ENVIRONMENTAL ASSESSMENT

Armament Retooling and Manufacturing Support (ARMS) Program Rail Transload Facility

at
Iowa Army Ammunition Plant (IAAAP)

June 14, 2019

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LIST OF ACRONYMS AND ABBREVIATIONS

3PL	third-party logistics
AADT	Annual Average Daily Traffic
ACHP	Advisory Council on Historic Preservation
ACM	asbestos-containing materials
ADT	Average Daily Traffic
AFPMB	Armed Forces Pest Management Board
amsl	above mean sea level
APE	Area of Potential Effects
AQCR	Air Quality Control Region
AR	Army Regulation
ARMS	Armament Retooling and Manufacturing Support
AST	aboveground storage tank
BCA	Bear Creek Archaeology
BGEPA	Bald and Golden Eagle Protection Act
BMP	Best Management Practice
BNSF	Burlington Northern Santa Fe
CAA	Clean Air Act
CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CO	Carbon Monoxide
CRM	Cultural Resource Manager
CWA	Clean Water Act
dB	Decibel
dBA	A-Weighted Decibel
DMC	Des Moines County
DoD	Department of Defense
EA	Environmental Assessment
EO	Executive Order
EPP	Environmental Protection Plan
ESA	Endangered Species Act
ESMP	Endangered Species Management Plan
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FPPA	Farmland Protection Policy Act
FR	Federal Register

1	FUSRAP	Formerly Utilized Sites Remedial Action Program
2	GHG	greenhouse gas
3	GIS	Geographic Information System
4	GOCO	Government-Owned, Contractor-Operated
5	HAP	hazardous air pollutant
6	IAAAP	Iowa Army Ammunition Plant
7	ICRMP	Integrated Cultural Resources Management Plan
8	IDNR	Iowa Department of Natural Resources
9	IDOT	Iowa Department of Transportation
10	IEDA	Iowa Economic Development Authority
11	INAI	Iowa Natural Areas Inventory
12	INRMP	Integrated Natural Resources Management Plan
13	IPAC	Information for Planning and Consultation
14	IRP	Installation Restoration Program
15	LAP	load, assemble, and pack
16	LBP	lead-based paint
17	LOS	Level of Service
18	MBTA	Migratory Bird Treaty Act
19	MMRP	Military Munitions Response Program
20	MOA	Memorandum of Agreement
21	NAAQS	National Ambient Air Quality Standards
22	ND	no determination
23	NEPA	National Environmental Policy Act
24	NESHAP	National Emission Standards for Hazardous Air Pollutants
25	NHPA	National Historic Preservation Act
26	No.	Number
27	NO_2	Nitrogen Dioxide
28	NOX	nitrogen oxides
29	NPDES	National Pollutant Discharge Elimination System
30	NRCS	National Resources Conservation Service
31	NRHP	National Register of Historic Places
32	NWI	USFWS National Wetlands Inventory
33	O_3	Ozone
34	Pb	Lead
35	PCB	polychlorinated biphenyl
36	PM	particulate matter
37	POL	petroleum, oils, and lubricants
38	ppb	parts per billion

ppm	parts per million
QASP	Quality Assurance Surveillance Plan
QCP	Quality Control Plan
RCRA	Resource Conservation and Recovery Act
REC	Record of Environmental Consideration
ROI	Region of Influence
RUF	Request for Use of Facilities
SDWA	Safe Drinking Water Act
SEIRPC	Southeast Iowa Regional Planning Commission
SHPO	State Historic Preservation Officer
SIP	State Implementation Plan
SO_2	Sulfur Dioxide
SOP	Standard Operating Procedure
SWPPP	Stormwater Pollution Prevention Plan
TCP	Traffic Control Plan
TRBNA	Transportation Research Board of the National Academies
TSCA	Toxic Substances Control Act
$\mu g/m^3$	micrograms per meter cubed
U.S.	United States
U.S.C.	United States Code
USACE	U.S. Army Corps of Engineers
USCB	U.S. Census Bureau
USDA	U.S. Department of Agriculture
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
UST	underground storage tank
VEC	Valued Environmental Component
VOC	volatile organic compounds
WIP	Work Implementation Plan
WMP	Waste Management Plan

Executive Summary

In accordance with the National Environmental Policy Act (NEPA) of 1969, the Council on Environmental Quality (CEQ) Regulations for Implementing the Procedural Provisions of NEPA, and Army Regulation (AR) 200-2, Environmental Effects of Army Actions, the Iowa Army Ammunition Plan (IAAAP) has prepared this Environmental Assessment (EA) to consider the potential environmental consequences to the human and natural environment associated with the proposed action to make property available for the construction and operation of a rail transload facility. The Army has a need to maximize and encourage the highest and best use of eligible Government-Owned, Contractor-Operated (GOCO) property under the Armament Retooling and Manufacturing Support (ARMS) Program, with the objective of lowering the production cost of ammunition for the benefit of the Government. The purpose of the proposed action is to identify a suitable location on IAAAP for a rail transload facility, along with facilities or areas suitable for storage and rail car service activities. Transloading is the process of transferring a shipment from one mode of transportation to another. Reload operations involve the unloading products/goods from a truck directly onto another truck for delivery. Items are not put away, but they are merely stored temporarily to await loading.

The Army evaluated three locations on the installation as potentially suitable locations for the rail transload facility. Each alternative, as well as the no action alternative, is discussed below.

Alternative 1 (Preferred Alternative): Development of Rail Transload Facility – Site A

This site includes over 200 acres of land, with direct access to United States (U.S.) Highway 34 in two locations, and it is in close proximity to Highway 61. The site has easy access to over 100 miles of track, including five rail yards that link directly to the Burlington Northern Santa Fe (BNSF) mainline that extends westward from Burlington to Mount Pleasant, and ultimately to Des Moines and Omaha. The existing warehouses also have rail and truck access. The site also has 845,000 square feet of existing warehouse space, as well as being supported by existing infrastructure, e.g., utilities. The undeveloped land is within five hundred feet of existing infrastructure, making connection or extension to new facilities cost effective. This site is designated as the Commerce Center of Southeast Iowa and is certified under the Iowa Economic Development Authority's (IEDA) Site Certification Program and BNSF's Railways Site Certification Program. A site that achieves certification is deemed suitable for development, has no impediments to development, or if impediments exist, they could be either avoided or mitigated. The site is not located on any site subject to an environmental cleanup program, nor is it located within any explosive safety quantity distance arcs.

Alternative 2: Development of Rail Transload Facility – Site B

This site consists of approximately 111 acres and has direct highway access to 406th Road/ Washington Road with multiple routes to U.S. Highway 34. The site would require a rail extension of approximately one mile to tie into the existing rail infrastructure in order to function as a rail transload facility. In addition, the site does not offer existing warehouse space. New warehouses and lay-down/staging pads could be developed on the site's 111 acres. The undeveloped land is within one mile of existing infrastructure, making connection or extension to new facilities possible at some additional expense. The site is not located on any site subject to an environmental cleanup program, nor is it located within any explosive safety quantity distance

arcs. The site is not currently an IEDA- or BNSF-certified site. The site's proximity to a community college campus and regional hospital may affect the ability to obtain certification.

Alternative 3: Development of Rail Transload Facility – Site C

This site consists of approximately 215 acres of land and is in the northwest corner of the IAAAP. The site is relatively flat and is currently used as agricultural land. It can be accessed from Old Highway 34; however, this highway does not have the capacity to handle the tractor-trailer traffic. In addition, the site is not separated from installation operations, and it does not have the necessary utilities, warehouses, and infrastructure to support a rail transload facility. Therefore, the site does not meet the criteria necessary to be certified under the IEDA or BNSF Site Certification Programs. The site is not located on any site subject to an environmental cleanup program, nor is it located within any explosive safety quantity distance arcs.

Alternative 4: No Action Alternative

Under the no action alternative, the property at IAAAP would not be made available for the development and operation of a rail transload facility. Not making property available at IAAAP for the operation of a rail transload facility would not maximize and encourage the best use of eligible GOCO property under the ARMS Program, which in turn would not result in lowering the cost to the Government for producing ammunition. The vacant land would remain in agricultural use, and the existing warehouse space would continue to be used to store inert material, storage containers, and pallets. In addition, the warehouses would continue to be in a state of disrepair, as they currently have not been programmed for renovation.

For reasons that are further explained in detail in sections 2.3.3 and 2.3.4, Alternative 2 (site B) and Alternative 3 (Site C), respectively, were eliminated from further consideration.

The overall environmental effect of implementing the proposed action is expected to be less than significant. Project details are still evolving, and detailed site plans are not currently available. Therefore, the analysis conducted was programmatic in nature. Should the Army decide to proceed with the proposed action, there will be a design stage followed by construction, which would likely occur in phases over time. When specific development projects are implemented, subsequent NEPA documentation will be completed by tiering off this document, and a more detailed analysis will be completed at that time. A summary of potential impacts based on the currently available project description is provided in Table ES-1 below.

TABLE ES-1. SUMMARY OF ENVIRONMENTAL CONSEQUENCES

Summary of Impacts		
Resource Area	**Alternative 1 (Preferred Alternative)**	**Alternative 4 (No Action Alternative)**
Biological Resources	<u>No Significant Impact with Avoidance and Minimization Measures</u> During the grading and construction phase, there is a potential for direct and permanent impacts to biological resources as follows:	<u>No Impact</u> The No Action Alternative would leave the IAAAP facilities in their current state. No construction activities would occur; therefore, there would be

Summary of Impacts		
Resource Area	**Alternative 1 (Preferred Alternative)**	**Alternative 4 (No Action Alternative)**
	• Permanent removal of agriculture and construction of new facilities has the potential to impact wildlife and their habitat. • Conversion of agriculture and construction of new facilities and roads would narrow existing wildlife corridors. Indirect impacts to biological resources during the grading and construction phase would include: • Conversion of agriculture and construction of new facilities, and roads would increase impervious surfaces and an increased volume of stormwater runoff. • Grading and construction activities would result in temporary and intermittent increases of noise and vibration and fugitive dust from earth moving equipment. With implementation of avoidance and minimization measures, the proposed action is not likely to result in a significant impact on biological resources including federal or state listed threatened, endangered, or candidate species. When considered in combination with other projects in the vicinity, the proposed action would not result in cumulative impacts related to biological resources.	no physical changes that could result in adverse impacts on biological resources relative to existing conditions.
Hydrology and Water Resources	<u>No Significant Impact with Avoidance and Minimization Measures</u> The proposed action would result in short-term grading and construction activities that would not be likely to result in a significant effect on hydrology and water resources. No	<u>No Impact</u> The No Action Alternative would leave the IAAAP facilities in their current state. No construction activities would occur; therefore, there would be

Summary of Impacts		
Resource Area	**Alternative 1 (Preferred Alternative)**	**Alternative 4 (No Action Alternative)**
	structures would be constructed in the 100-year floodplain. Grading and construction would occur outside of wetlands and waters of the U.S. Impacts on groundwater and surface water would be avoided through implementation of the following Environmental Quality Plans under local, state, and federal regulations: • Project-specific construction Stormwater Pollution Prevention Plan (SWPPP) • National Pollutant Discharge Elimination System (NPDES) General Construction Permit • Request for Use of Facilities (RUF) process Although the proposed action would result in an increase of impervious surfaces, no new significant impacts to water resources are likely because the new facilities will operate under all applicable IAAAP, state, federal, and Army regulations. With implementation of Best Management Practices (BMPs) from each of these plans, the proposed action is not expected to result in a significant impact on hydrology or water resources. When considered in combination with other projects in the vicinity, the proposed action would not result in cumulative impacts related to Water Resources.	no physical changes relative to existing conditions that could result in adverse impacts on hydrological resources.
Land Use	<u>No Significant Impact</u> Under the proposed action, the land uses within the action area would remain consistent with the Des Moines County Comprehensive Plan's designated Industrial Land Use. The proposed action is consistent with the goals of the IAAAP Vision Plan and would result in	<u>No Impact</u> The No Action Alternative would leave the IAAAP facilities in their current state. No construction activities would occur; therefore, there would be no physical changes relative to existing conditions that could

