R. 7050.0186 subd.1a.B.

   d. Discharges from **projects** that have not completed applicable Environmental Review requirements under state or federal laws.

   e. Discharges that adversely impact or contribute to adverse impacts on a state or federally listed endangered or threatened species or adversely modify a designated critical habitat.

   f. Discharges that adversely affect properties listed or eligible for listing in the National Register of Historic Places or affecting known or discovered archeological sites.

6. Discharges to waters identified as impaired pursuant to section 303(d) of the federal Clean Water Act (33 U.S.C. § 303(d)) where the identified pollutant(s) or stressor(s) are phosphorus (nutrient eutrophication biological indicators), turbidity, dissolved oxygen, or biotic impairment (fish bioassessment, aquatic plant bioassessment and aquatic macroinvertebrate bioassessment), and with or without a U.S. Environmental Protection Agency (USEPA) approved Total Maximum Daily Load (TMDL) for any of these identified pollutant(s) or stressor(s), unless the applicable requirements of Part III.A.8. are met.

PART II. SUBMITTING THE APPLICATION

II.A. PREREQUISITE FOR SUBMITTING A PERMIT APPLICATION

The **owner** must develop an accurate and complete **SWPPP** in accordance with Part III. (Stormwater Discharge Design Requirements) of this permit prior to submitting the application for coverage. The **SWPPP** is not required to be submitted to the MPCA (unless the **project** size is 50 acres or more and will discharge to certain waters as described in Part II.B.1.b.) but is to be retained by the **owner** in

accordance with Part III.E. (Record Retention). The **owner's** failure to prepare an accurate and complete **SWPPP** prior to submitting the application is grounds for MPCA to revoke the permit.

II.B. APPLICATION AND DURATION OF COVERAGE

1. Application Required.

   a. The **owner** and **operator** shall submit a complete and accurate on-line application form with the appropriate fee to the MPCA for each **project** that disturbs one (1) or more acres of land or for a **common plan of development or sale** that will ultimately disturb one (1) or more acres. If the applicant is not able to apply on-line, contact the MPCA for technical assistance or a waiver.

   b. For certain **projects** or **common plans of development or sale** disturbing 50 acres or more, the application must be submitted at least 30 days before the start of **construction activity**. This requirement pertains to **projects** that have a discharge point on the **project** that is within one mile (**aerial radius measurement**) of, and flows to, a special water listed in Appendix A, Part B. or waters listed as impaired under section 303(d) of the federal Clean Water Act (see the MPCA's website) where the identified pollutant(s) or stressor(s) are phosphorus (nutrient eutrophication biological indicators), turbidity, dissolved oxygen, or biotic impairment (fish bioassessment, aquatic plant bioassessment and aquatic macroinvertebrate bioassessment). Applicants of **projects** listed in this part must submit a complete and accurate application form and **SWPPP** including all calculations for the Permanent **Stormwater** Management System (see Parts III.A.-D.).

2. All persons meeting the definition of **owner** and **operator** are **Permittees** and must be listed on the application. The **owner** is responsible for compliance with all terms and conditions of this permit. The **operator** is responsible for compliance with Parts II.B, II.C, III.B-F, IV, V, and applicable **construction activity** requirements found in Appendix A, Part C. of this permit and is jointly responsible with the **owner** for compliance with those portions of the permit.

3. Permit Coverage Effective Date: The commencement of any **construction activity** (e.g., land disturbing activities) covered under Part I.A. of this permit is prohibited until permit coverage under this permit is effective.

   a. For **projects** listed in Part II.B.1.a. permit coverage will become effective seven (7) calendar days after the electronic submittal date or the postmarked date of a complete application form.

   b. For **projects** listed in Part II.B.1.b. permit coverage will become effective 30 calendar days after the electronic submittal date, the postmarked date or MPCA date stamp (whichever is first) of the complete application. For incomplete applications (e.g., lack of fees or signature) or incomplete **SWPPPs** (e.g., missing calculations, **Best Management Practice (BMP)** specifications, estimated quantities of the **BMPs,** or timing of **BMP** installation narrative), the permit becomes effective 30 calendar days after all required information is submitted.

4. Coverage Notification: **Permittee(s)** will be notified of coverage in a manner as determined by the **Commissioner** (e.g., e-mail, online notification or letter).

5. Change of Coverage: For construction **projects** where the **owner** or **operator** changes, (e.g., an original developer sells portions of the property to various homebuilders or sells the entire site to a new **owner**) the current **owner** and the new **owner** or **operato**r shall submit a complete permit modification on a form provided by the **Commissioner**. The form must be submitted prior to the new **owne**r or **operator** commencing **construction activity** on site or in no case later than 30 days after taking ownership of the property. The **owner** shall provide a **SWPPP** to the new **owner** and **operator** that specifically addresses the remaining **construction activity**.

II.C. TERMINATION OF COVERAGE

1. Termination of coverage when construction is complete: All **Permittee(s)** must submit a **Notice of Termination (NOT)** to the MPCA on a form provided by the **Commissioner** within 30 days after all activities required for **Final Stabilization** (see Part IV.G.) are complete. The **Permittee(s)'** coverage under this permit terminates at midnight on the submission date of the **NOT**.

2. Termination of coverage when transfer of ownership occurs: All **Permittee(s)** must submit a **NOT** on a form provided by the **Commissioner** within 30 days after selling or otherwise legally transferring the entire site, including permit responsibility for roads (e.g., street sweeping) and **stormwater** infrastructure final clean out, or transferring portions of a site to another party. The **Permittee(s)'** coverage under this permit terminates at midnight on the submission date of the **NOT**.

3. **Permittee(s)** may terminate permit coverage prior to completion of all **construction activity** if all of the following conditions are met. After the permit is terminated under this Part, if there is any subsequent development on the remaining portions of the site where **construction activity** was not complete, new permit coverage must be obtained if the subsequent development itself or as part of the remaining **common plan of development or sale** will result in land disturbing activities of one (1) or more acres in size.

   a. **Construction activity** has ceased for at least 90 days.

   b. At least 90 percent (by area) of all originally proposed **construction activity** has been completed and **permanent cover** established on those areas.

   c. On areas where **construction activity** is not complete, **permanent cover** has been established.

   d. The site is in compliance with Part IV.G.2. and Part IV.G.3. and where applicable, Part IV.G.4. or Part IV.G.5.

4. **Permittee(s)** may terminate coverage upon approval by the MPCA if information is submitted to the MPCA documenting that termination is appropriate because the project is cancelled.

PART III. STORMWATER DISCHARGE DESIGN REQUIREMENTS

III.A. STORMWATER POLLUTION PREVENTION PLAN CONTENT

The **owner** must develop a **Stormwater Pollution Prevention Plan** (**SWPPP).** The **SWPPP** shall be

completed prior to submitting any permit application and prior to conducting any **construction activity** by any required **Permittee(s)**. For **stormwater** discharges from **construction activity** where the **owner** or **operator** changes, the new **owner** or **operator** can implement the original **SWPPP** created for the **project**, modify the original **SWPPP**, or develop and implement their own **SWPPP**. **Permittee(s)** shall ensure either directly or through coordination with other **Permittee(s)** that their **SWPPP** meets all terms and conditions of this permit and that their activities do not render another party's **erosion prevention** and **sediment control BMPs** ineffective. The **SWPPP** must include the following:

1. A description of the **construction activity:** The description must be a combination of narrative, plan sheets, and (if appropriate) standard detail sheets that address the foreseeable conditions, at any stage in the construction or post construction activities. The **SWPPP** must identify the potential for discharge of sediment and/or other potential pollutants from the site. The **SWPPP** must propose **erosion prevention and sediment control BMPs** to control the discharge of sediment and/or other potential pollutants from the site.

2. Knowledgeable person/chain of responsibility: As part of the **SWPPP,** the **owner** must identify a person knowledgeable and experienced in the application of **erosion prevention** and **sediment control BMPs** who will oversee the implementation of the **SWPPP**, and the installation, inspection and maintenance of the **erosion prevention** and **sediment control BMPs** (see Part III.F.1.) before and during construction. The **owner** must identify in the **SWPPP** who will have the responsibility for long-term operation and maintenance of the Permanent **Stormwater** Management System (see Part III.D.). The **owner** shall include in the **SWPPP** a chain of responsibility with all **operators** on the site, or if not known, the title or position of the responsible party, to ensure that the **SWPPP** will be implemented and stay in effect until the construction **project** is complete, the entire site has undergone **Final Stabilization**, and an **NOT** has been submitted to the MPCA. Once the identity of the responsible party is known, the SWPPP must be amended to include this information.

3. Training documentation: The **Permittee(s)** shall ensure the individuals identified in Part III.F. have been trained in accordance with this Permit's training requirements. The **Permittee(s)** shall ensure the training is recorded in or with the **SWPPP** before the start of construction or as soon as the personnel for the **project** have been determined. Documentation shall include:

    a. Names of the personnel associated with this **project** that are required to be trained per Part III.F.1. of this permit.

    b. Dates of training and name of instructor(s) and entity providing training.

    c. Content of training course or workshop including the number of hours of training.

4. Designs, calculations, and narrative: The **SWPPP** must incorporate the requirements of Part III (**Stormwater** Discharge Design Requirements) including calculations, Part IV (**Construction Activity** Requirements) and Appendix A for the **project**. A narrative describing the timing for installation of all **erosion prevention** and **sediment control BMPs** and permanent **stormwater** management systems required in Part III, Part IV and Appendix A must also be included in the **SWPPP**.