Summary of Impacts		
Resource Area	**Alternative 1 (Preferred Alternative)**	**Alternative 4 (No Action Alternative)**
	modernization of the facility as well as attract new business and employment opportunities, in large part based on the IEDA Site Certification and BNSF's Railways Site Certification. The proposed action is not expected to result in a significant impact to Land Uses. When considered in combination with other projects in the vicinity, the proposed action would not result in cumulative impacts related to Land Use.	result in improvements and modernization of the action area. No impact related to land use would occur.
Noise	<u>No Significant Impact with Avoidance and Minimization Measures</u> Noise associated with construction activities would range from approximately 74 to 90 decibels (dB) at 50 feet from the noise source but would decrease with the distance from the source and surrounding buildings attenuating the noise to nearly imperceptible levels above the ambient noise levels, except at the nearest residents to the north and west. Noise generated from grading and construction activities would be intermittent and short term. Operation of grading and construction equipment, vehicles, power equipment, and machinery would be limited to 7:00 a.m. to 9:00 p.m. except in emergency situations, as permitted in the Burlington Noise Control Ordinance. Permanent noise generated from the operational phase of the proposed action would not likely be a perceptible increase from ambient noise levels from traffic, rail, air traffic, agriculture, manufacturing, and other industrial uses. Therefore, the implementation of the proposed action is not likely to have a	<u>No Impact</u> The No Action Alternative would leave the IAAAP facilities in their current conditions. No construction activities would occur; therefore, there would be no new physical changes relative to existing conditions that could result in an adverse noise impact.

Summary of Impacts		
Resource Area	**Alternative 1 (Preferred Alternative)**	**Alternative 4 (No Action Alternative)**
	significant impact to sensitive noise receptors. When considered in combination with other projects in the vicinity, the proposed action would not result in cumulative impacts related to sensitive noise receptors.	
Transportation	<u>No Significant Impact with Avoidance and Minimization Measures</u> The proposed action activities would generate a net increase of traffic during the grading and construction phase that would result in short-term, intermittent traffic impacts that would not be significant because a Traffic Control Plan would be implemented. Traffic impacts during the operational phase are not anticipated to be significant because the proposed action would be implemented over time; the volume of existing and proposed Average Daily Traffic (ADT) would be split between east/west bound traffic on Highway 34 and Business Route 34, a 4-lane highway; and traffic facility improvements on Highway 61 that could further relieve traffic congestion are currently in progress. Therefore, implementation of the proposed action would have a temporary and direct but less than significant impact on transportation and circulation. When considered in combination with other projects in the vicinity, the proposed action would not result in cumulative impacts related to transportation and circulation.	<u>No Impact</u> The No Action Alternative would leave the IAAAP in its current state. No construction associated with the proposed action would occur, nor would there be additional traffic volume added to existing traffic levels related to the construction or use of the new facilities; therefore, there would be no physical changes relative to existing conditions that could result in adverse impacts on traffic and circulation.
Socioeconomics	<u>No Significant Impact</u> The proposed action is not expected to result in significant socioeconomic impacts.	<u>No Impact</u> With the No Action Alternative, no development would occur at IAAAP; therefore, the No Action

Summary of Impacts		
Resource Area	**Alternative 1 (Preferred Alternative)**	**Alternative 4 (No Action Alternative)**
	The proposed action is anticipated to result in a net economic benefit to the communities surrounding IAAAP by providing employment opportunities and generating local procurements for materials and services during the construction and operations phases Demand for housing could be accommodated with current housing vacancy inventory. The proposed action would not result in disproportionate impacts to minority or low-income populations because the potentially affected areas, according to census data, are not considered minority or low-income populations. When considered in combination with other projects in the vicinity, the proposed action would not result in cumulative impacts related to socioeconomics.	Alternative would not result in socioeconomic impacts or cause disproportionate impacts to children, minority populations, or low-income populations.
Utilities	<u>No Significant Impact</u> The proposed action would not significantly affect utilities, including potable water and waste water supply, electricity, natural gas, or communications services within IAAAP and in surrounding communities. All utilities would continue to be maintained and operated in accordance with required permits and capabilities of the systems. The demand for utilities would not be expected to increase significantly; however, there is a need for modernization of utilities such as the wastewater system. The implementation of the proposed action is likely to help IAAAP fund modernization of such on-site utilities and is not likely to have a significant impact to off-site utilities.	<u>No Impact</u> Under the No Action Alternative, the site would not be developed as a rail transload facility. The vacant land would remain in agricultural use and the existing warehouse space would continue to be used to store inert material, storage containers, and pallets. No new impacts, including improvements to existing utilities would occur.

Summary of Impacts		
Resource Area	**Alternative 1 (Preferred Alternative)**	**Alternative 4 (No Action Alternative)**
	When considered in combination with other projects in the vicinity, the proposed action would not result in cumulative impacts related to Utilities.	

Based on the analysis contained herein, it is the conclusion of this EA, that the Proposed Action would not result in significant impacts on human health or the environment. It is also the conclusion of this EA that if and when specific development projects are proposed, then subsequent NEPA documentation will be completed by tiering off of this document, most likely through the IAAAP's Request for Use of Facilities (RUF) and Record of Environmental Consideration (REC) process or initiating a supplemental EA for that project. This is discussed in further detail in Chapter 5 (Special Operating Procedures).

1.0 PURPOSE AND NEED FOR THE PROPOSED ACTION

1.1 INTRODUCTION

The Iowa Army Ammunition Plant (IAAAP) has prepared this Environmental Assessment (EA) to consider the potential environmental consequences to the human and natural environment associated with the proposed action to make property available at IAAAP for the construction and operation of a rail transload facility, under the Armament Retooling and Manufacturing Support (ARMS) Program, as authorized by Title 10, Chapter 434, of the United States Code (U.S.C.) (10 U.S.C. 434). This EA also identifies best management practices to avoid or minimize impacts related to the implementation of the proposed action and alternatives. The IAAAP has prepared this EA pursuant to the National Environmental Policy Act (NEPA) of 1969 (42 U.S.C. 4321 et seq.), the Council on Environmental Quality's (CEQ) Regulations for Implementing the Procedural Provisions of the NEPA (40 Code of Federal Regulations (CFR), Parts 1500-1508), and Army Regulation (AR) 200-2, Environmental Effects of Army Actions (32 CFR 651). The lead agency for this action is the IAAAP.

The IAAAP is located about five miles west of the City of Burlington and immediately south of Middletown in Des Moines County, Iowa. United States (U.S.) Highway 34 borders the northern portion of IAAAP, and the installation is easily accessible from the Mississippi River, Burlington Municipal Airport, and the Burlington Northern Santa Fe (BNSF) Railroad (see **Figure 1-1**).

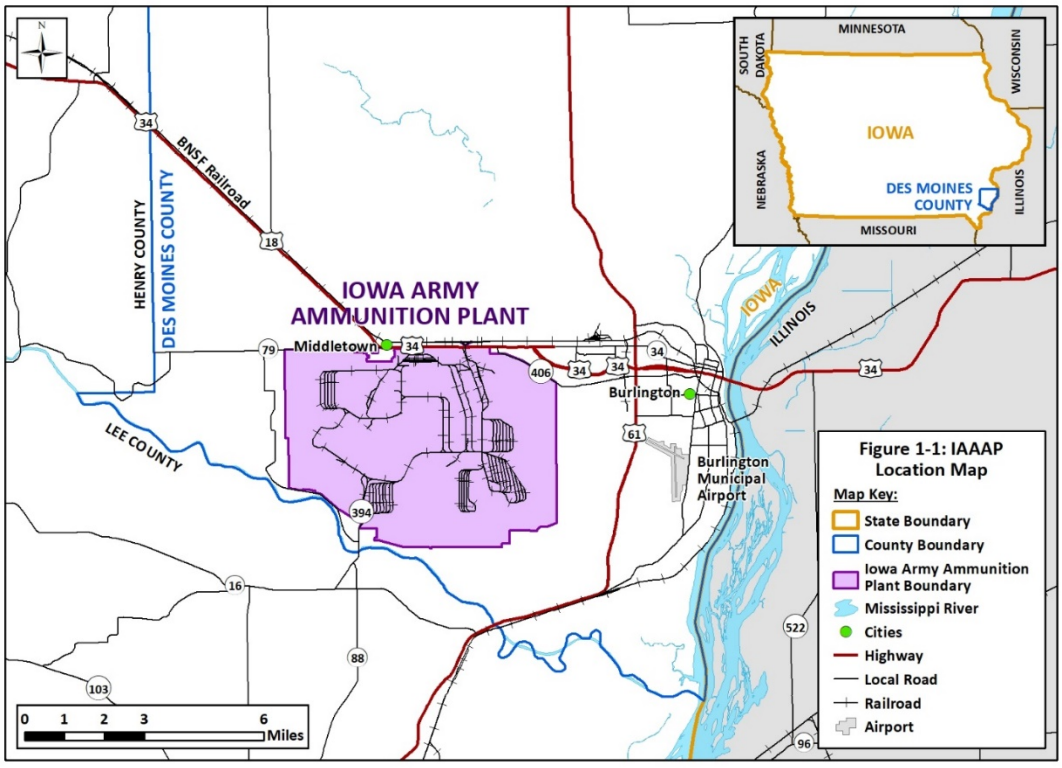

FIGURE 1-1: IOWA ARMY AMMUNITION PLANT LOCATION

IAAAP is a Government Owned, Contractor Operated (GOCO) production facility under the command of Joint Munitions Command and Army Materiel Command. American Ordnance, LLC is the operating contractor. IAAAP is the primary organic load, assemble, and pack (LAP)

facility for large and medium caliber ammunition in the National Technology and Industrial Base. IAAAP's core production capabilities are LAP for a full range of munitions, tank ammunition, high explosive artillery, large caliber mortars, insensitive munitions, pressed and cast warheads, missile assembly, rocket assisted projectiles, and detonators.

1.2 PURPOSE AND NEED FOR THE PROPOSED ACTION

The Army has a need to maximize and encourage the best use of eligible GOCO property under the ARMS Program, with the objective of lowering the production cost of ammunition for the benefit of the Government. The purpose of the proposed action is to identify a suitable location on IAAAP for a rail transload facility, along with facilities or areas suitable for storage and rail car service activities.

The ARMS Program is designed to encourage commercial use of the Army's active GOCO ammunition plants/depots through various incentives for businesses willing to locate to a government facility. IAAAP has been identified as the Commerce Center of Southeast Iowa and is attractive to rail-dependent industry due to its cost-effective location (direct access off U.S. Highway 34 and easy access to rail yards and the BNSF mainline), the existing supporting infrastructure, its strategic location in the country's agricultural heartland, and its proximity to the Port of Burlington and the Mississippi River. Its central location will provide excellent regional market penetration, as well as quick and easy access to major shipping lanes (rail, highway, and seaway) for rapid movement of goods both nationally and overseas.

1.3 SCOPE OF ENVIRONMENTAL ANALYSIS

This EA considers the direct, indirect, and cumulative effects of the viable alternatives and the no action alternative. It provides a discussion of the affected environment and the potential impacts to physical, natural, and cultural resources. The determination of issues to be analyzed versus those not carried forward for detailed analysis is part of the EA process as described in 40 CFR 1501.7(a)(3), which states that issues addressed in prior environmental reviews or issues that are not significant may be eliminated from discussion in the EA. The following valued environmental components (VECs) or environmental resource areas were found to have no potential for direct, indirect, or cumulative impacts. Therefore, these VECs will not be carried forward for detailed analysis in this EA.