5. **SWPPP** components: The **SWPPP** requirements must be incorporated into the **project's** final

plans and specifications and/or **project** documentation, as appropriate, and must include:

a. Location and type of all temporary and permanent **erosion prevention** and **sediment control BMPs** along with procedures to be used to establish additional temporary **BMPs** as necessary for the site conditions during construction. **Standard details** and/or specifications for the **BMPs** used on the **project** must be included in the final plans and specifications for the **project**.

b. Quantities: Estimated preliminary quantities tabulation anticipated at the start of the **project** for the life of the **project** must be included for all **erosion prevention** and **sediment control BMPs** in the **SWPPP** (e.g., linear feet of silt fence or ft^2 of erosion control blanket).

c. Impervious surface: The number of acres of **impervious surface** for both pre- and post-construction must be specified.

d. Site map: A site map with existing and final grades, including dividing lines and direction of flow for all pre-and post-construction **stormwater** runoff drainage areas located within the **project** limits must be included. The site map must indicate the areas of **steep slopes**. The site map must also include **impervious surfaces,** soil types and locations of potential pollutant-generating activities as identified in Part IV.F.

e. Locations of areas not to be disturbed: Buffer zones, as required for temporary **BMPs** during construction in Part IV.C.9., or if required as permanent **BMPs** in Appendix A, Part C.3., must be described and identified on plan sheets or **project** maps in the **SWPPP**.

f. Construction phasing: Location of areas where construction will be phased to minimize duration of exposed soil areas must be described.

g. Maps of surface waters and wetlands: The **SWPPP** must include a map of all **surface waters,** existing **wetlands**, and **stormwater** ponds or basins which can be identified on maps such as United States Geological Survey 7.5 minute quadrangle maps, the National Wetland Inventory map or equivalent maps within one mile (**aerial radius measurement**) from the **project** boundaries that will receive **stormwater** from the construction site, during or after construction. Where **surface waters** receiving **stormwater** associated with **construction activity** will not fit on the plan sheet, they must be identified with an arrow, indicating both direction and distance to the **surface water**. The **SWPPP** must identify if the **surface water** is a special or impaired water. The site map must also show **construction activity** areas that are adjacent to and drain to **Public Waters** for which the Department of Natural Resources has promulgated “work in water restrictions” during specified fish spawning time frames.

h. **Final stabilization:** Methods to be used for **Final Stabilization** of all exposed soil areas must be described.

i. **BMP** design factors: The **SWPPP** must account for the following factors in designing the temporary **erosion prevention** and **sediment control BMPs**:

    i. The expected amount, frequency, intensity, and duration of precipitation.

    ii. The nature of **stormwater** runoff and run-on at the site, including factors such as

expected flow from **impervious surface**s, slopes, and site drainage features.

iii. If any **stormwater** flow will be channelized at the site, the **Permitte(s)** must design **BMPs** to control both peak flowrates and total **stormwater** volume to minimize erosion at outlets and to minimize downstream channel and streambank erosion.

iv. The range of soil particle sizes expected to be present on the site.

j. Soil Management: Methods used to minimize soil compaction and preserve topsoil must be described. Minimizing soil compaction is not required where the function of a specific area of the site dictates that it be compacted.

k. Maintenance plan: For **projects** that include permanent **stormwater** treatment systems, the **SWPPP** must include a maintenance plan identifying who will be performing future maintenance of the system.

l. Chemical treatments: Any specific chemicals and the chemical treatment systems that may be used for enhancing the sedimentation process on the site, and how compliance will be achieved with the requirements in Part IV.C.10., must be described.

m. Documentation of **infeasibility**: If the **Permittee(s)** determine(s) that compliance with the requirement for temporary sediment basins (Part III.C.) is **infeasible** on the **project** site; the **Permittee(s)** must document that determination and the substitute **BMPs** in the **SWPPP**. If **Permittee(s)** cannot obtain right-of-way for the permanent stormwater management system; the **Permittee(s)** must document the infeasibility of obtaining right-of-way (Part III.D.)

6. Stormwater pollution mitigation measures identified in environmental review or other required review: The **SWPPP** must include any **stormwater** mitigation measures approved as part of a final environmental review document, endangered species review, archeological or other required local, state or federal review conducted for the **project**. For the purposes of this permit provision, mitigation measures means actions necessary to avoid, minimize, or rectify (e.g., repairing, rehabilitating, restoring), reducing, eliminating or compensating for impacts related to: (1) **stormwater** discharges associated with the **project's construction activity**; and (2) **erosion prevention**, **sediment control** and the Permanent **Stormwater** Management System for the **project**.

7. Karst areas: The **SWPPP** must identify additional or different measures necessary (e.g. impervious liner in pond bottom) to assure compliance with **surface and groundwater** standards in Minn. R. chs. 7050 and 7060 in karst areas and to ensure protection of drinking water supply management areas (see Minn. R. 4720.5100, subp. 13).

8. Impaired Waters and Total Maximum Daily Loads (TMDLs): The **SWPPP** must address the following:

a. For **projects** that have a discharge point on the **project** that is within one mile (**aerial radius measurement**) of and which flows to an impaired water, the **Permittee(s)** must identify the impaired water(s) in the **SWPPP**, and whether or not there is a USEPA-approved TMDL for the pollutant(s) or stressor(s) identified in Appendix A, Part B.10. Unless otherwise notified by the MPCA in writing, the **Permittee(s)'** identification of impaired waters must be based

on the most recent USEPA approved section 303(d) Clean Water Act list of impaired waters and USEPA approved TMDLs at the time a complete permit application is submitted. The **Permittee(s)'** identification must include those TMDLs, applicable to the **project's stormwater** discharge, that were approved at any time prior to permit application submittal and are still in effect.

b. If the TMDL identifies specific implementation activities regarding construction **stormwater** that would apply to the site discharges, the **Permittee(s)** must include the **BMPs** identified in the TMDL and any other specific construction **stormwater** related implementation activities identified in the TMDL.

III.B. SWPPP AMENDMENTS

The **Permittee(s)** must amend the **SWPPP** as necessary to include additional requirements, such as additional or modified **BMPs** that are designed to correct problems identified or address situations whenever:

1. There is a change in design, construction, operation, maintenance, weather or seasonal conditions that has a significant effect on the discharge of pollutants to **surface waters** or **underground waters**.

2. Inspections or investigations by site **owner** or **operators**, USEPA or MPCA officials indicate the **SWPPP** is not effective in eliminating or significantly minimizing the discharge of pollutants to **surface waters** or **underground waters** or that the discharges are causing water quality standard exceedances (e.g., nuisance conditions as defined in Minn. R. 7050.0210, subp. 2).

3. The **SWPPP** is not achieving the general objectives of minimizing pollutants in **stormwater** discharges associated with **construction activity**, or the **SWPPP** is not consistent with the terms and conditions of this permit.

4. At any time after permit coverage is effective, the MPCA may determine that the **project's stormwater** discharges may cause, have reasonable potential to cause, or contribute to non-attainment of any applicable water quality standard, or that the **SWPPP** does not incorporate the applicable requirements in Part III.A.8., (Impaired Waters and TMDLs). If a water quality standard changes during the term of this permit, the MPCA will make a determination as to whether a modification of the SWPPP is necessary to address the new standard. If the MPCA makes such determination(s) or any of the determinations in Parts III.B.1.-3., the MPCA will notify the **Permittee(s)** in writing. In response, the **Permittee(s)** must amend the **SWPPP** to address the identified concerns and submit information requested by the MPCA, which may include an individual permit application. If the MPCA's written notification requires a response, failure to respond within the specified timeframe constitutes a permit violation.

III.C. TEMPORARY SEDIMENT BASINS

Where ten (10) or more acres of disturbed soil drain to a common location, the **Permittee(s)** must provide a temporary sediment basin to provide treatment to the runoff before it leaves the construction site or enters **surface waters**. A temporary sediment basin may be converted to a permanent basin after construction is complete. The temporary basin is no longer required when

permanent cover has reduced the acreage of disturbed soil to less than ten (10) acres draining to a common location. The **Permittee(s)** is/are encouraged, but not required, to install temporary sediment basins where appropriate in areas with **steep slopes** or highly erodible soils even if less than ten (10) acres drains to one area. The basins must be designed and constructed according to the following requirements:

1. The basins must provide live storage for a calculated volume of runoff from a two (2)-year, 24-hour storm from each acre drained to the basin, except that in no case shall the basin provide less than 1,800 cubic feet of live storage from each acre drained to the basin.

2. Where the calculation in Part III.C.1. has not been performed, a temporary sediment basin providing 3,600 cubic feet of live storage per acre drained to the basin shall be provided for the entire drainage area of the temporary basin.

3. Temporary basin outlets must be designed to prevent short-circuiting and the discharge of floating debris. The basin must be designed with the ability to allow complete basin drawdown for maintenance activities, and must include a **stabilized** emergency overflow to prevent failure of pond integrity. The outlet structure must be designed to withdraw water from the surface in order to minimize the discharge of pollutants, except that the use of a surface withdrawal mechanism for discharge of the basin may be temporarily suspended during frozen conditions. **Energy dissipation** must be provided for the basin outlet (see Part IV.B.5.).

4. Sediment Basins must be situated outside of surface waters and any buffer zone required under Appendix A.C.3, and must be designed to avoid draining water from **wetlands** unless the impact to the **wetland** is in compliance with the requirements of Appendix A, Part D.

5. The temporary basins must be constructed and made operational prior to 10 or more acres of disturbed soil draining to a common location.

6. Where a temporary sediment basin meeting the requirements of this part is **infeasible**, equivalent **sediment controls** such as smaller sediment basins, and/or sediment traps, silt fences, vegetative buffer strips, or any appropriate combination of measures are required for all down-slope boundaries of the construction area and for side-slope boundaries as dictated by individual site conditions. In determining whether installing a sediment basin is **infeasible**, the **Permittee(s)** must consider public safety and may consider factors such as site soils, slope, and available area on site. This determination of **infeasibility** must be documented in the **SWPPP** per Part III.A.5.m.

III.D. PERMANENT STORMWATER MANAGEMENT SYSTEM

The **Permittee(s)** shall design the **project** so that all **stormwater** discharged from the **project** during and after **construction activities** does not cause a violation of state water quality standards, including nuisance conditions, erosion in receiving channels or on downslope properties, or a significant adverse impact to **wetlands** caused by inundation or decrease of flow.