Geology and Topography – Geological resources can be defined in terms of drainage capacity, erodibility, composition, and topography. While superficial ground disturbance is anticipated as a result of the proposed action, no change in topography would occur. Potential impacts to drainage capacity and erodibility are included in the soils and water resources analysis.

Visual Resources – Visual resources are defined as the natural and man-made features that constitute the aesthetic qualities of an area. New construction and renovation associated with the proposed action would be located within the existing developed area of the IAAAP and would be visually consistent with the surrounding area. The visual environment does not constitute a unique or sensitive viewshed.

If the Army decides to proceed with the proposed action, the development of the rail transload facility will most likely occur in phases. In addition, if implemented, there will be a design stage followed by construction. Therefore, since development details are still evolving, and detailed site plans are not available at this time, the analysis in this EA will be of a programmatic nature.

If and when specific development projects are proposed, then subsequent NEPA documentation (most likely through the IAAAP's Request for Use of Facilities (RUF) and Record of Environmental Consideration (REC) process) will be completed by tiering off of this document. This will be discussed in further detail in Chapter 5 (Special Operating Procedures).

1.4 PUBLIC INVOLVEMENT/ENVIRONMENTAL COORDINATION

Executive Order (EO) 12372, *Intergovernmental Review of Federal Programs*, requires intergovernmental notifications prior to making any detailed statement of environmental impacts. Through the process of interagency and intergovernmental coordination, the proponent must notify concerned federal, state, and local agencies and allow them sufficient time to evaluate potential environmental impacts of a proposed action. Comments from these agencies are subsequently incorporated into the environmental impact analysis process. Government agencies that were coordinated with regarding the proposed action are listed in **Appendix A**, Interagency and Intergovernmental Coordination.

1.4.1 Government-to-Government Consultations

EO 13175, *Consultation and Coordination with Indian Tribal Governments*, directs federal agencies to coordinate and consult with Native American tribal governments whose interests might be directly and substantially affected by activities on federally administered lands. Consistent with the EO, Department of Defense (DoD) Instruction 4710.02, *DoD Interactions with Federally Recognized Tribes*, requires that federally recognized tribes that are historically affiliated with the IAAAP geographic region be invited to consult on all proposed undertakings that have a potential to affect properties of cultural, historical, or religious significance to the tribes. The tribal consultation process is distinct from NEPA consultation or the interagency coordination process, and it requires separate notification to all relevant tribes. These include the following:

- Iowa Tribe of Kansas and Nebraska;
- Sac and Fox Nation (Oklahoma);
- Iowa Tribe of Oklahoma;
- Sac and Fox Nation (Missouri); and
- Meskwaki Nation, Sac and Fox Nation of the Mississippi in Iowa.

The timelines for tribal consultation are also distinct from those of other consultations. Tribal input must be solicited early enough in the planning process that it may influence the decision to be made. The IAAAP point of contact for Native American tribes is the installation commander. The Native American tribal governments that were coordinated with regarding the proposed action and their responses are listed in **Appendix A**.

1.4.2 Other Agency Consultations

Per the requirements of Section 106 of the National Historic Preservation Act (NHPA) (54 U.S.C. 300101 et seq.) and implementing regulations (36 CFR part 800), Section 7 of the Endangered Species Act (ESA) (16 U.S.C. 1531 – 1544) and implementing regulations (50 CFR 402), and the Migratory Bird Treaty Act (MBTA) (16 U.S.C. 703 – 7012), findings of effect and request for concurrence were transmitted to the Iowa Department of Cultural Affairs (the State Historic Preservation Officer (SHPO)) and the U.S. Fish and Wildlife Service (USFWS.

Correspondence regarding the findings and concurrence and resolution of any adverse effect is included in **Appendix A**.

2.0 DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES

2.1 PROPOSED ACTION

The Army proposes to make property available at IAAAP for the construction and operation of a rail transload facility pursuant to the authorities granted the Army in 10 U.S.C. 434. Transloading is the process of transferring a shipment from one mode of transportation to another. Reload operations involve the unloading products/goods from a truck directly onto another truck for delivery. Items are not put away, but they are merely stored temporarily to await loading. The proposed action includes identifying and making available land and warehouse space to provide multi-model transportation services combined with transload, cross dock, warehouse, and packaging services, including specialized logistic services for the agriculture industry. Services will also include handling a wide range of mostly non-hazardous products, including grains and grain products, fertilizers, bulk foods (corn, soybeans, etc.), perishables (fruits, vegetables, etc.), frozen foods, oils and syrups (corn, soybeans), and canned goods, plastics, resins, machinery and components, plastics products, generation equipment, farm and construction equipment, and wind energy components. Some quantities of hazardous or toxic materials may be handled or temporarily stored during transloading and reloading operations. If so, these materials will be managed in accordance with all applicable federal, state, and local requirements. The proposed action will also include identifying and making available land suitable for rail car storage, repair, maintenance, and cleaning.

The proposed action would include either renovation or demolition of the existing warehouse space or construction of new warehouses. If the site has existing warehouse space, and demolition and new construction is required, it would likely occur on the same footprint in order to take advantage of the existing rail infrastructure. In addition, depending on the alternative selected, the implementation of the proposed action could also include upgrading existing roads and creating new access roads to reach the site; upgrading existing rails or constructing new rail infrastructure; and re-routing and/or installing new gas, steam, water, sewer, and/or electrical infrastructure. Implementation of the proposed action is expected to begin in the Summer 2019 and continue into the foreseeable future.

2.2 SCREENING CRITERIA

Screening criteria (**Table 2-1**) have been developed to further identify reasonable alternatives to achieve the purpose and need for the proposed action. For an alternative to be considered reasonable and be carried forward for analysis, it must meet the purpose of, and need for, the proposed action, as well as satisfy the following screening criteria:

TABLE 2-1: SCREENING CRITERIA

Screening Criteria	
Available Space	Suitable construction areas must have a minimum of 200 acres to accommodate transload and reload operations, as well as supporting operations (e.g., storage, rail car service activities).
Available Infrastructure	The site must be located within 500 feet of existing support infrastructure, including steam lines (for heat), utilities, roads, rail lines, and loading facilities.
Non-interference with Installation Restoration Program (IRP)/Military Munitions Response Program (MMRP) Sites/Compliance Cleanup Sites/Formerly Used Sites Remedial Action Program (FUSRAP)	Siting of new facilities or renovation or demolition of existing facilities will be reviewed to ensure that there are no adverse effects from IRP, MMRP, Compliance Cleanup, or FUSRAP sites, as well as to ensure there are no adverse impacts on IRP, MMRP, Compliance Cleanup, or FUSRAP response objectives or existing land use restrictions.
Explosive Safety/Quantity Distance Arcs	Explosive safety arcs show the influence of potential explosions from buildings containing explosives. The location of the proposed transload facilities must not be located within any of the explosive safety/quantity distance arcs.

2.3 ALTERNATIVES CONSIDERED

The Army evaluated three locations on the installation as potentially suitable locations for the rail transload facility. These alternatives are depicted on **Figure 2-1.** Each alternative, as well as the no action alternative, is discussed in this Section. In addition, projects common to all alternatives are also discussed below.

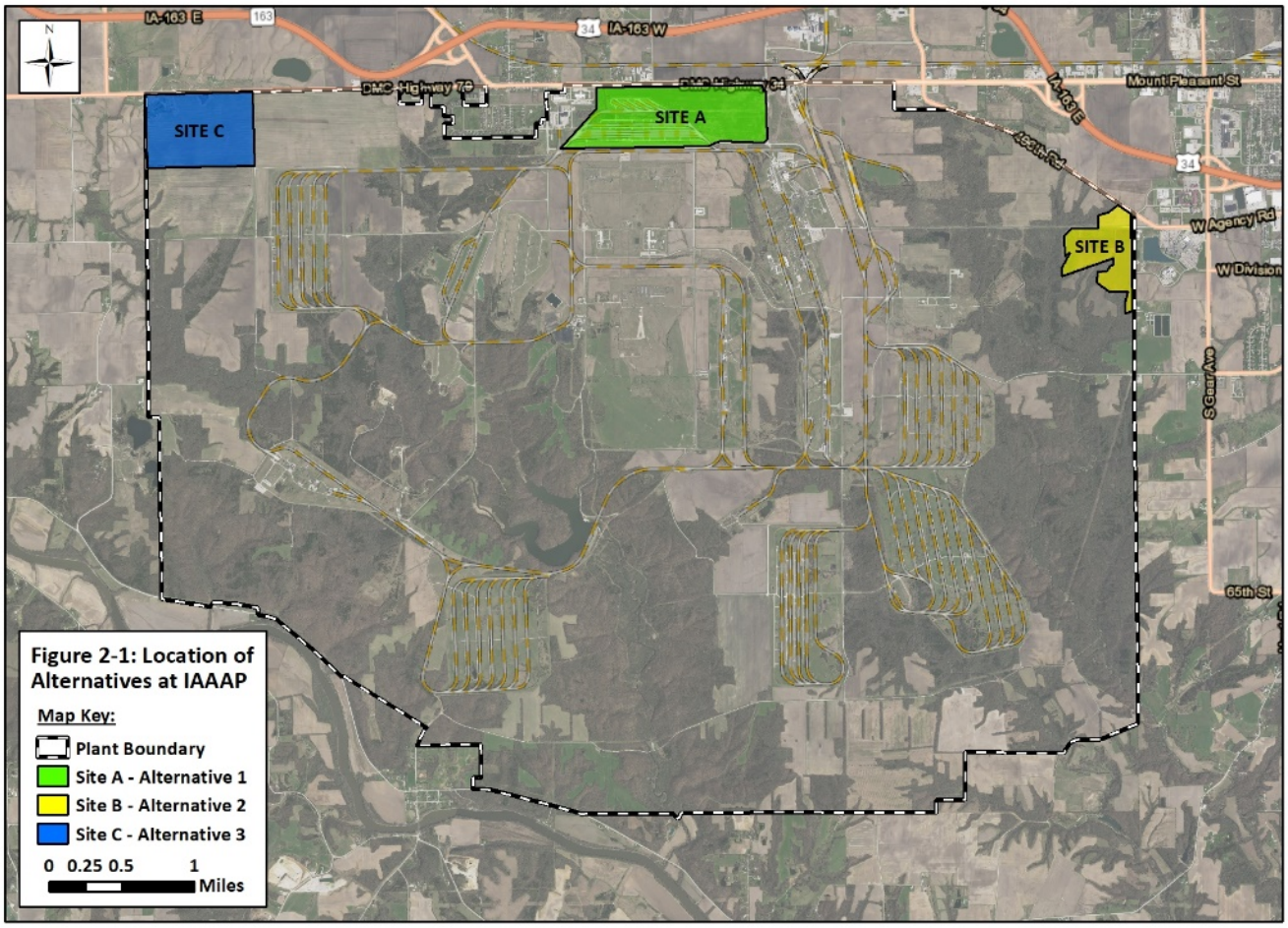

FIGURE 2-1: LOCATION OF ALTERNATIVES AT IAAAP

2.3.1 Projects Common to All Alternatives

Each of the alternatives may require projects to be implemented that are common to all of the alternatives presented below. These projects could include the following:

- Upgrading existing roads or constructing new roads to improve or allow access to the rail transload facility.
- Upgrading existing rails or building new rail infrastructure to improve or allow access to the facility.
- The re-routing or installation of new gas, steam, water, sewage, and/or electrical infrastructure.
- Installation of distributed natural gas boilers steam generation for comfort heat.

All of these projects may involve land disturbance, creation of fugitive dust, increased impervious surfaces, and associated runoff. Specific environmental impacts are addressed in Chapter 3, Affected Environment and Environmental Consequences.