The **Permittee(s)** shall construct a permanent stormwater management system meeting the requirements of this Part, or if the **project** is located in a jurisdiction subject to a **NPDES/**SDS Municipal Separate Storm Sewer System (MS4) permit and that permit has established permanent treatment requirements that include volume reduction, the **Permittee(s)** can comply with the

permanent treatment requirements established under the MS4 permit in lieu of the permanent treatment requirements of this permit.

Where a **project's** ultimate development replaces vegetation and/or other pervious surfaces with one (1) or more acres of cumulative **impervious surface**, the **Permittee(s)** must design the **project** so that the **water quality volume** of one (1) inch of runoff from the new **impervious surfaces** created by the **project** is retained on site (i.e. infiltration or other volume reduction practices) and not discharged to a **surface water**. For purposes of this part, **surface waters** does not include man-made drainage systems that convey **stormwater** to a compliant permanent **stormwater** management system.

For those **projects** where infiltration is prohibited (see Part III.D.1.j.), the **Permittee(s)** shall consider other methods of volume reduction and the **water quality volume** (or remainder of the **water quality volume** if some volume reduction is achieved) must be treated by a wet sedimentation basin, filtration system, regional ponding or equivalent methods prior to the discharge of **stormwater** to **surface waters**.

Where the proximity to bedrock precludes the installation of any of the permanent **stormwater** management practices outlined in Part III.D., other treatment, such as grassed swales, filtration systems, smaller ponds, or grit chambers, is required prior to the discharge of **stormwater** to **surface waters**.

For work on linear **projects** with lack of right-of-way where the **Permittee(s)** cannot obtain an easement or other permission for property needed to install treatment systems capable of treating the entire **water quality volume** on site, the **Permittee(s)** must maximize the **water quality volume** that can be treated prior to discharge to **surface waters**. Treatment can be provided through other methods or combination of methods such as grassed swales, filtration systems, smaller ponds, or grit chambers, prior to discharge to **surface waters**. A reasonable attempt must be made to obtain right-of-way during the **project** planning process. Documentation of these attempts must be in the **SWPPP** per Part III.A.5.m. in the section addressing **infeasibility**.

When constructing any of the permanent **stormwater** management systems in this part, the **Permittee(s)** must incorporate the following design parameters:

1. Infiltration/Filtration

    a. Infiltration/Filtration options include but are not limited to: infiltration basins, infiltration trenches, rainwater gardens, sand filters, organic filters, bioretention areas, natural or enhanced swales, dry storage ponds with underdrain discharge, off-line retention areas, and natural depressions. Infiltration must be used only as appropriate to the site and land uses. The method selected by the **Permittee(s)** must remove settleable solids, floating materials, and oils and grease from the runoff to the maximum extent practicable before runoff enters the infiltration/filtration system. Filtration systems must be designed to remove at least 80 percent of total suspended solids. When designing the system the **Permittee(s)** must evaluate the impact of constructing an infiltration practice on existing hydrologic features (e.g., existing **wetlands**) and the system must be designed to maintain pre-existing conditions (e.g., do not breach a perched water table that is supporting a **wetland**). For a discussion of potential **stormwater** hotspots, groundwater warnings, design measures, maintenance considerations or other retention, detention, and treatment devices, see the

Minnesota Stormwater Manual found on the MPCA's website.

b. Infiltration systems must not be excavated to final grade until the contributing drainage area has been constructed and fully **stabilized** unless rigorous erosion prevention and sediment controls are provided (Part III.D.1.c.).

c. When an infiltration system is excavated to final grade (or within three (3) feet of final grade), the **Permittee(s)** must employ rigorous **erosion prevention** and **sediment controls** (e.g., diversion berms) to keep sediment and runoff completely away from the infiltration area. The area must be staked off and marked so that heavy construction vehicles or equipment will not compact the soil in the proposed infiltration area.

d. To prevent clogging of the infiltration or filtration system, the **Permittee(s)** must use a pretreatment device such as a vegetated filter strip, small sedimentation basin, or water quality inlet (e.g., grit chamber) to settle particulates before the **stormwater** discharges into the infiltration or filtration system.

e. The **Permittee(s)** must design infiltration or filtration systems that provide a **water quality volume** (calculated as an instantaneous volume) of one (1) inch of runoff (or one (1) inch minus the volume of **stormwater** treated by another system on the site) from the new impervious surfaces created by the **project**.

f. The **Permittee(s)** must design the infiltration/filtration system to discharge the **water quality volume** routed to the system through the soil surface or filter media within 48 hours or less. Additional flows that cannot be infiltrated or filtered within 48 hours must be routed to bypass the system through a **stabilized** discharge point. The **Permittee(s)** must design the infiltration system to provide a means to visually verify that the system is discharging through the soil surface or filter media within 48 hours or less.

g. The **Permittee(s)** shall employ appropriate on-site testing consistent with the recommendations found in the **Minnesota Stormwater Manual** to verify soil type and to ensure a minimum of three (3) feet of separation from the seasonally **saturated soils** (or from bedrock) and the bottom of the proposed infiltration/filtration system.

h. The **Permittee(s)** must ensure filtration systems with less than three (3) feet of separation from seasonally **saturated soils** or from bedrock are constructed with an impermeable liner.

i. The **Permittee(s)** must design adequate maintenance access (typically eight (8) feet wide).

j. Infiltration is prohibited when the infiltration system will be constructed in:

   i. Areas that receive discharges from vehicle fueling and maintenance.

   ii. Areas with less than three (3) feet of separation distance from the bottom of the infiltration system to the elevation of the seasonally **saturated soils** or the top of bedrock.

iii. Areas that receive discharges from industrial facilities which are not authorized to infiltrate industrial **stormwater** under an **NPDES/**SDS Industrial Stormwater Permit issued by the MPCA.

iv. Areas where high levels of contaminants in soil or groundwater will be mobilized by the infiltrating **stormwater.**

v. Areas of predominately Hydrologic Soil Group D (clay) soils unless allowed by a local unit of government with a current MS4 permit.

vi. Areas within 1,000 feet up-gradient, or 100 feet down-gradient of active karst features unless allowed by a local unit of government with a current MS4 permit.

vii. Areas within a Drinking Water Supply Management Area (DWSMA) as defined in Minn. R. 4720.5100, subp. 13., unless allowed by a local unit of government with a current MS4 permit.

viii. Areas where soil infiltration rates are more than 8.3 inches per hour unless soils are amended to slow the infiltration rate below 8.3 inches per hour or as allowed by a local unit of government with a current MS4 permit.

2. Wet Sedimentation Basin

a. The **Permitte(s)** must design the basin to have a permanent volume of 1,800 cubic feet of storage below the outlet pipe for each acre that drains to the basin. The basin's permanent volume must reach a minimum depth of at least three (3) feet and must have no depth greater than 10 feet. The basin must be configured such that scour or resuspension of solids is minimized.

b. The **Permittee(s)** must design basins to provide live storage for a **water quality volume** (calculated as an instantaneous volume) of one (1) inch of runoff (or one (1) inch minus the volume of **stormwater** treated by another system on the site) from the new impervious surfaces created by the **project**.

c. The **Permittee(s)** must design basin outlets such that the **water quality volume** is discharged at no more than 5.66 cubic feet per second (cfs) per acre of surface area of the pond.

d. The **Permittee(s)** must design basin outlets to prevent short-circuiting and the discharge of floating debris. Basin outlets must have **energy dissipation**.

e. The **Permittee(s)** must design the basin to include a **stabilized** emergency overflow to accommodate storm events in excess of the basin's hydraulic design.

f. The **Permittee(s)** must design adequate maintenance access (typically eight (8) feet wide).

g. The **Permittee(s)** must design sediment Basins to be situated outside of **surface waters** and any buffer zone required under Appendix A, Part C.3. and they must be designed to avoid draining water from **wetlands** unless the impact to the **wetland** is in compliance with the requirements of Appendix A, Part D.

3. Regional Ponds

   When the entire **water quality volume** cannot be retained onsite, the **Permittee(s)** can use or create regional ponds provided that they are constructed ponds, not a natural **wetland** or water body, (**wetlands** used as regional ponds must be mitigated for, see Appendix A, Part D) and designed in accordance with this permit's design requirements (Part III.D.2.) for all water from **impervious surfaces** that reach the pond. **Permittee(s)** shall not construct regional ponds in **wetlands**, regardless of their condition, quality or designation by local plans, unless the mitigative sequence in Appendix A, Part D. of this permit has been completed. There must be no significant degradation of the waterways between the **project** and the regional pond. The **owner** must obtain written authorization from the applicable local governmental unit (LGU) or private entity that owns and maintains the regional pond. The LGU's or private entity's written authorization must identify that the regional pond will discharge the **water quality volume** (one (1) inch of runoff from the impervious watershed area) at no more than 5.66 cfs per acre of surface area of the pond. The **owner** must include the LGU's or private entities' written authorization in the **SWPPP**. The LGU's or private entity's written authorization must be obtained before the **owner** finalizes the **SWPPP** and before any application for this permit is made to the MPCA.

III.E RECORD RETENTION

The **SWPPP** (original or copies) including, all changes to it, and inspections and maintenance records must be kept at the site during construction by the **Permittee(s)** who has/have operational control of that portion of the site. The **SWPPP** can be kept in either the field office or in an on-site vehicle during normal working hours.

All **owner(s)** must keep the following records on file for three (3) years after submittal of the **NOT** as outlined in Part II.C. This does not include any records after submittal of the **NOT**.

1. The final SWPPP

2. Any other **stormwater** related permits required for the **project**

3. Records of all inspection and maintenance conducted during construction (Part IV.E. Inspections and Maintenance)

4. All permanent operation and maintenance agreements that have been implemented, including all right-of-way, contracts, covenants and other binding requirements regarding perpetual maintenance and

5. All required calculations for design of the temporary and permanent **Stormwater** Management Systems.

III.F. TRAINING REQUIREMENTS

The **Permittee(s)** shall ensure the following individuals identified in this part have been trained in accordance with this Permit's training requirements.

1. Who must be trained:

   a. Individual(s) preparing the **SWPPP** for the **project**

   b. Individual(s) overseeing implementation of, revising, and amending the **SWPPP** and individual(s) performing inspections as required in Part IV.E. One of these individual(s) must be available for an onsite inspection within 72 hours upon request by the MPCA.

   c. Individual(s) performing or supervising the installation, maintenance and repair of **BMPs**. At least one individual on a **project** must be trained in these job duties.

2. Training content: The content and extent of training must be commensurate with the individual's job duties and responsibilities with regard to activities covered under this permit for the **project**. At least one individual present on the permitted **project** site (or available to the **project** site in 72 hours) must be trained in the job duties described in Part III.F.1.b. and Part III.F.1.c.

3. The **Permittee(s)** shall ensure that the individuals are trained by local, state, federal agencies, professional organizations, or other entities with expertise in **erosion prevention**, **sediment control,** permanent **stormwater** management and the Minnesota **NPDES**/SDS Construction Stormwater Permit. An update refresher-training must be attended every three (3) years starting three (3) years from the issuance date of this permit.

PART IV. CONSTRUCTION ACTIVITY REQUIREMENTS

IV.A. STORMWATER POLLUTION PREVENTION PLAN

The **Permittee(s)** must implement the **SWPPP** and the requirements of this part. The **BMPs** identified in the **SWPPP** and in this permit must be selected, installed, and maintained in an appropriate and functional manner that is in accordance with relevant manufacturer specifications and accepted engineering practices.

IV.B. EROSION PREVENTION PRACTICES

1. The **Permittee(s)** must plan for and implement appropriate **BMPs** such as construction phasing, vegetative buffer strips, horizontal slope grading, inspection and maintenance of Part IV.E. and other construction practices that minimize erosion as necessary to comply with this permit and protect **waters of the state**. The location of areas not to be disturbed must be delineated (e.g., with flags, stakes, signs, silt fence etc.) on the **project** site before work begins. The **Permittee(s)** must minimize the need for disturbance of portions of the **project** that have **steep slopes**. For those sloped areas which must be disturbed, the **Permittee(s)** must use techniques such as phasing and **stabilization** practices designed for **steep slopes** (e.g., slope draining and terracing).

2. The **Permittee(s)** must **stabilize** all exposed soil areas (including stockpiles). **Stabilization** must be **initiated immediately** to limit soil erosion whenever any **construction activity** has permanently or temporarily ceased on any portion of the site and will not resume for a period exceeding 14 calendar days. **Stabilization** must be completed no later than 14 calendar days after the **construction activity** in that portion of the site has temporarily or permanently ceased. For **Public Waters** that the Minnesota Department of Natural Resources has promulgated "work

in water restrictions" during specified fish spawning time frames, all exposed soil areas that are within 200 feet of the water's edge, and drain to these waters must complete the **stabilization** activities within 24 hours during the restriction period. Temporary stockpiles without significant silt, clay or organic components (e.g., clean aggregate stockpiles, demolition concrete stockpiles, sand stockpiles) and the constructed base components of roads, parking lots and similar surfaces are exempt from this requirement but must be in compliance with Part IV.C.5.

3. If using **stormwater** conveyance channels ,the **Permittee(s)** must design the channels to route water around unstabilized areas on the site and to reduce erosion, unless **infeasible**. The **Permittee(s)** must use erosion controls and velocity dissipation devices such as check dams, sediment traps, riprap, or grouted riprap at outlets within and along the length of any constructed **stormwater** conveyance channel, and at any outlet, to provide a non-erosive flow velocity, to minimize erosion of channels and their embankments, outlets, adjacent stream banks, slopes, and downstream waters during discharge conditions.

4. The **Permittee(s)** must **stabilize** the **normal wetted perimeter** of any temporary or permanent drainage ditch or swale that drains water from any portion of the construction site, or diverts water around the site, within 200 lineal feet from the property edge, or from the point of discharge into any **surface water**. **Stabilization** of the last 200 lineal feet must be completed within 24 hours after connecting to a **surface water** or property edge.

   The **Permittee(s)** shall complete **stabilization** of the remaining portions of any temporary or permanent ditches or swales within 14 calendar days after connecting to a **surface water** or property edge and construction in that portion of the ditch has temporarily or permanently ceased.

   Temporary or permanent ditches or swales that are being used as a sediment containment system during construction (with properly designed rock-ditch checks, bio rolls, silt dikes, etc.) do not need to be **stabilized** during the temporary period of its use as a sediment containment system. These areas must be **stabilized** within 24 hours after no longer being used as a sediment containment system.

   Applying mulch, hydromulch, tackifier, polyacrylamide or similar **erosion prevention** practices is not acceptable **stabilization** in any part of a temporary or permanent drainage ditch or swale.

5. Pipe outlets must be provided with temporary or permanent **energy dissipation** within 24 hours after connection to a **surface water**.

6. Unless **infeasible** due to lack of pervious or vegetated areas, the **Permittee(s)** must direct discharges from **BMPs** to vegetated areas of the site (including any **natural buffers)** in order to increase sediment removal and maximize **stormwater** infiltration. The **Permittee(s)** must use velocity dissipation devices if necessary to prevent erosion when directing **stormwater** to vegetated areas.

IV.C. SEDIMENT CONTROL PRACTICES

1. The **Permittee(s)** must employ **Sediment control** practices as necessary to minimize sediment from entering **surface waters**, including curb and gutter systems and storm sewer inlets.

a. Temporary or permanent drainage ditches and sediment basins that are designed as part of a sediment containment system (e.g., ditches with rock-check dams) require **sediment control** practices only as appropriate for site conditions.

b. If the down gradient **sediment controls** are overloaded (based on frequent failure or excessive maintenance requirement), the **Permittee(s)** must install additional upgradient **sediment control** practices or redundant **BMPs** to eliminate the overloading, and the **SWPPP** must be amended to identify these additional practices as required in Part III.B 1.-3.

2. **Sediment control** practices must be established on all down gradient perimeters and be located upgradient of any buffer zones. The perimeter **sediment control** practice must be in place before any upgradient land-disturbing activities begin. These practices shall remain in place until **Final Stabilization** has been established in accordance with Part IV.G. A floating silt curtain placed in the water is not a **sediment control BMP** to satisfy perimeter control requirements in this part except when working on a shoreline and below the waterline. In those cases, a floating silt curtain can be used as a perimeter control practice if the floating silt curtain is installed as close to shore as possible. Immediately after the short term construction activity (e.g. installation of rip rap along the shoreline) in that area is complete, an upland perimeter control practice must be installed if exposed soils still drain to the surface water..

3. The **Permittee(s)** shall re-install all **sediment control** practices that have been adjusted or removed to accommodate short-term activities such as clearing or grubbing, or passage of vehicles, immediately after the short-term activity has been completed. The **Permittee(s)** shall complete any short-term activity that requires removal of **sediment control** practices as quickly as possible. The **Permittee(s)** must re-install **sediment control** practices before the next precipitation event even if the short-term activity is not complete.

4. All storm drain inlets must be protected by appropriate **BMPs** during construction until all sources with potential for discharging to the inlet have been **stabilized**. Inlet protection may be removed for a particular inlet if a specific safety concern (street flooding/freezing) has been identified by the **Permittee(s)** or the jurisdictional authority (e.g., city/county/township/MnDOT engineer).The **Permittee(s)** must document the need for removal in the **SWPPP.**

5. Temporary soil stockpiles must have silt fence or other effective **sediment controls**, and cannot be placed in any **natural buffers** or **surface waters**, including **stormwater** conveyances such as curb and gutter systems, or conduits and ditches unless there is a bypass in place for the **stormwater.**

6. Where vehicle traffic leaves any part of the site (or onto paved roads within the site):

   a. The **Permittee(s)** must install a vehicle tracking **BMP** to minimize the track out of sediment from the construction site. Examples of vehicle tracking **BMPs** include (but are not limited to) rock pads, mud mats, slash mulch, concrete or steel wash racks, or equivalent systems.

   b. The **Permittee(s)** must use street sweeping if such vehicle tracking **BMPs** are not adequate to prevent sediment from being tracked onto the street (see Part IV.E.5.d.).

7. The **Permittee(s)** must install temporary sedimentation basins as required in Part III.C. of this permit.

8. The **Permittee(s)** must minimize soil compaction and, unless **infeasible**, preserve topsoil. Minimizing soil compaction is not required where the function of a specific area of the site dictates that it be compacted.

9. The **Permittee(s)** must preserve a 50 foot **natural buffer** or (if a buffer is **infeasible** on the site) provide redundant **sediment controls** when a **surface water** is located within 50 feet of the **project's** earth disturbances and stormwater flows to the **surface water**. **Natural buffers** are not required adjacent to road ditches, judicial ditches, county ditches, **stormwater** conveyance channels, storm drain inlets, and sediment basins. The **Permittee(s)** is/are not required to enhance the quality of the vegetation that already exists in the buffer or provide vegetation if none exist. However, **Permittee(s)** can improve the natural buffer with vegetation.

10. If the **Permittee(s)** intend to use polymers, flocculants, or other sedimentation treatment chemicals on the **project** site, the **Permittee(s)** must comply with the following minimum requirements:

    a. The **Permittee(s)** must use conventional erosion and **sediment controls** prior to chemical addition to ensure effective treatment. Chemicals may only be applied where treated **stormwater** is directed to a **sediment control** system which allows for filtration or settlement of the floc prior to discharge.

    b. Chemicals must be selected that are appropriately suited to the types of soils likely to be exposed during construction, and to the expected turbidity, pH, and flow rate of **stormwater** flowing into the chemical treatment system or area.

    c. Chemicals must be used in accordance with accepted engineering practices, and with dosing specifications and sediment removal design specifications provided by the manufacturer or provider/supplier of the applicable chemicals.