2.3.2 Alternative 1 (Preferred Alternative): Development of Rail Transload Facility – Site A

This site meets all screening criteria. This site includes over 200 acres of land, with direct access to U.S. Highway 34 in two locations, and it is in close proximity to Highway 61. The site has easy access to over 100 miles of track, including five rail yards that link directly to the BNSF mainline that extends westward from Burlington to Mount Pleasant, and ultimately to Des Moines and Omaha, Nebraska. The existing warehouses also have rail and truck access. The site also has 845,000 square feet of existing warehouse space, as well as being supported by existing infrastructure, e.g., utilities. The undeveloped land is within five hundred feet of existing infrastructure, making connection or extension to new facilities cost effective. The site is not located on any site subject to an environmental cleanup program, nor is it located within any explosive safety quantity distance arcs. (see **Figure 2-2**).

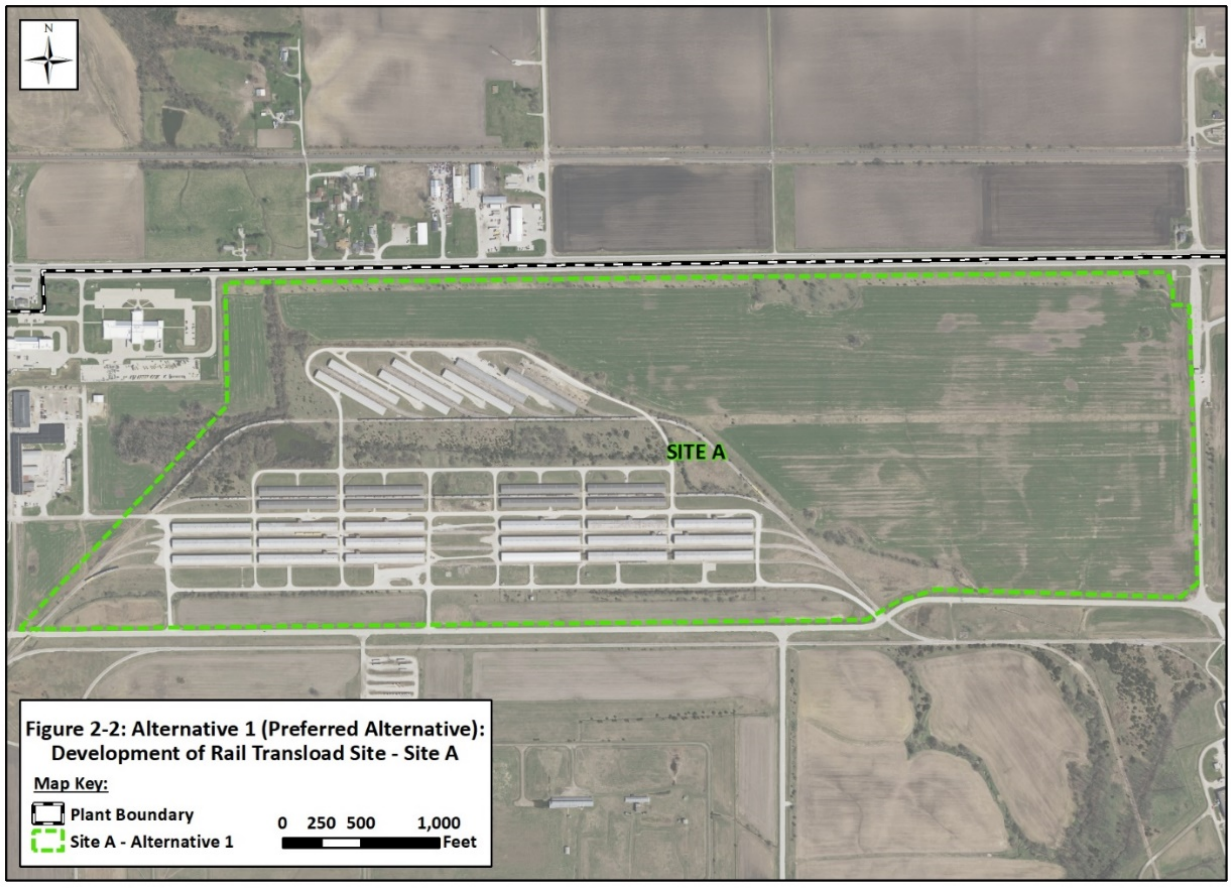

FIGURE 2-2: ALTERNATIVE 1 (PREFERRED ALTERNATIVE): DEVELOPMENT OF RAIL TRANSLOAD FACILITY – SITE A

The site has the amenities and resources necessary to attract and retain rail-centric industries to perform the following operations:

- Transloading/Reloading Operations (rail-to-truck, truck-to-rail, truck-to-truck)
  - Commodities include grains and grain products, fertilizers, plastics, resins, etc.
  - Encourage outbound, as well as inbound, shipments using on-site scale track.

    - Explore and develop connections to nearby maritime (river) shipping operations.
- Value-Added Operations (offered by logistics companies and third-party logistics (3PL) partners)
    - Packaging, compounding, bagging/boxing of commodities for shipment to markets and end-users.
    - Employ the existing, extensive building/dock infrastructure to allow 3PL companies to provide single-commodity, contamination-free value-added services.
- Light and Heavy Manufacturing
    - Machinery and components, plastics products, food products.
    - Utilize docks and lay-down/staging areas for assembly and shipping of larger equipment (generation equipment, farm and construction equipment, wind energy components)

In addition, the existing rail lines will allow for expansion of uses, including a rail car shop area that will utilize space for light and heavy repairs of freight cars and provide space for restoration of older cars. In addition, tracks could also be used to test new technologies, speed testing, break-in runs, and crashworthiness. This site could also be used for the short- and long-term storage of cars for railcar owners and leasing companies, as well as for a first responder rail training academy for passenger and freight operations. This site has also been designated as the Commerce Center of Southeast Iowa and has been certified under the Iowa Economic Development Authority's (IEDA) Site Certification Program and BNSF's Railways Site Certification Program. A site that achieves certification has been deemed suitable for development, has no impediments to development, or if impediments exist, they could be either avoided or mitigated. In addition, certified sites are more attractive to prospective companies, as they have undergone a rigorous evaluation of economic and environmental factors, and thus are considered ready for development and are relatively risk free. Promoting the highest and best use of this site could bring in additional revenue to offset IAAAP's production and operating costs, as well as create additional skilled jobs, preserve and expand existing and valuable rail infrastructure, and support and strengthen the region's agricultural-based economy.

Under the preferred alternative, 845,000 square feet of existing warehouse space are available for use, renovation, or replacement. Additional warehouse space and lay-down/staging areas could be constructed on the adjacent, undeveloped 154 acres. The developed portion of the site includes existing gravel roads and rail lines servicing the existing warehouses. The five miles of existing roads and almost five miles of existing rail would have to be maintained. If facilities are built on the currently undeveloped 154-acre parcel, new roads and rail would have to be built to provide access.

2.3.3 Alternative 2: Development of Rail Transload Facility – Site B

This site consists of approximately 111 acres and has direct highway access to 406th Road/Washington Road with multiple routes to U.S. Highway 34 (see **Figure 2-3**).

The site would require a rail extension of approximately one mile to tie into the existing rail infrastructure in order to be able to function as a rail transload facility. In addition, the site does not offer existing warehouse space. New warehouses and lay-down/staging pads could be

developed on the site's 111 acres. The undeveloped land is within one mile of existing infrastructure, making connection or extension to new facilities possible at some additional expense. The site is not located on any site subject to an environmental cleanup program, nor is it located within any explosive safety quantity distance arcs. The site is not currently an IEDA- or BNSF-certified site. The site's proximity to a community college campus and regional hospital may affect the ability to obtain certification.

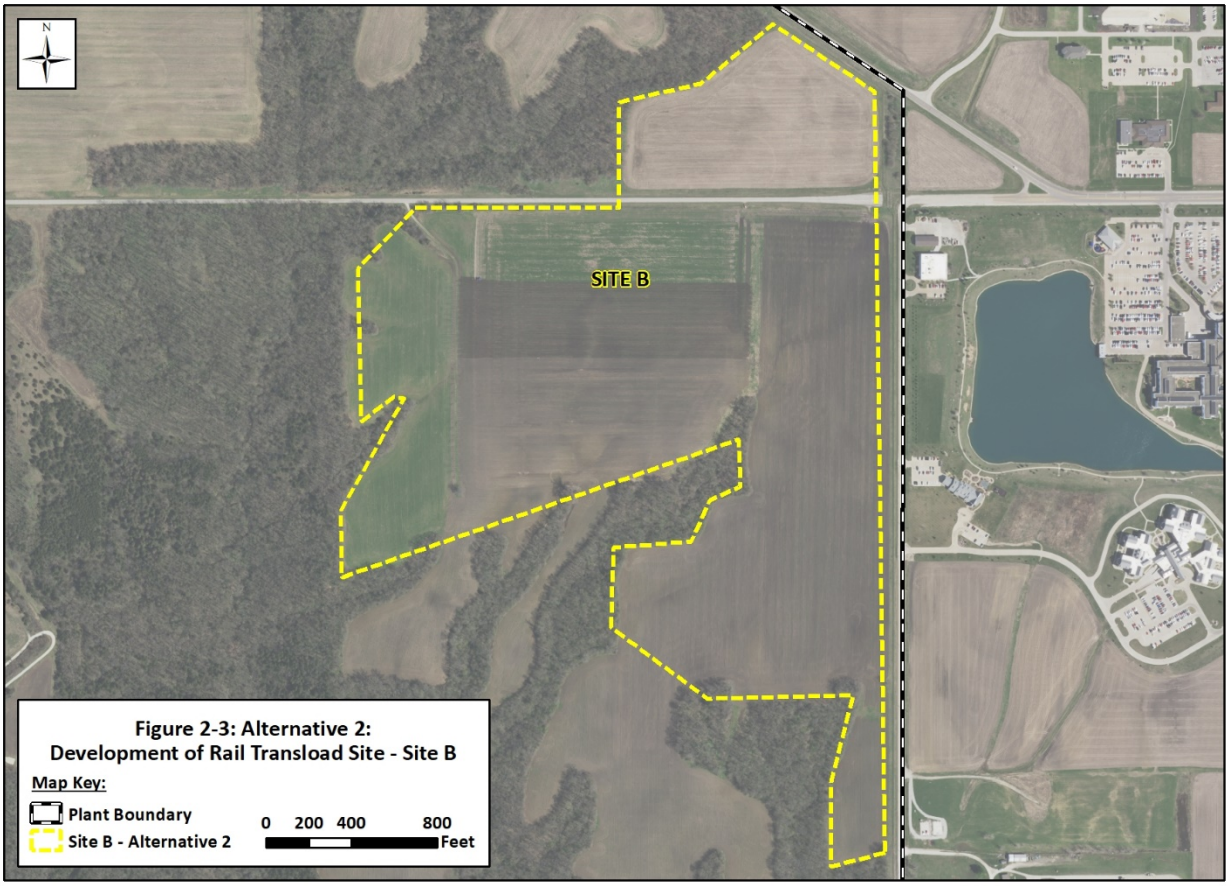

FIGURE 2-3: ALTERNATIVE 2: DEVELOPMENT OF RAIL TRANSLOAD FACILITY – SITE B

Implementation of this alternative would require the construction of at least 845,000 square feet of new warehouse space, while a portion of the 111 acres could be developed for lay-down/staging areas. New roads and miles of new rail would require construction to make the area functional as a rail transload facility.

2.3.4 Alternative 3: Development of Rail Transload Facility – Site C

This site consists of approximately 215 acres of land and is located in the northwest corner of the IAAAP (see **Figure 2-4**). The site is relatively flat and is currently used as agricultural land. It can be accessed from Old Highway 34; however, this highway does not have the capacity to handle the tractor-trailer traffic. In addition, the site is not separated from installation operations, and it does not have the necessary utilities, warehouses, and infrastructure to support a rail transload facility. Therefore, the site does not meet the criteria necessary to be certified under the IEDA or BNSF Site Certification Programs. The site is not located on any site subject to an

environmental cleanup program, nor is it located within any explosive safety quantity distance arcs.

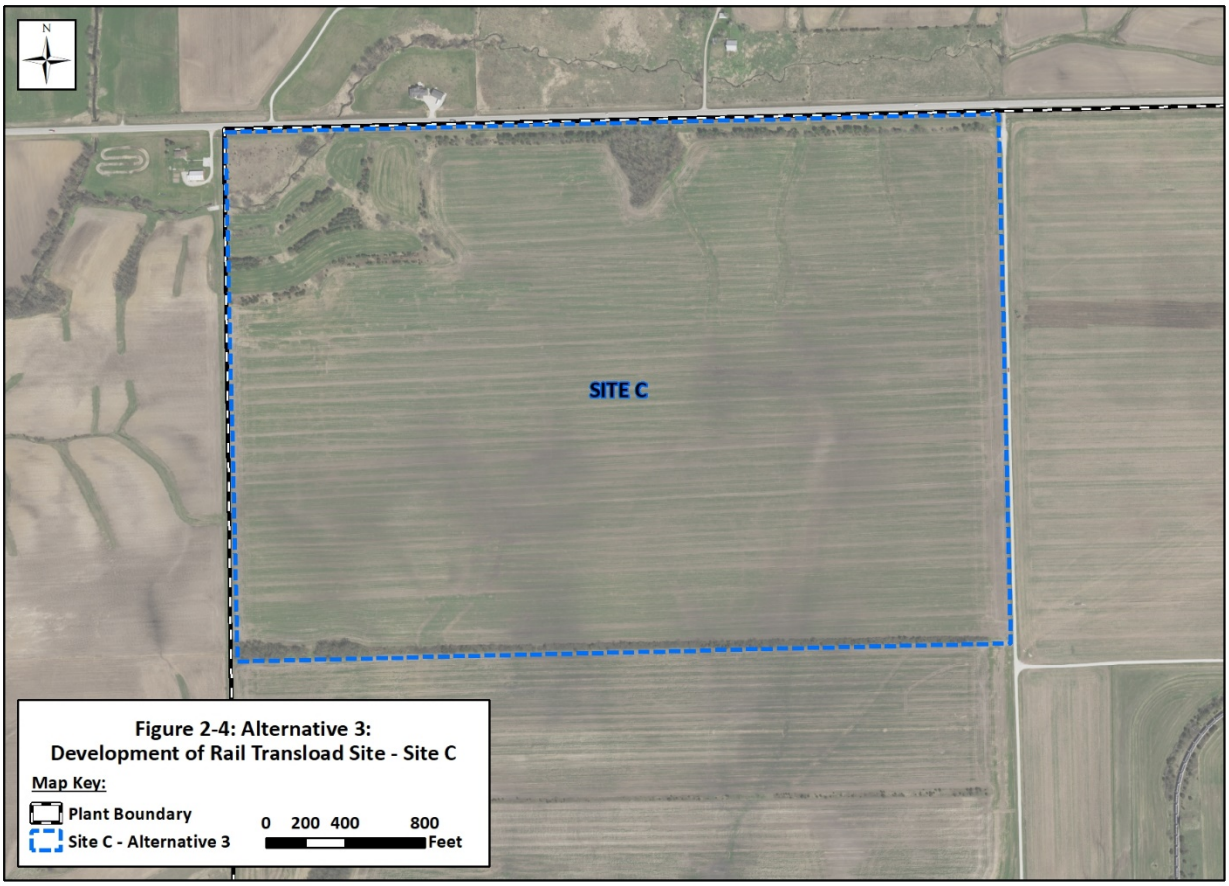

FIGURE 2-4: ALTERNATIVE 3: DEVELOPMENT OF RAIL TRANSLOAD FACILITY – SITE C

Implementation of this alternative would require the construction of at least 845,000 square feet of new warehouse space, while a portion of the 215 acres could be developed for lay-down/staging areas. New roads and miles of new rail would require construction to make the area functional as a rail transload facility.

2.3.5 Alternative 4: No Action Alternative

The CEQ regulations (40 CFR 1502.14(d)) require analysis of a no action alternative to provide a benchmark, enabling decision makers to compare the magnitude of the potential environmental effects caused by the other alternatives considered to implement the proposed action. The no action alternative is not required to be reasonable, nor does it need to meet the purpose and need described in Section 1.2. Under the no action alternative, the property at IAAAP would not be made available for the development and operation of a rail transload facility. Not making property available at IAAAP for the operation of a rail transload facility would not maximize and would not encourage the best use of eligible GOCO property under the ARMS Program, which in turn would not result in lowering the cost to the Government for the production of ammunition. The vacant land would remain in agricultural use, and the existing warehouse space would continue to be used to store inert material, storage containers, and pallets. In

addition, the warehouses would continue to be in a state of disrepair, as they are not currently programmed for renovation.

2.4 ALTERNATIVES ELIMINATED FROM FURTHER CONSIDERATION.

After application of the screening criteria referenced in Section 2.3 above, Alternatives 2 and 3 were eliminated from further consideration. Only the preferred alternative and the no action alternative will be carried forward for evaluation of potential environmental impacts.

3.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

3.1 INTRODUCTION

This chapter describes the environmental conditions potentially affected by the proposed action. This section provides information to serve as the baseline from which to identify and evaluate environmental changes likely to result from implementation of the proposed action. Baseline conditions represent current conditions. In compliance with NEPA, CEQ guidelines, and AR 200-2, the description of the affected environment focuses on the resources and conditions potentially subject to impacts. These resources include the following:

- Air Quality
- Physical Resources (soils)
- Biological Resources
- Cultural and Historical Resources
- Hazardous Materials
- Noise
- Land Use
- Socioeconomics
- Transportation
- Utilities
- Water Resources

The Region of Influence (ROI) represents the geographic area where most of the direct and indirect effects of the project are likely to occur. The following factors were considered when defining the ROI:

- Magnitude and direction of expected direct and indirect environmental effects.
- Dispersion or migration relationships for affected environmental media, such as groundwater flow or wind direction.
- Ecosystem boundaries and wildlife migration patterns.
- Political or regulatory jurisdictions (air basin boundaries, counties, city limits, flood control districts, etc.), which present particular resource management or impact mitigation requirements.

The extent of the ROI depends upon the environmental resource being evaluated. Each environmental resource is likely to have its own ROI, which may or may not overlap spatially with other environmental resources. For example, noise generated within the action area without attenuation is likely to travel off-site to adjacent properties.

This chapter of the EA also assesses potential environmental consequences associated with the proposed action, as well as the alternatives carried forward for environmental analysis. Potential impacts are addressed in the context of the scope of the proposed action as described in Chapter 2 and in consideration of the potentially affected environment as characterized in this chapter.

Several terms are used to describe effects, also referred to as impacts, in this document. The effect may be described as positive or adverse. "Positive" means that the proposed action or alternative would have a beneficial effect on the subject resource. The level of adverse or negative effect is described relative to the established significance criteria. Adverse or negative impacts described as minimal or minor would have little effect on the resource and therefore would not exceed the applicable significance criteria. An impact would be described as "significant" if it were to exceed the applicable significance criteria.

The significance criteria are resource specific and established by considering context and intensity. Both context and intensity are considered because the level of intensity deemed significant may differ based on context. For instance, the significance criteria for noise impacts would likely be different in a large city as compared to a rural town with few noise generating sources.

As previously stated in Section 1.3, project details are still evolving, and detailed site plans are not currently available. If the Army decides to proceed with the proposed action, there will be a design stage followed by construction, which would likely occur in phases over time. When specific development projects are proposed, subsequent NEPA documentation (most likely through the IAAAP's RUF and REC process) will be completed by tiering off this document or initiating a supplemental EA for that project.

3.2 AIR QUALITY

3.2.1 Definition of Resource

Air resources are affected by gases and particulates from stationary and mobile sources and are influenced by meteorological conditions, such as prevailing wind, sunlight, and temperature inversions. The Clean Air Act (CAA) (42 U.S.C. 7401 et seq.), the primary federal statute regulating air emissions, applies fully to the Army and all its activities. The primary pollutants that the CAA regulates include criteria pollutants and hazardous air pollutants (HAPs). Criteria pollutants include ozone, nitrogen dioxide, sulfur dioxide, carbon monoxide, lead, and particulate matter ($PM_{2.5}$ and PM_{10}). HAPs include over 180 compounds that have been determined to cause cancer and other serious health effects (U.S. Environmental Protection Agency (USEPA) 2019a).

Under the CAA, the USEPA has established National Ambient Air Quality Standards (NAAQS) (40 CFR 50) for these pollutants. The NAAQS represent the maximum levels of background pollution that are considered safe, including an adequate margin of safety, to protect public health and welfare. Short-term standards (1-, 3-, 8-, and 24-hour periods) are established for pollutants contributing to chronic health effects. **Table 3-1** presents the NAAQS, which have been adopted by the Iowa Department of Natural Resources.

In addition to the NAAQS for criteria pollutants, national standards exist for HAPs that are regulated under Section 112(b) of the 1990 CAA Amendments. The National Emission Standards for Hazardous Air Pollutants (NESHAP) regulate HAP emissions from stationary sources (40 CFR 61 & 63).

1 **TABLE 3-1: NATIONAL AMBIENT AIR QUALITY STANDARDS (40 CFR 50)**

National Ambient Air Quality Standards (40 CFR 50)					
Pollutant		**Primary/ Secondary**	**Averaging Time**	**Level**	**Form**
Carbon Monoxide (CO)		Primary	8 hours	9 parts per million (ppm)	Not to be exceeded more than once per year
			1 hour	35 ppm	
Lead (Pb)		Primary and Secondary	Rolling 3-month average	0.15 micrograms per meter cubed ($\mu g/m^3$) (1)	Not to be exceeded
Nitrogen Dioxide (NO_2)		Primary	1 hour	100 parts per billion (ppb)	98th percentile of 1-hour daily maximum concentrations, averaged over 3 years
		Primary and Secondary	1 year	53 ppb (2)	Annual Mean
Ozone (O_3)		Primary and Secondary	8 hours	0.070 ppm (3)	Annual fourth-highest daily maximum 8-hour concentration, averaged over 3 years
Particle Pollution	**$PM_{2.5}$**	Primary	1 year	12.0 $\mu g/m^3$	Annual mean, averaged over 3 years
		Secondary	1 year	15.0 $\mu g/m^3$	Annual mean, averaged over 3 years
	PM_{10}	Primary and Secondary	24 hours	35 $\mu g/m^3$	98th percentile, averaged over 3 years
		Primary and Secondary	24 hours	150 $\mu g/m^3$	Not to be exceeded more than once per year on average over 3 years
Sulfur Dioxide (SO_2)		Primary	1 hour	75 ppb (4)	99th percentile of 1-hour daily maximum concentrations, averaged over 3 years
		Secondary	3 hours	0.5 ppm	Not to be exceeded more than once per year
Source: USEPA 2019b					

National Ambient Air Quality Standards (40 CFR 50)				
Pollutant	**Primary/ Secondary**	**Averaging Time**	**Level**	**Form**
(1) In areas designated nonattainment for the Pb standards prior to the promulgation of the current (2008) standards, and for which implementation plans to attain or maintain the current (2008) standards have not been submitted and approved, the previous standards (1.5 µg/m3 as a calendar quarter average) also remain in effect. (2) The level of the annual NO_2 standard is 0.053 ppm. It is shown here in terms of ppb for the purposes of clearer comparison to the 1-hour standard level. (3) Final rule signed October 1, 2015, and effective December 28, 2015. The previous (2008) O_3 standards additionally remain in effect in some areas. Revocation of the previous (2008) O_3 standards and transitioning to the current (2015) standards will be addressed in the implementation rule for the current standards. (4) The previous SO_2 standards (0.14 ppm 24-hour and 0.03 ppm annual) will additionally remain in effect in certain areas: (1) any area for which it is not yet 1 year since the effective date of designation under the current (2010) standards, and (2) any area for which an implementation plan providing for attainment of the current (2010) standard has not been submitted and approved and which is designated nonattainment under the previous SO_2 standards or is not meeting the requirements of a State Implementation Plan (SIP) call under the previous SO_2 standards (40 CFR 50.4(3)). A SIP call is an USEPA action requiring a state to resubmit all or part of its SIP to demonstrate attainment of the required NAAQS.				