IV.D. DEWATERING AND BASIN DRAINING

1. The **Permittee(s)** must discharge turbid or sediment-laden waters related to **dewatering** or basin draining (e.g., pumped discharges, trench/ditch cuts for drainage) to a temporary or permanent sedimentation basin on the **project** site unless **infeasible**. The **Permittee(s)** may discharge from the temporary or permanent sedimentation basins to **surface waters** if the basin water has been visually checked to ensure adequate treatment has been obtained in the basin and that nuisance conditions (see Minn. R. 7050.0210, subp. 2) will not result from the discharge. If the water cannot be discharged to a sedimentation basin prior to entering the **surface water**, it must be treated with the appropriate **BMPs**, such that the discharge does not adversely affect the receiving water or downstream properties. If the **Permittee(s)** must discharge water that contains oil or grease, the **Permittee(s)** must use an oil-water separator or suitable filtration device (e.g. cartridge filters, absorbents pads) prior to discharging the water. The **Permittee(s)** must ensure that discharge points are adequately protected from erosion and scour. The discharge must be dispersed over natural rock riprap, sand bags, plastic sheeting, or other accepted **energy dissipation** measures.

2. All water from **dewatering** or basin-draining activities must be discharged in a manner that does not cause nuisance conditions, erosion in receiving channels or on downslope properties, or inundation in **wetlands** causing significant adverse impact to the **wetland.**

3. If the **Permittee(s)** is/are using filters with backwash water, the **Permittee(s)** must haul the backwash water away for disposal, return the backwash water to the beginning of the treatment process, or incorporate the backwash water into the site in a manner that does not cause erosion. The Permittee(s) may discharge backwash water to the sanitary sewer if permission is granted by the sanitary sewer authority. The **Permittee(s)** must replace and clean the filter media used in **dewatering** devices when required to retain adequate function.

IV.E. INSPECTIONS AND MAINTENANCE

1. The **Permittee(s)** must ensure that a trained person (as identified in Part III.A.3.a.) will routinely inspect the entire construction site at least once every seven (7) days during active construction and within 24 hours after a rainfall event greater than 0.5 inches in 24 hours. Following an inspection that occurs within 24 hours after a rainfall event, the next inspection must be conducted within seven (7) days after the rainfall event.

2. All inspections and maintenance conducted during construction must be recorded within 24 hours in writing and these records must be retained with the **SWPPP** in accordance with Part III.E. Records of each inspection and maintenance activity shall include:

   a. Date and time of inspections

   b. Name of person(s) conducting inspections

   c. Findings of inspections, including the specific location where corrective actions are needed

   d. Corrective actions taken (including dates, times, and party completing maintenance activities)

   e. Date and amount of all rainfall events greater than 1/2 inch (0.5 inches) in 24 hours. Rainfall amounts must be obtained by a properly maintained rain gauge installed onsite, a weather station that is within 1 mile of your location or a weather reporting system that provides site specific rainfall data from radar summaries.

   f. If any discharge is observed to be occurring during the inspection, a record of all points of the property from which there is a discharge must be made, and the discharge should be described (i.e., color, odor, floating, settled, or suspended solids, foam, oil sheen, and other obvious indicators of pollutants) and photographed.

   g. Any amendments to the **SWPPP** proposed as a result of the inspection must be documented as required in Part III.B. within seven (7) calendar days.

3. Inspection frequency adjustment

   a. Where parts of the **project** site have **permanent cover**, but work remains on other parts of the site, the **Permittee(s)** may reduce inspections of the areas with **permanent cover** to

once per month.

b. Where construction sites have **permanent cover** on all exposed soil areas and no **construction activity** is occurring anywhere on the site, the site must be inspected during non-frozen ground conditions at least once per month for a period of twelve (12) months. Following the twelfth month of **permanent cover** and no **construction activity**, inspections may be terminated until **construction activity** is once again initiated unless the **Permittee(s)** is/are notified in writing by the MPCA that erosion issues have been detected at the site and inspections need to resume.

c. Where work has been suspended due to frozen ground conditions, the inspections may be suspended. The required inspections and maintenance schedule must begin within 24 hours after runoff occurs at the site or 24 hours prior to resuming construction, whichever comes first.

4. The **Permittee(s)** is/are responsible for the inspection and maintenance of temporary and permanent water quality management **BMPs**, as well as all **erosion prevention** and **sediment control BMPs**, until another **Permittee** has obtained coverage under this Permit according to Part II.B.5. or the **project** has undergone **Final Stabilization**, and an **NOT** has been submitted to the MPCA.

5. The **Permittee(s)** must inspect all **erosion prevention** and **sediment control BMPs** and Pollution Prevention Management Measures to ensure integrity and effectiveness during all routine and post-rainfall event inspections. All nonfunctional **BMPs** must be repaired, replaced, or supplemented with functional **BMPs** by the end of the next business day after discovery, or as soon as field conditions allow access unless another time frame is specified below. The **Permittee(s)** must investigate and comply with the following inspection and maintenance requirements:

   a. All perimeter control devices must be repaired, replaced, or supplemented when they become nonfunctional or the sediment reaches one-half (1/2) of the height of the device. These repairs must be made by the end of the next business day after discovery, or thereafter as soon as field conditions allow access.

   b. Temporary and permanent sedimentation basins must be drained and the sediment removed when the depth of sediment collected in the basin reaches one-half (1/2) the storage volume. Drainage and removal must be completed within 72 hours of discovery, or as soon as field conditions allow access (see Part IV.D.).

   c. **Surface waters**, including drainage ditches and conveyance systems, must be inspected for evidence of erosion and sediment deposition during each inspection. The **Permittee(s)** must remove all deltas and sediment deposited in **surface waters**, including drainage ways, catch basins, and other drainage systems, and restabilize the areas where sediment removal results in exposed soil. The removal and **stabilization** must take place within seven (7) days of discovery unless precluded by legal, regulatory, or physical access constraints. The **Permittee(s)** shall use all reasonable efforts to obtain access. If precluded, removal and **stabilization** must take place within seven (7) calendar days of obtaining access. The **Permittee(s)** is/are responsible for contacting all local, regional, state and federal authorities and receiving any applicable permits, prior to conducting any work in surface waters.

d. Construction site vehicle exit locations must be inspected for evidence of off-site sediment tracking onto paved surfaces. Tracked sediment must be removed from all paved surfaces both on and off site within 24 hours of discovery, or if applicable, within a shorter time to comply with Part IV.C.6.

e. Streets and other areas adjacent to the **project** must be inspected for evidence of off-site accumulations of sediment. If sediment is present, it must be removed in a manner and at a frequency sufficient to minimize off-site impacts (e.g., fugitive sediment in streets could be washed into storm sewers by the next rain and/or pose a safety hazard to users of public streets).

6. All infiltration areas must be inspected to ensure that no sediment from ongoing **construction activity** is reaching the infiltration area. All infiltration areas must be inspected to ensure that equipment is not being driven across the infiltration area.

IV.F. POLLUTION PREVENTION MANAGEMENT MEASURES

The **Permittee(s)** shall implement the following pollution prevention management measures on the site:

1. Storage, Handling, and Disposal of Construction Products, Materials, and Wastes: The **Permittee(s)** shall comply with the following to minimize the exposure to **stormwater** of any of the products, materials, or wastes. Products or wastes which are either not a source of contamination to stormwater or are designed to be exposed to stormwater are not held to this requirement:

   a. Building products that have the potential to leach pollutants must be under cover (e.g., plastic sheeting or temporary roofs) to prevent the discharge of pollutants or protected by a similarly effective means designed to minimize contact with **stormwater**.

   b. Pesticides, herbicides, insecticides, fertilizers, treatment chemicals, and landscape materials must be under cover (e.g., plastic sheeting or temporary roofs) to prevent the discharge of pollutants or protected by similarly effective means designed to minimize contact with **stormwater**.

   c. Hazardous materials, toxic waste, (including oil, diesel fuel, gasoline, hydraulic fluids, paint solvents, petroleum-based products, wood preservatives, additives, curing compounds, and acids) must be properly stored in sealed containers to prevent spills, leaks or other discharge. Restricted access storage areas must be provided to prevent vandalism. Storage and disposal of hazardous waste or hazardous materials must be in compliance with Minn. R. ch. 7045 including secondary containment as applicable.

   d. Solid waste must be stored, collected and disposed of properly in compliance with Minn. R. ch. 7035.

   e. Portable toilets must be positioned so that they are secure and will not be tipped or knocked over. Sanitary waste must be disposed of properly in accordance with Minn. R. ch. 7041.

2. Fueling and Maintenance of Equipment or Vehicles; Spill Prevention and Response: The **Permittee(s)** shall take reasonable steps to prevent the discharge of spilled or leaked chemicals, including fuel, from any area where chemicals or fuel will be loaded or unloaded including the use of drip pans or absorbents unless infeasible. The **Permittee(s)** must conduct fueling in a contained area unless infeasible. The **Permittee(s)** must ensure adequate supplies are available at all times to clean up discharged materials and that an appropriate disposal method is available for recovered spilled materials. The **Permittee(s)** must report and clean up spills immediately as required by Minn. Stat. § 115.061, using dry clean up measures where possible.

3. Vehicle and equipment washing: If the **Permittee(s)** wash the exterior of vehicles or equipment on the **project** site, washing must be limited to a defined area of the site. Runoff from the washing area must be contained in a sediment basin or other similarly effective controls and waste from the washing activity must be properly disposed of. The **Permittee(s)** must properly use and store soaps, detergents, or solvents. No engine degreasing is allowed on site.