Greenhouse gases (GHGs) are gas emissions that trap heat in the atmosphere. Anthropogenic GHG emissions result from the burning of fossil fuels for energy, deforestation, emissions released by landfills, the production of certain industrial products, the application of agricultural fertilizers, and the raising of livestock. GHGs from fossil fuel combustion include carbon dioxide, methane, and nitrous oxide (USEPA 2019c).

This EA also evaluates GHG emissions but does not attempt to measure the actual incremental impacts of GHG emissions because there is a lack of consensus on how to measure incremental impacts. Existing models have substantial variation in output and do not measure the actual incremental impacts of a project on the environment. There are also no established criteria identifying values that are considered significant for NEPA purposes.

3.2.2 Existing Conditions

IAAAP is located in the Burlington-Keokuk Interstate Air Quality Control Region (AQCR) (40 CFR 81.98). The entire AQCR includes the Illinois counties of Fulton, Hancock, Henderson, Knox, McDonough, Mason, Peoria, Tazewell, Warren, and Woodford and the Iowa counties of Des Moines and Lee. The ROI for emissions can vary from less than a mile to more than 30 miles, depending on the pollutant. For the air quality analysis in this EA, the applicable portion of the AQCR that the IAAAP is located in will serve as the ROI. This consists of the county (Des Moines) in which the IAAAP is located.

The 2014 emissions inventory for Des Moines County, Iowa are shown in **Table 3-2**. Volatile organic compounds (VOCs) and nitrogen oxides (NO_x) emissions are used to represent O_3 generation because they are precursors of O_3. The inventory includes stationary sources, such as

industrial sites and residential fuel combustion, as well as mobile sources and area sources, such as fires.

TABLE 3-2: DES MOINES COUNTY, IOWA AIR EMISSIONS INVENTORIES (2014)

Des Moines County, Iowa Air Emissions Inventories (2014)					
NO_x	**VOCs**	**CO**	**SO_2**	**$PM_{2.5}$**	**PM_{10}**
3,463	4,725	9,107	4,250	937	3,045
Source: USEPA 2019d Totals presented in tons per year Key: $PM_{2.5}$ = fine particulate matter less than or equal to 2.5 microns in diameter; PM_{10} = suspended particulate matter less than or equal to 10 microns in diameters					

IAAAP currently holds a Title V Operating Permit that covers emissions of both criteria pollutants and HAPs. Sources covered under the permit include adhesive application and cleaning processes, surface coating processes, explosives processing, combustion equipment, unpaved roads, and other miscellaneous activities. The current permit, number (No.) 04-TV-019R2, was issued on July 1, 2015 and expires on June 30, 2021. The air emissions inventories for the IAAAP in 2017 are presented in **Table 3-3**.

TABLE 3-3: IAAAP AIR EMISSIONS INVENTORIES (2017)

IAAAP Air Emissions Inventories (2017)		
Criteria Pollutant	**IAAAP Total**	**IAAAP Permitted Potential to Emit**
NO_x	71	771
VOCs	10	356
CO	41	340
SO_2	205	6,307
$PM_{2.5}$	11	159
PM_{10}	11	428
Source: (Timmons, 2019) Totals presented in tons per year		

IAAAP is not located in a nonattainment or maintenance area. The USEPA has classified Des Moines County, the county in which IAAAP resides, as an attainment/unclassifiable (40 CFR 81.316) area for criteria pollutants. The CAA (Section 1769(c)) prohibits federal activities from taking various actions in areas that the USEPA has designated as nonattainment or maintenance areas for one or more criteria pollutants unless they first demonstrate conformance with the applicable SIP. Regardless of compliance with other environmental regulations, failure to satisfy the requirements of the conformity rule can, by itself, preclude an installation from moving forward with the project. A conformity review is a multi-step process used to determine and document whether the conformity rule applies to a proposed action. Because the IAAAP is located in an attainment/unclassifiable area, a conformity review will not be required.

3.2.3 Environmental Consequences

3.2.3.1 Significance Criteria

Impacts to air quality would be considered significant if the activities associated with the proposed action would result in a violation of NAAQS.

3.2.3.2 Alternative 1 (Preferred Alternative)

Only short- and long-term minor adverse effects would be expected if the Army implements the proposed action, construction and operation of a rail transload facility at Site A. The short-term minor adverse effects would result from construction activities. Air emissions (e.g., fugitive dust and visible emissions) generated during construction would result from non-road construction equipment (e.g., dozers, backhoes, excavators) operating on bare ground in the undeveloped areas; demolition, renovation, or construction in the developed areas; and vehicles (e.g., construction worker vehicles and dump/concrete trucks) hauling materials and personnel to the site. These activities also would produce minor and temporary GHG emissions. While these emissions would generate an increase in localized emissions of criteria pollutants, the increase would be relatively small and temporary. Because many of these vehicles would travel off the installation into the city of Burlington, their operation would be directly linked to the proposed action construction. Additional emissions may be related to temporary power sources (e.g., generators) and other fuel-powered equipment. The Army would incorporate design and mitigation measures for construction projects discussed above to reduce the effects of these emissions.

The long-term minor adverse effects would result from operation of the rail transload facility. The 200-acre action area is comprised of 33 warehouses that are used to store inert material, storage containers, and pallets. The remainder of the action area is currently in the IAAAP's agricultural program, which, because of grazing, haying, and crop production, results in a reduction in fire hazard and air emissions. The operation of the rail transload facility would increase the air and GHG emissions generated over those emitted as a result of the action area's current use. Open burning of cleared and grubbed material would not be conducted. The increase would result from the installation of additional stationary sources, such as boilers and emergency generators, and increased vehicular traffic and equipment operation. Although mobile source emissions would be increased as a result of the proposed action, they would occur over a widespread area and would be considered negligible. To lessen the potential impact of increased air emissions from additional stationary sources, the installation of additional stationary sources would be evaluated for compliance with IAAAP's Title V Operating Permit requirements.

3.2.3.3 No Action Alternative

No adverse effects would occur if the no action alternative was implemented. Under the no action alternative, no rail transload facility improvement activities would be undertaken, and no changes in operations would take place. The permitting of additional stationary sources would not be required. Under the no action alternative, unused facilities would be minimally maintained and would be expected to deteriorate over time. Deterioration of building materials that contain friable asbestos (e.g., piping and boiler insulation) and substances that volatize over time would be expected to create hazardous air quality conditions inside some buildings.

3.3. PHYSICAL RESOURCES (SOILS)

3.3.1 Definition of Resource

Soil is a natural body comprised of solids (minerals and organic matter), liquid, and gases that occurs on the land surface that has the ability to support rooted plants in a natural environment. For the purposes of this EA, the discussion focuses on soil erosion potential. Erosion is the gradual wearing away of land by water, wind, and other general weather conditions, and can be influenced by many activities within a given landscape. Types of soils, underlying geology, and topography can influence erosion impacts. Soil erosion can undermine the ability of the natural environment to support the Army mission, and once the erosion process has started, the direct effects can usually not be reversed.

At IAAAP, the Army mitigates the effects of soil erosion through implementation of the IAAAP's soil management program detailed in the 2018-2023 Integrated Natural Resources Management Plan (INRMP) (IAAAP 2018). The goal of the management program is to repair damaged soils and use soil parameters to manage military activities, protect soil stability, restore installation lands, and conserve wildlife habitat. During construction activities, the IAAAP's soil management program requires compliance with the National Pollutant Discharge Elimination System (NPDES), which requires the development of Stormwater Pollution Prevention Plans (SWPPPs) and the use of Best Management Practices (BMPs) to prevent or reduce erosion or sedimentation to a level compatible with state water quality goals (IAAAP 2018).

3.3.2 Existing Conditions

The action area is located in the Southern Iowa Drift Plain physiographic region. Physical features within the Southern Iowa Drift Plain include level upland divides, steeply rolling hills, narrow interfluves, and alluvial lowlands. The action area is positioned on a portion of one of these upland divides and little topographic relief is present. In the action area, there is a gradual slope toward the southeast, with about a 10-foot difference in elevation between the northwestern and southeastern portions. The northwestern portion lies at approximately 730 feet above mean sea level (amsl), and the southeastern portion lies at approximately 720 feet amsl. The far upper reaches of some ephemeral drainages are present in the action area, which result in some undulations of the surface (Bear Creek Archaeology, Inc. 2015).

The U.S. Department of Agriculture's (USDA) Natural Resources Conservation Service (NRCS) mapped the soils in the action area. They are the Anthroportic Udorthents, Colo, Given, Hedrick, Mahaska, Nira, Taintor, and Urban Land soil series (**Figure 3-1**). The characteristics of these soil series are presented in **Table 3-4**.

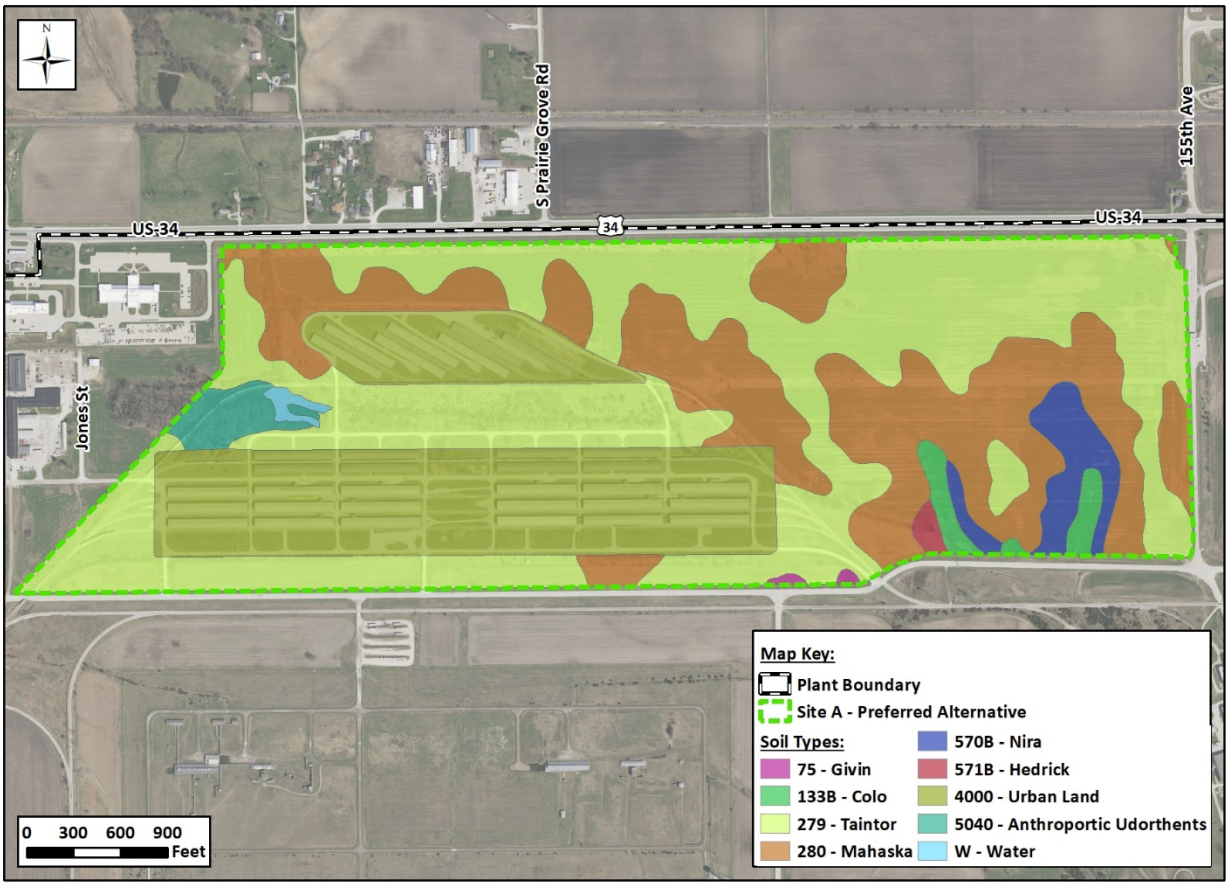

FIGURE 3-1: SOIL SERIES OF THE ACTION AREA

The soils series at the action area have an erosion T factor of 5. The USDA-defined erosion factor, T, as an estimate of the maximum average annual rate of soil erosion by wind or water that can occur without affecting crop productivity over a sustained period. The annual rate is in tons per acre per year. T factor is used here to show the relative erosivity (i.e., not highly erodible) of the soil series in the action area (IAAAP 2018).

TABLE 3-4: SOIL SERIES CHARACTERISTICS

Soil Series Characteristics			
Soil Series (Map Unit)	**Description**	**Erosion Factor (T)**	**Prime Farmland[1]**
Anthroportic Udorthents (5040)	Moderately well drained, variable permeability, loam, 2 to 9% slopes	ND	No
Colo (133B)	Poorly drained, moderately permeable, silty clay loam, 0 to 5% slopes	5	Yes[2]
Given (75)	Poorly drained, moderately slowly permeable, silt loam, 1 to 3% slopes	5	Yes
Hedrick (571B)	Moderately well-drained, moderately permeable, silt loam, 2 to 9% slopes	5	Yes

Soil Series Characteristics			
Soil Series (Map Unit)	**Description**	**Erosion Factor (T)**	**Prime Farmland[1]**
Mahaska (280)	Somewhat poorly drained, moderately permeable, silty clay loam, 1 to 3% slopes	5	Yes
Nira (570B)	Moderately well drained, moderately permeable, silty clay loam, 0 to 5% slopes	5	Yes
Taintor (279)	Poorly drained and moderately slowly permeable, silty clay loam, 0 to 1% slopes	5	Yes[3]
Urban Land (4000)	Highly disturbed, anthropogenic origin	ND	No

Sources: USDA 2018c; IAAAP 2018

ND = no determination

1) The IAAAP, including the action area, was acquired by the Federal Government before August 4, 1984, before the passage of the Farmland Protection Policy Act (FPPA) (7 U.S.C. 4201 et seq.) and its implementing regulations (7 CFR 658). Therefore, the proposed action does not quality as a "Federal program" under the FPPA, and USDA analysis of the loss of agricultural land is not required.

2) If drained and protected from flooding or not frequently flooded during the growing season.

3) If drained.

3.3.3 Environmental Consequences

3.3.2.1 Significance Criteria

Impacts to soil resources would be considered significant if there is soil loss or compaction to the extent that natural reestablishment of native vegetation within two growing seasons is precluded unless substantial rehabilitation efforts are undertaken.

3.3.3.2 Alternative 1 (Preferred Alternative)

Only short- and long-term minor adverse effects would be expected if the Army implements the proposed action, construction and operation of a rail transload facility at Site A. The types of soil and generally flat topography of the action area are not readily susceptible to soil erosion. No significant topographic changes to the action area are anticipated as a result of the proposed action. The short-term minor adverse effects would result from construction activities. During construction, the Army would require implementation of BMPs (e.g., silt fencing, wetting of exposed soils, site stabilization, use of geotextile and/or rip-rap) to minimize the potential for construction-related erosion and sedimentation. Specific BMPs and their implementation would be detailed in a site-specific SWPPP that would be developed to comply with IAAAP's soil management program and the NPDES. The NPDES requires that stormwater runoff from construction sites be permitted. In the context of permit requirements, construction refers to ground-disturbing activities, such as warehouse demolition, upgrading existing roads and rails, and re-routing and/or installing new infrastructure. Pursuant to that requirement, Iowa regulations require construction or ground-disturbing projects that involve 1 acre of land disturbance or more (including smaller sites that are part of a larger common plan of

development that collectively disturbs 1 acre or more) to obtain a construction general permit for stormwater.

The long-term minor adverse effects would result from the permanent loss of soils in areas containing new impervious surfaces associated with upgrading existing roads and rails, and re-routing and/or installing new infrastructure. The design of these new features would incorporate Real Property Master Plan and other master planning processes, including the use of sustainable design and construction techniques to minimize the loss of soil due to the new features. The construction of new features may also incorporate other BMPs, such as low-impact development features, infiltration basins, bioretention basins, vegetated swales, and permeable pavers to reduce the impact of permanent soil loss.

3.3.3.3 No Action Alternative

No adverse effects would occur if the no action alternative was implemented. Under the no action alternative, no rail transload facility improvement activities would be undertaken and no changes in operations would take place. IAAAP would continue to adhere to its soils management program to mitigate the effects of soil erosion caused by the current activities, including grazing, haying, and crop production, conducted at the action area.

3.4. BIOLOGICAL RESOURCES

3.4.1 Definition of Resource

Biological resources refer to the floral and faunal species (plants and animals) and their habitat that occur within the vicinity of the proposed action area. Particular consideration is given to sensitive species, which are those species protected under federal or state law, including threatened and endangered species, migratory birds, and bald and golden eagles. These species receive federal protection through the ESA, the MBTA, or the Bald and Golden Eagle Protection Act (BGEPA) (16 U.S.C. 668 – 668d). Army regulations require consideration of state-listed species in all Army actions.

3.4.1.1 Endangered Species Act

The ESA of 1973 (16 U.S.C. 1531 et seq.) establishes protection over and conservation of threatened and endangered species and the ecosystems upon which they depend. An endangered species is a species in danger of extinction throughout all or a significant portion of its range. A threatened species is one that is likely to become endangered within the near future throughout all or in a significant portion of its range. The USFWS administers the ESA and is responsible for the listing of species (designating a species as either threatened or endangered). The ESA allows the designation of geographic areas as critical habitat[1] for threatened or endangered species. Section 7(a)(2) requires each federal agency to ensure that any action it authorizes, funds, or carries out is not likely to jeopardize the continued existence of any endangered or threatened species or result in the destruction or adverse modification of critical habitat of such

[1] Critical habitat is defined as a specific geographic area that is essential for the conservation of a federally threatened or endangered species and that may require special management and protection. Critical habitat may include areas that are not occupied by a species but are necessary for its recovery.

species. When a federal agency's action may affect a listed species, that agency is required to consult with USFWS (50 C.F.R. 402.14(a)).

3.4.1.2 Migratory Bird Treaty Act

The MBTA of 1918 (16 U.S.C. 703 et seq.) and the Migratory Bird Conservation Act (16 U.S.C. 715–715d, 715e, 715f–715r) of 18 February 1929, are the primary laws in the United States established to conserve migratory birds. The MBTA is an international agreement among the U.S., Canada, and Mexico that protects designated species of birds. The MBTA prohibits the taking, killing, or possessing of migratory birds or the parts, nests, or eggs of such birds, unless authorized by the USFWS. Take is defined as "to pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to pursue, hunt, shoot, kill, trap, capture, or collect" (50 CFR 10.12). Virtually all native birds are protected under the MBTA, with only a few exceptions. A complete list of all species of migratory birds protected by the MBTA is in 50 CFR 10.13. Migratory bird hunting regulations, established by the USFWS, allow the taking, during designated seasons, of ducks, geese, doves, rail, woodcock, and some other species (IANG 2013). The 2003 National Defense Authorization Act exempts the Armed Forces from the incidental take prohibitions of the MBTA during military readiness activities (50 CFR 21.3). Congress defined military readiness activities as all training and operations of the Armed Forces that relate to combat and the adequate and realistic testing of military equipment, vehicles, weapons, and sensors for proper operation and suitability for combat use. Since the construction and operation of the rail transload facility are not military readiness activities, takes of migratory birds would be prohibited during construction and operation.

3.4.1.3 Bald and Golden Eagle Protection Act

The BGEPA (16 U.S.C. 668-668d) protects two species of eagle from taking without a permit issued by the Secretary of the Interior (USFWS 2012). Taking includes molesting or disturbing the birds, as well as their parts, nests, or eggs. The Act provides criminal penalties for persons who take, possess, sell, purchase, barter, offer to sell, purchase or barter, transport, export or import, at any time or any manner, any bald or golden eagle, alive or dead, or any part, nest, or egg thereof. The purpose of the BGEPA is to prevent abuse to eagles and interference with their substantial lifestyle, including shelter, breeding, feeding, or nest abandonment.

Bald eagles are no longer protected under the federal Endangered Species Act, and Section 7 consultation with the USFWS is no longer necessary. However, the bald eagle remains protected under the BGEPA.

EO 13186, *Responsibilities of Federal Agencies to Protect Migratory Birds,* directs federal agencies to take action to further implement the MBTA. Whereas the MBTA protects individual migratory birds, EO 13186 is intended to promote the conservation of migratory bird populations and their habitats. Under this EO, a Memorandum of Understanding to this effect has been developed between DoD and the USFWS. Codified in 50 CFR 22, Subchapter B, the BGEPA prohibits anyone from taking bald or golden eagles, including their parts, nests, or eggs except for scientific, educational, and depredation control purposes or for the religious purposes of Native American tribes. The import, export, purchase, sale, trade, or barter of bald and golden eagles, their parts, nests, or eggs is likewise prohibited.

3.4.1.4 Wetlands

Section 404 of the Clean Water Act (CWA) (33 U.S.C. 1251 et seq), as amended, requires regulation of discharges or fill matter into Waters of the U.S., including jurisdictional wetlands. EO 11990, *Protection of Wetlands*, requires federal agencies to minimize the destruction, loss, or degradation of wetlands resulting from their actions. Wetlands are areas inundated or saturated by water (surface or ground) to be able to support vegetation adept at growing in saturated soils. Jurisdictional wetlands are wetlands connected or adjacent to navigable waters of the U.S. The U.S. Army Corps of Engineers (USACE) has primary responsibility for implementing, permitting and enforcing the provisions of Section 404, Waters of the U.S., including wetlands, have been delineated on IAAAP, and within the Action Area.

Construction, excavation, or filling in streams, lakes, wetlands, or in floodplains will require permits from both the USACE and Iowa Department of Natural Resources (IDNR).

3.4.2 Existing Conditions

The biological resource baseline (existing conditions) for this EA is based on a desktop review of numerous regional biological studies (cited herein), including the biological resource inventory presented in the 2018-2023 Integrated Natural Resource Management Plan (INRMP) (IAAAP 2018), which compiles data from numerous sources cited in the INRMP. Additional site-specific information was used to establish the biological resources baseline, including the 2015 Iowa Army Ammunition Plant Industrial Park–Yard L Threatened and Endangered Species Study and Wetland Study at IAAAP, both prepared for American Ordnance, LLC by Klinger and Associates, (IAAAP 2015a and IAAAP 2015b, respectively). The Iowa Natural Areas Inventory (INAI) (INAI 2018), USFWS National Wetlands Inventory (USFWS 2018a), and the USFWS Endangered Species Midwest Region (USFWS 2018c) websites were also used to research the biological baseline of the action area. Lastly, the USFWS Illinois and Iowa Ecological Services Field Office were notified of the proposed action and the preparation of this EA on February 4, 2019.