4. Concrete and other washouts waste: The **Permittee(s)** must provide effective containment for all liquid and solid wastes generated by washout operations (concrete, stucco, paint, form release oils, curing compounds and other construction materials) related to the **construction activity**. The liquid and solid washout wastes must not contact the ground, and the containment must be designed so that it does not result in runoff from the washout operations or areas. Liquid and solid wastes must be disposed of properly and in compliance with MPCA rules. A sign must be installed adjacent to each washout facility that requires site personnel to utilize the proper facilities for disposal of concrete and other washout wastes.

IV.G. FINAL STABILIZATION

The **Permittee(s)** must ensure **Final Stabilization** of the site. **Final Stabilization** is not complete until all requirements of Parts IV.G.1-5. are complete:

1. All soil disturbing activities at the site have been completed and all soils are **stabilized** by a uniform perennial vegetative cover with a density of 70 percent of its expected final growth density over the entire pervious surface area, or other equivalent means necessary to prevent soil failure under erosive conditions.

2. The permanent **stormwater** management system is constructed, meets all requirements in Part III.D. and is operating as designed. Temporary or permanent sedimentation basins that are to be used as permanent water quality management basins have been cleaned of any accumulated sediment. All sediment has been removed from conveyance systems and ditches are **stabilized** with **permanent cover**.

3. All temporary synthetic and structural **erosion prevention** and **sediment control BMPs** (such as silt fence) have been removed on the portions of the site for which the **Permittee(s)** is/are responsible. **BMPs** designed to decompose on site (such as some compost logs) may be left in place.

4. For residential construction only, individual lots are considered finally **stabilized** if the structure(s) are finished and **temporary erosion protection** and downgradient perimeter control has been completed and the residence has been sold to the homeowner. Additionally, the **Permittee** has distributed the MPCA's "**Homeowner Fact Sheet"** to the homeowner to inform

the homeowner of the need for, and benefits of, **permanent cover**.

5. For construction **projects** on agricultural land (e.g., pipelines across crop, field pasture or range land) the disturbed land has been returned to its preconstruction agricultural use.

PART V. GENERAL PROVISIONS

V.A. APPLICABILITY CRITERIA

1. If the **Commissioner** determines that pollution in **stormwater** discharges associated with a **construction activity** are contributing to a violation of a water quality standard or due to specific site considerations rendering a substantial portion of the requirements of this permit impossible to comply with, and the **Commissioner** determines that the **construction activity** would be more appropriately regulated by an individual permit, the **Commissioner** may terminate coverage under this general permit and require the **owner and operator** to continue the **construction activity** subject to an individual **stormwater** discharge permit. Upon issuance of an individual permit, this general permit would no longer apply. Prior to termination of coverage under this general permit, the **Commissioner** will provide notice and an opportunity to request a contested case hearing.

2. If the terms and conditions of this general permit cannot be met, an **owner** may request an individual permit, in accordance with Minn. R. 7001.0210 subp. 6.

3. Any interested person may petition the MPCA to require an individual **NPDES**/SDS permit in accordance with 40 CFR 122.28(b)(3).

V.B. RECORD AVAILABILITY

1. The **Permittee(s)** must make the **SWPPP**, including all certificates, reports, records, or other information required by this permit, available to federal, state, and local officials within 72 hours upon request for the duration of the permit and for three (3) years following the **NOT**. This does not include any records after submittal of the **NOT**.

2. When requested by the MPCA, the **Permittee(s)** must make the responsible person trained as required in Part III.F.1.b. or Part III.F.1.c. available to be onsite during an MPCA inspection within 72 hours of a request.

V.C. PROHIBITIONS

This permit prohibits discharges of any material other than **stormwater** treated in compliance with this permit and discharges from **dewatering** or basin draining activities in accordance with Part IV.D.1.-2. Prohibited discharges include (but are not limited to) wastewater from washout of concrete, stucco, paint, form release oils, curing compounds and other construction materials, fuels, oils, or other pollutants used in vehicle and equipment operation and maintenance, soaps or solvents used in vehicle and equipment washing and maintenance, and other hazardous substances or wastes.

V.D. TRANSFER OF OWNERSHIP OR CONTROL

This permit may not be assigned or transferred by the **Permittee(s)** except when transfer occurs in accordance with the applicable requirements of Part II.B.5.

V.E. CIVIL AND CRIMINAL LIABILITY

Nothing in this permit must be construed to relieve the **Permittee(s)** from civil or criminal penalties for noncompliance with the terms and conditions provided herein. Nothing in this permit must be construed to preclude the initiation of any legal action or relieve the **Permittee(s)** from any responsibilities, liabilities, or penalties to which the **Permittee(s)** is/are or may be subject to under Section 311 of the Clean Water Act and Minn. Stat. § 115 and 116, as amended. The **Permittee(s)** is/are not liable for permit requirements for activities occurring on those portions of a site where the permit has been transferred to another party as required in Part II.B.5. or the **Permittee(s) has/**have submitted the **NOT** as required in Part II.C.

V.F. SEVERABILITY

The provisions of this permit are severable. If any provision of this permit, or the application of any provision of this permit to any circumstances, is held invalid, the application of such provision to other circumstances, and the remainder of this permit must not be affected thereby.

V.G. NPDES/SDS RULE STANDARD GENERAL CONDITIONS

The **Permittee(s)** must comply with the provisions of Minn. R. 7001.0150, subp. 3 and Minn. R. 7001.1090, subp. 1(A), 1(B), 1(C), 1(H), 1(I), 1(J), 1(K), and 1(L).

V.H. INSPECTION AND ENTRY

The **Permittee(s)** must allow access as provided in 40 CFR 122.41(i) and Minn. Stat. § 115.04. The **Permittee(s)** shall allow representatives of the MPCA or any member, employee or agent thereof, when authorized by it, upon presentation of credentials, to enter upon any property, public or private, for the purpose of obtaining information or examination of records or conducting surveys or investigations.

APPENDIX A

A. GENERAL REQUIREMENTS

All requirements in this Appendix are in addition to **BMPs** already specified in the permit. Where provisions of Appendix A, conflict with requirements elsewhere in the permit, the provisions in Appendix A take precedence. All **BMPs** used to comply with this Appendix must be documented in the **SWPPP** for the **project**. If the terms and conditions of this Appendix cannot be met, an individual permit will be required in accordance with Minn. R. ch. 7001.

B. REQUIREMENTS FOR DISCHARGES TO SPECIAL WATERS AND IMPAIRED WATERS

Additional **BMPs** and enhanced runoff controls identified in this Part are required for discharges to the following special waters (Part B.1 through B.9 of Appendix A) and impaired waters (Part B.10 of Appendix A). The **BMPs** identified for each special or impaired water are required for those areas of

the **project** draining to a discharge point on the **project** that is within one mile (**aerial radius measurement**) of special or impaired water and flows to that special or impaired water.

1. Wilderness areas: Boundary Waters Canoe Area Wilderness; Voyageurs National Park; Kettle River from the site of the former dam at Sandstone to its confluence with the Saint Croix River; Rum River from Ogechie Lake spillway to the northernmost confluence with Lake Onamia. Discharges to these waters must incorporate the **BMPs** outlined in C.1., C.2., and C.3. of this Appendix.

2. Mississippi River: Those portions from Lake Itasca to the southerly boundary of Morrison County that are included in the Mississippi Headwaters Board comprehensive plan dated February 12, 1981. Discharges to these waters must incorporate the **BMPs** outlined in C.1., C.2. and C.3. of this Appendix.

3. Scenic or recreational river segments: Saint Croix River, entire length; Cannon River from northern city limits of Faribault to its confluence with the Mississippi River; North Fork of the Crow River from Lake Koronis outlet to the Meeker-Wright county line; Kettle River from north Pine County line to the site of the former dam at Sandstone; Minnesota River from Lac qui Parle dam to Redwood County State Aid Highway 11; Mississippi River from County State Aid Highway 7 bridge in Saint Cloud to northwestern city limits of Anoka; and Rum River from State Highway 27 bridge in Onamia to Madison and Rice streets in Anoka. Discharges to these waters must incorporate the **BMPs** outlined in C.1., C.2. and C.3. of this Appendix.

4. Lake Superior: (Prohibited and restricted) Discharges to Lake Superior must incorporate the **BMPs** outlined in C.1., C.2. and C.3. of this Appendix.

5. Lake Trout Lakes: Identified in Minn. R. 7050.0470, including those inside the boundaries of the Boundary Waters Canoe Area Wilderness and Voyageurs National Park. Discharges to these waters must incorporate the **BMPs** outlined in C.1., C.2., and C.3. of this Appendix.

6. Trout Lakes: Identified in Minn. R. 6264.0050, subp. 2. Discharges to these waters must incorporate the **BMPs** outlined in C.1., C.2., and C.3., of this Appendix.

7. Scientific and natural areas: Boot Lake, Anoka County; Kettle River in sections 15, 22, 23, T 41 N, R 20, Pine County; Pennington Bog, Beltrami County; Purvis Lake-Ober Foundation, Saint Louis County; waters within the borders of Itasca Wilderness Sanctuary, Clearwater County; Iron Springs Bog, Clearwater County; Wolsfeld Woods, Hennepin County; Green Water Lake, Becker County; Blackdog Preserve, Dakota County; Prairie Bush Clover, Jackson County; Black Lake Bog, Pine County; Pembina Trail Preserve, Polk County; and Falls Creek, Washington County. Discharges to these waters must incorporate the **BMPs** outlined in C.1., C.2., and C.3. of this Appendix.

8. Trout Streams: Listed in Minn. R. 6264.0050, subp. 4. Discharges to these waters must incorporate the **BMPs** outlined in C.1., C.2., C.3., and C.4. of this Appendix.

9. Calcareous Fens: Listed in Minn. R 7050.0180 subp.6b. Discharges to these Calcareous Fens must incorporate the **BMPs** outlined in C.1. and C.2. of this Appendix.

10. Impaired Waters: Waters identified as impaired under section 303 (d) of the federal Clean Water

Act for phosphorus (nutrient eutrophication biological indicators), turbidity, dissolved oxygen or aquatic biota (fish bioassessment, aquatic plant bioassessment and aquatic macroinvertebrate bioassessment).

a. Impaired Water Without an Approved TMDL or With an Approved TMDL and No Waste Load Allocation:

   If runoff from the site discharges to an impaired water, and a TMDL has not been approved by USEPA or there is a USEPA approved TMDL that does not establish a Waste Load Allocation (WLA) for construction **stormwater**, discharges to these waters must incorporate the **BMPs** outlined in C.1. and C.2. of this Appendix.

b. Impaired Water With an Approved TMDL and WLA:

   If runoff from the site discharges to an impaired water for which there is a USEPA approved TMDL that establishes a WLA for construction **stormwater**, and the TMDL does not identify any specific implementation activities that would apply to the site discharges, discharges to these waters must incorporate the **BMPs** outlined in C.1. and C.2. of this Appendix.

   If the TMDL identifies specific implementation activities regarding construction **stormwater** that would apply to the site discharges, the **Permittee(s)** must include the following in the **SWPPP**:

   i. Identify the receiving water, the areas of the site discharging to it, and the pollutant(s) identified in the TMDL and

   ii. **BMPs** identified in the TMDL and any other specific construction **stormwater** related implementation activities identified in the TMDL.

Note on impaired waters listing terminology: The terms in parenthesis in Appendix A, Part B.10. above are the most current terminology used to list waters as impaired at the time of permit issuance. These terms are subject to change. For example, at one time waters were listed as impaired for phosphorus and now those same waters are listed as impaired for nutrient eutrophication biological indicators. If the terminology changes for one of the pollutant(s) or stressor(s) identified in the permit, the MPCA will keep a list of the new terms on its construction **stormwater** website.

C. ADDITIONAL **BMPS** FOR SPECIAL WATERS AND IMPAIRED WATERS

For the **BMPs** described in C.2., and C.4. of this Appendix:

Where the proximity to bedrock precludes the installation of any of the permanent **stormwater** management practices outlined in Appendix A, other treatment (such as grassed swales, smaller ponds, or grit chambers) is required prior to discharge to **surface waters**.

For work on linear **projects** with lack of right-of-way where the **Permittee(s)** cannot obtain an easement or other permission for property needed to install treatment systems capable of treating the entire **water quality volume** on site, the **Permittee(s)** must maximize the **water quality volume** that can be treated prior to discharge to **surface waters**. Treatment can be provided through other

methods or combination of methods such as grassed swales, filtration systems, smaller ponds or grit chambers prior to discharge to **surface waters**. A reasonable attempt must be made to obtain right-of-way during the **project** planning process. Documentation of these attempts must be in the **SWPPP** per Part III.A.5.m. in the section addressing **infeasibility**.

1. During construction:

    a. **Stabilization** of all exposed soil areas must be **initiated immediately** to limit soil erosion but in no case completed later than seven (7) days after the **construction activity** in that portion of the site has temporarily or permanently ceased.

    b. Temporary sediment basin requirements described in Part III.C. must be used for common drainage locations that serve an area with five (5) or more acres disturbed at one time.

2. Post construction: The **water quality volume** that must be retained on site by the **project's** permanent **stormwater** management system described in Part III.D. shall be one (1) inch of runoff from the new **impervious surfaces** created by the **project**. See Part III.D.1. for more information on infiltration design, prohibitions and appropriate site conditions.

3. Buffer zone: The **Permittee(s)** shall include an undisturbed buffer zone of not less than 100 linear feet from the special water (not including tributaries) and this buffer zone shall be maintained at all times, both during construction and as a permanent feature post construction, except where a water crossing or other encroachment is necessary to complete the **project**. The **Permittee(s)** must fully document the circumstance and reasons that the buffer encroachment is necessary in the **SWPPP** and include restoration activities. Replacement of existing **impervious surface** within the buffer is allowed under this permit. All potential water quality, scenic and other environmental impacts of these exceptions must be minimized by the use of additional or redundant **BMPs** and documented in the **SWPPP** for the **project**.

4. Temperature Controls: The **Permittee(s)** must design the Permanent **Stormwater** Management System such that the discharge from the **project** will minimize any increase in the temperature of trout stream receiving waters resulting from the one (1)-and two (2)-year 24-hour precipitation events. This includes all tributaries of designated trout streams within the Public Land Survey System (PLSS) Section that the trout stream is located. **Projects** that discharge to trout streams must minimize the impact using one or more of the following measures, in order of preference:

    a. Minimize new **impervious surfaces**.

    b. Minimize the discharge from connected **impervious surfaces** by discharging to vegetated areas, or grass swales, and through the use of other non-structural controls.

    c. Infiltration or other volume reduction practices to reduce runoff in excess of pre-**project** conditions (up to the two (2)-year 24-hour precipitation event).

    d. If ponding is used, the design must include an appropriate combination of measures such as shading, filtered bottom withdrawal, vegetated swale discharges or constructed wetland treatment cells that will limit temperature increases. The pond should be designed to draw down in 24 hours or less.

e. Other methods that will minimize any increase in the temperature of the trout stream.

D. REQUIREMENTS FOR DISCHARGING TO WETLANDS

If the **project** has any discharges with the potential for significant adverse impacts to a **wetland,** (e.g., conversion of a natural **wetland** to a **stormwater** pond) the **Permittee(s)** must demonstrate that the **wetland** mitigative sequence has been followed in accordance with D.1 or D.2 of this Appendix.

1. If the potential adverse impacts to a **wetland** on a specific **project** site have been addressed by permits or other approvals from an official statewide program (U.S. Army Corps of Engineers 404 program, Minnesota DNR, or the State of Minnesota Wetland Conservation Act) that are issued specifically for the **project** and **project** site, the **Permittee(s)** may use the permit or other determination issued by these agencies to show that the potential adverse impacts have been addressed. For the purposes of this permit, deminimus actions are determinations by the permitting agency that address the **project** impacts, whereas a non-jurisdictional determination does not address **project** impacts.

2. If there are impacts from the **project** that are not addressed in one of the permits or other determinations discussed in Appendix A, Part D.1. (e.g., permanent inundation or flooding of the **wetland**, significant degradation of water quality, excavation, filling, draining), the **Permittee(s)** must minimize all adverse impacts to **wetlands** by utilizing appropriate measures. Measures used must be based on the nature of the **wetland**, its vegetative community types and the established hydrology. These measures include in order of preference:

   a. Avoid all significant adverse impacts to **wetlands** from the **project** and post-**project** discharge.

   b. Minimize any unavoidable impacts from the **project** and post-**project** discharge.

   c. Provide compensatory mitigation when the **Permittee(s)** determine(s) that there is no reasonable and practicable alternative to having a significant adverse impact on a **wetland**. For compensatory mitigation, **wetland** restoration or creation shall be of the same type, size and whenever reasonable and practicable in the same watershed as the impacted **wetland**.

E. DISCHARGES REQUIRING ENVIRONMENTAL REVIEW

This permit does not replace or satisfy any environmental review requirements, including those under the Minnesota Environmental Policy Act or the National Environmental Policy Act. The **owner** must verify that any environmental review required by law, including any required Environmental Assessment Work sheets or Environmental Impact Statements, Federal environmental review, or other required review is complete before making application for coverage under this permit, and the **owner** must incorporate any **stormwater** mitigation measures required as the result of any environmental review into the **SWPPP** for the **project**. If any part of your **common plan of development or sale** requires environmental review, coverage under this permit cannot be obtained until such environmental review is complete.

F. DISCHARGES AFFECTING ENDANGERED OR THREATENED SPECIES

This permit does not replace or satisfy any review requirements for endangered or threatened species, from new or expanded discharges that adversely impact or contribute to adverse impacts on a listed endangered or threatened species, or adversely modify a designated critical habitat. The **owner** must conduct any required review and coordinate with appropriate agencies for any **project** with the potential of affecting threatened or endangered species, or their critical habitat.

G. DISCHARGES AFFECTING HISTORIC PLACES OR ARCHEOLOGICAL SITES

This permit does not replace or satisfy any review requirements for historic places or archeological sites, from new or expanded discharges that adversely affect properties listed or eligible for listing in the National Register of Historic Places or affecting known or discovered archeological sites. The **owner** must be in compliance with National Historic Preservation Act and conduct all required review and coordination related to historic preservation, including significant anthropological sites and any burial sites, with the Minnesota Historic Preservation Officer.

APPENDIX B. – DEFINITIONS

1. **"Aerial radius measurement"** means the shortest straight line distance measurement between the point of **stormwater** discharge from a **project** construction site to the nearest edge of the water body the **stormwater** will flow to. This measurement does not follow the meander flow path.

2. **"Best Management Practices (BMPs)"** means the most effective and practicable means of **erosion prevention** and **sediment control**, and water quality management practices that are the most effective and practicable means of to control, prevent, and minimize degradation of **surface water**, including avoidance of impacts, construction-phasing, minimizing the length of time soil areas are exposed, prohibitions, pollution prevention through good housekeeping, and other management practices published by state or designated area-wide planning agencies.

   Individual **BMPs** found in this permit are described in the current versions of Protecting Water Quality in Urban Areas, MPCA and The Minnesota Stormwater Manual, MPCA. **BMPs** must be adapted to the site and can be adopted from other sources. However, they must be similar in purpose and at least as effective and stringent as MPCA's **BMPs**. (Other sources include manufacturers specifications, Storm Water Management for Construction Activities: Developing Pollution Prevention Plans and Best Management Practices, U.S. Environmental Protection Agency 1992, and Erosion Control Design Manual, Minnesota Department of Transportation, et al, 1993).

3. **"Commissioner"** means the **Commissioner** of the MPCA or the **Commissioner's** designee.

4. **"Common Plan of Development or Sale"** means a contiguous area where multiple separate and distinct land-disturbing activities may be taking place at different times, on different schedules, but under one proposed plan. One plan is broadly defined to include design, permit application, advertisement or physical demarcation indicating that land-disturbing activities may occur.

5. **"Construction Activity"** includes **construction activity** as defined in 40 C.F.R. pt. 122.26(b)(14)(x) and small construction activity as defined in 40 C.F.R. pt. 122.26(b)(15) and **construction activity** as defined by Minn. R. 7090.0080, subp. 4. This includes a disturbance to the land that results in a change in the topography, existing soil cover (both vegetative and non-vegetative), or the existing soil topography that may result in accelerated **stormwater** runoff, leading to soil erosion and

movement of sediment into **surface waters** or drainage systems. Examples of **construction activity** may include clearing, grading, filling, and excavating. **Construction activity** includes the disturbance of less than one acre of total land area that is a part of a larger **common plan of development or sale** if the larger common plan will ultimately disturb one (1) acre or more. **Construction activity** does not include a disturbance to the land of less than five (5) acres for the purpose of routine maintenance that is performed to maintain the original line and grade, hydraulic capacity, or original purpose of the facility.

6. **"Dewatering"** means the removal of surface or ground water to dry and/or solidify a construction site to enable **construction activity**. Dewatering may require a Minnesota Department of Natural Recourses water appropriation permit and, if dewatering water is contaminated, discharge of such water may require an individual MPCA **NPDES**/SDS permit.

7. **"Energy Dissipation"** means methods employed at pipe outlets to prevent erosion caused by the rapid discharge of water scouring soils. Examples include, but are not limited to: concrete aprons, riprap, splash pads, and gabions that are designed to prevent erosion.

8. **"Erosion Prevention"** means measures employed to prevent erosion. Examples include but not limited to: soil **stabilization** practices, limited grading, mulch, **temporary erosion protection** or **permanent cover**, and construction phasing.

9. **"Final Stabilization"** means required actions in Part IV.G. taken after the completion of **construction activities** and prior to submitting the **NOT** that are intended to prevent discharge of pollutants associated with stormwater discharges from the **project**.

10. **"Homeowner Fact Sheet"** means a fact sheet developed by the MPCA and available on the MPCA Construction **Stormwater** website to be given to homeowners at the time of sale by a builder to inform the homeowner of the need for, and benefits of, **Final Stabilization**.

11. **"Infeasible"** means not technologically possible or not economically practicable and achievable in light of the best industry practices.

12. **"Initiated immediately"** means taking an action to commence **stabilization** as soon as practicable, but no later than the end of the work day, following the day when the earth-disturbing activities have temporarily or permanently ceased, if the **Permittee(s)** know that construction work on that portion of the site will be temporarily ceased for 14 or more additional calendar days or 7 calendar days where Appendix A.C.1.a applies. The following activities can be taken to initiate **stabilization**:

    1. prepping the soil for vegetative or non-vegetative **stabilization**

    2. applying mulch or other non-vegetative product to the exposed soil area

    3. seeding or planting the exposed area

    4. starting any of the activities in # 1 – 3 on a portion of the area to be **stabilized**, but not on the entire area and

    5. finalizing arrangements to have **stabilization** product fully installed in compliance with the applicable deadline for completing **stabilization**

13. **"Impervious Surface"** means a constructed hard surface that either prevents or retards the entry of water into the soil and causes water to run off the surface in greater quantities and at an increased rate of flow than prior to development. Examples include rooftops, sidewalks, patios, driveways, parking lots, storage areas, and concrete, asphalt, or gravel roads.

14. **"National Pollutant Discharge Elimination System (NPDES)"** means the program for issuing, modifying, revoking, reissuing, terminating, monitoring, and enforcing permits under the Clean Water Act (Sections 301, 318, 402, and 405) and United States Code of Federal Regulations Title 33, Sections 1317, 1328, 1342, and 1345.

15. **"Natural Buffer"** means an area of undisturbed cover surrounding surface waters within which construction activities are restricted. **Natural buffer** includes the vegetation, exposed rock, or barren ground that exists prior to commencement of earth-disturbing activities.

16. **"Normal Wetted Perimeter"** means the area of a conveyance, such as a ditch, channel, or pipe that is in contact with water during flow events that are expected to occur from a two-year 24-hour storm event.

17. **"Notice of Termination (NOT)"** means notice to terminate coverage under this permit after construction is complete, the site has undergone **Final Stabilization**, and maintenance agreements for all permanent facilities have been established, in accordance with all applicable conditions of this permit.

18. **"Operator"** means the person designated by the **owner**, who has day to day operational control and/or the ability to modify **project** plans and specifications related to the **SWPPP**. The operator must be named on the permit as a **Permittee**.

19. **"Owner"** means the person or party possessing the title of the land on which the construction activities will occur; or if the **construction activity** is for a lease, easement, or mineral rights license holder, the party or individual identified as the lease, easement or mineral rights license holder; or the contracting government agency responsible for the **construction activity**.

20. **"Permanent Cover"** means surface types that will prevent soil failure under erosive conditions. Examples include: gravel, asphalt, concrete, rip rap, roof tops, perennial cover, or other landscaped material that will permanently arrest soil erosion. A uniform perennial vegetative cover (i.e. evenly distributed, without large bare areas) with a density of 70 percent of the native background vegetative cover for the area must be established on all unpaved areas and areas not covered by permanent structures, or equivalent permanent stabilization measures. **Permanent cover** does not include the practices listed under **temporary erosion protection**.

21. **"Permittee(s)"** means the person or persons, firm, or governmental agency or other entity that signs the application submitted to the MPCA and is responsible for compliance with the terms and conditions of this permit.

22. **"Project(s)"** means all **construction activity** that is planned and/or conducted under a particular permit. The **project** will occur on the site or sites described in the permit application, the **SWPPP** and in the associated plans, specifications and contract documents.

23. "**Public Waters**" means all water basins and watercourses that are described in Minn. Stat. § 103G.005 subd. 15.

24. **"Saturated Soil"** means the highest seasonal elevation in the soil that is in a reduced chemical state because of soil voids being filled with water **Saturated soil** is evidenced by the presence of redoximorphic features or other information.

25. **"Sediment Control"** means methods employed to prevent sediment from leaving the site. **Sediment control** practices include silt fences, sediment traps, earth dikes, drainage swales, check dams, subsurface drains, bio rolls, rock logs, compost logs, storm drain inlet protection, and temporary or permanent sedimentation basins. A floating silt curtain placed in the water is not a **sediment control BMP** to satisfy perimeter control requirements, except as provided for in Part IV.C.2.

26. **"Stabilize, Stabilized, Stabilization"** means the exposed ground surface has been covered by appropriate materials such as mulch, staked sod, riprap, erosion control blanket, mats or other material that prevents erosion from occurring. Grass, agricultural crop or other seeding alone is not **stabilization**. Mulch materials must achieve approximately 90 percent ground coverage (typically 2 ton/acre).

27. **"Standard details"** means generic drawings showing a common or repeated **construction activity** or practice.

28. **"Stormwater"** is defined under Minn. R. 7077.0105, subp. 41(b), and includes precipitation runoff, **stormwater** runoff, snowmelt runoff, and any other surface runoff and drainage.

29. **"Steep Slopes"** means slopes that are 1:3 (V:H) (33.3 percent) or steeper in grade.

30. **"Storm Water Pollution Prevention Plan (SWPPP)"** means a plan for **stormwater** discharge that includes all required content under Part III of this Permit and which describes the **erosion prevention BMPs**, **sediment control BMPs** and Permanent **Stormwater** Management Systems that, when implemented, will decrease soil erosion on a parcel of land and decrease off-site nonpoint pollution.

31. **"Surface Water or Waters"** means all streams, lakes, ponds, marshes, **wetlands**, reservoirs, springs, rivers, drainage systems, waterways, watercourses, and irrigation systems whether natural or artificial, public or private, except that **surface waters** do not include treatment basins or ponds that were constructed from upland. Treatment basins or ponds that were constructed in **wetlands** and mitigated in accordance with Appendix A.D are also not considered surface waters for purposes of this permit.

32. **"Temporary Erosion Protection"** means methods employed to prevent erosion during construction activities. Examples of **temporary erosion protection** include, but are not limited to: straw, wood fiber blanket, wood chips, vegetation, mulch, and rolled erosion control products.

33. **"Underground Waters"** means water contained below the surface of the earth in the saturated zone including, without limitation, all waters whether under confined, unconfined, or perched conditions, in near surface unconsolidated sediment or regolith, or in rock formations deeper underground. The term ground water shall be synonymous with underground water.

34. **"Waters of the State"** (as defined in Minn. Stat. § 115.01, subd. 22) means all streams, lakes, ponds, marshes, watercourses, waterways, wells, springs, reservoirs, aquifers, irrigation systems, drainage systems and all other bodies or accumulations of water, surface or underground, natural or artificial, public or private, which are contained within, flow through, or border upon the state or any portion thereof.

35. **"Water Quality Volume"** means one (1) inch of runoff from the new **impervious surfaces** created by this **project** (calculated as an instantaneous volume) and is the volume of water to be treated in the Permanent **Stormwater** Management System, as required by this permit.

36. **"Wetland" or "Wetlands"** is defined in Minn. R. 7050.0186, subp. 1a.B. and includes those areas that are inundated or saturated by **surface water** or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in **saturated soil** conditions. **Wetlands** generally include swamps, marshes, bogs, and similar areas. Constructed wetlands designed for wastewater treatment are not **waters of the state**. **Wetlands** must have the following attributes:

    a. A predominance of hydric soils

    b. Inundated or saturated by **surface water** or groundwater at a frequency and duration sufficient to support a prevalence of hydrophytic vegetation typically adapted for life in a **saturated soil** condition and

    c. Under normal circumstances support a prevalence of such vegetation.