The proposed action area contains approximately 325 acres of land. Roughly 99 acres of the action area is developed with approximately 845,000 square feet of existing warehouse space currently used to store inert material, storage containers, and pallets. Land adjacent to the warehouses is developed with rail lines and gravel roads. Near the warehouses, there is a 0.91-acre body of open water and fringing wetland habitat including mature trees. The remaining area within the action area is comprised of 196 acres of agriculture, which includes the 154-acre agricultural area certified under the IEDA's Site Certification Program and BNSF's Railways Site Certification Program. The ROI is dominated by a mix of agriculture, floodplain forest, and mixed industrial and rural residential uses. The town of Middletown is adjacent to the north and west of the action area. Unincorporated West Burlington and the City of Burlington are located to the east.

Biological resources determined to have the potential to occur at IAAAP and within the ROI are organized by Flora, Fauna, and Special Status Species (federal and state) and Areas of Special Interest. Each of these are discussed below.

3.4.2.1 Flora

3.4.2.1.1 Common Vegetation

According to the IAAAP INRMP, 503 species of vascular plants are known to occur on IAAAP (Horton et al. 1996). Vegetative community types within the ROI include floodplain forest, upland oak-hickory forest, hill prairie, native prairie, wetlands, and leased areas (hay and grazing areas and agricultural areas). **Table 3.5** includes a list of dominant flora by vegetation community within the ROI.

TABLE 3-5: DOMINANT FLORA BY VEGETATIVE COMMUNITY AT IAAAP

Dominant Flora by Vegetative Community at IAAAP						
Common Name	**Scientific Name**	**Floodplain Forest**	**Oak-Hickory Forest**	**Hill Prairies**	**Wetlands**	**Hay and Grazing Areas**
Box elder	Acer negundo	X				
Black walnut	Juglans nigra	X				
Black willow	Salix nigra	X				
Eastern cottonwood	Populus deltoides	X				
Sycamore	Platanus occidentalis	X				
Bitternut hickory	Carya cordiformis	X	X			
Shagbark hickory	Carya ovata	X	X			
Chinquapin oak	Quercus muhlenbergii	X	X			
Red oak	Quercus rubra	X	X			
White oak	Quercus alba	X	X			
Gooseberry	Ribes sp.	X				
Sedges	Carex spp.	X		X		X
Trillium	Trillium spp.	X				
Poison ivy	Rhus radicans	X				
Green-briar	Smilax sp.	X				
Mockernut hickory	Carya tomentosa		X			
Black locust	Robinia pseudoacacia		X			
Hard maple	Acer saccharum		X			
Wild cherry	Prunus spp.		X			
Field pussytoes	Antennaria neglecta			X		
Pale purple coneflower	Echinacea pallida			X		

Dominant Flora by Vegetative Community at IAAAP						
Common Name	**Scientific Name**	**Floodplain Forest**	**Oak-Hickory Forest**	**Hill Prairies**	**Wetlands**	**Hay and Grazing Areas**
Gerardia	Gerardia grandiflora			X		
Hawkweed	Hieracium			X		
Slender bush-clover	Lespedeza virginica			X		
Hoary puccoon	Lithospermum canescens			X		
Beardtongue	Penstemon pallidus			X		
Buttercup	Ranunculus fasciularis			X		
Gray goldenrod	Solidago nemoralis			X		
Bur-reed	Sparganium eurycarpum				X	
Reed canary grass	Phalaris arundinacea				X	
Arrow root	Sagittaria sp.				X	
Water plantain	Alisma triviale				X	
Pond weed	Potamogenton sp.				X	
Duck weed	Lemna sp.				X	
Smart weed	Polygonum sp.				X	
Tall, smooth brome grass	Bromus inermis					X
Source: IAAAP 2018						

1

2

Figure 3-2 presents the vegetation and land use types within the action area.

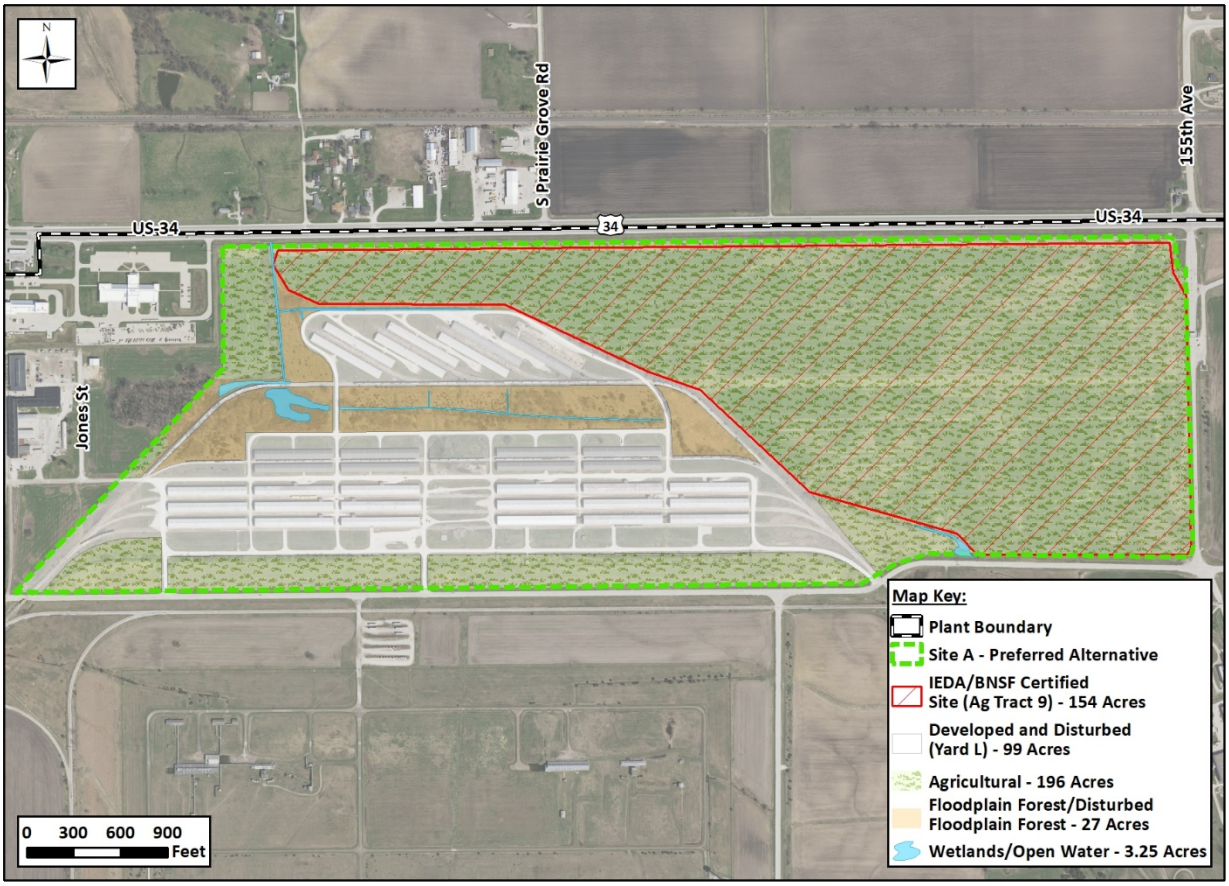

FIGURE 3-2: VEGETATION AND LAND USE TYPES WITHIN THE ACTION AREA

The action area is comprised of the following vegetation communities:

- Approximately 196 acres of agricultural are located in the action area. This includes the 154-acre IEDA/BNSF certified site (AG Tract 9). Crops include corn and soybeans alfalfa hay wheat and oats. Soil types throughout the action area include Prime Farmland (USDA 2018a).
- Approximately 3.25 acres of wetlands and open water occur within the northwestern portion of the action area. Wetlands occur wherever water meets land, including ephemeral washes, drainages, creeks, rivers, ponds, etc. (Wetlands International 2018). Wetlands are further discussed in Areas of Special Interest below.
- Approximately 27 acres of floodplain forests and disturbed floodplain forests occur in the western portion of the action area along Long Creek.
- Approximately 99 acres of developed and disturbed land occur in the action area, including access roads and rail.

- Oak-hickory forests occur predominately on southern, western, and eastern slopes and adjacent rolling uplands of stream valleys and may occur to a limited extent within the action area.

3.4.2.1.2 Special Status Flora

No federally-listed plant species have been recorded on IAAAP; however, six state-listed threatened vascular plant species have been identified on the IAAAP as shown in **Table 3.6**. The INAI Interactive Website was reviewed for special status flora that are known to occur within Des Moines County (INAI 2018). These species were cross referenced with the 2018 INRMP and the 2015 Threatened and Endangered Species Report. All species in the 2015 report were determined not likely to occur or had a very low probability of occurring within the agricultural portion of the action area (IAAAP 2015a). However, the developed, forested and wetland portions of the action area were not surveyed in the 2015 Threatened and Endangered Species Report.

TABLE 3-6: SPECIAL STATUS FLORA ON IAAAP

Special Status Flora on IAAAP		
Common Name	**Scientific Name**	**Status**
Blue ash	Fraxinus quadrangulata	State Threatened
Virginia snakeroot	Aristolochia serpentaria	State Threatened
Pagoda plant (mint)	Blephilia ciliata	State Threatened
False hellebore	Veratrum woodii	State Threatened
Slender ladies-tresses	Spiranthes lacera	State Threatened
Sharpwing monkeyflower	Mimulus alatus	State Threatened
Butternut	Juglans cinerea	Formerly a federal candidate species
Green Fringed Orchid	*Platanthera lacera*	State Species of Concern
Southern Adder's-tongue fern	*Ophioglossum vulgatum*	State Species of Concern

Sources: IAAAP 2015a; IAAAP 2018

3.4.2.1.2.1 Blue Ash

Blue ash (*Fraxinus quadrangulata*), a state listed threatened plant species, has been documented on IAAAP. It is typically found in rich upland hardwoods, with moist, calcareous soils (USDA 2018b). The project area consists primarily of agriculture cropland with a few sparse, upland tree species located on the property. Although there were no blue ash trees observed within the agricultural portion of the action area during the 2015 Threatened and Endangered Species Survey (IAAAP 2015a), there is a potential for it to occur within the forested area within the action area.

3.4.2.1.2.2 Virginia snakeroot

Virginia snakeroot (*Aristolochia serpentaria*) a state listed threatened plant species has been documented on IAAAP. It is typically found in rich, dry woods, preferring calcareous soils (USDA 2018b). Virginia snakeroot species was not observed within the agricultural portion of the action area during the 2015 Threatened and Endangered Species Survey (IAAAP 2015a), and it is not likely to occur within the action area because there is no suitable habitat for it within the action area.

3.4.2.1.2.3 Pagoda Plant (mint)

Pagoda-plant mint (*Blephilia ciliata*) a state listed threatened plant species has been documented on IAAAP. It prefers dry, open woods and thickets, clearings, fields and roadsides (USDA 2018b). Although Pagoda-plant was not observed within the agricultural portion of the action area during the 2015 Threatened and Endangered Species Survey (IAAAP 2015a), there is a potential for Pagoda-plant mint to occur within other portions of the action area not previously surveyed.

3.4.2.1.2.4 False hellebore

False hellebore (*Veratrum woodii*), a state listed threatened plant species has been documented on IAAAP. False hellebore is found in mesic, upland forests, typically on north and east-facing lower slopes and ravines. It prefers dappled sunlight or light shade, moist conditions, and a rich soil that is often derived from glacial till (USDA 2018b). There is no suitable habitat for False hellebore within the action area.

3.4.2.1.2.5 Slender ladies' tresses

Although slender ladies' tresses (*Spiranthes lacera*), a state listed threatened plant species, was not identified within the agricultural portion of the action area in the 2015 survey (Stantec 2015), there is a potential for the species to occur in other portions of the action area. It can be found in moist to dry meadows, fields, prairies, open woods, and disturbed areas such as along roadsides and in lawns (USDA 2018b).

3.4.2.1.2.6 Sharpwing monkey flower

Sharpwing monkey flower (*Mimulus alatus*) is a state listed threatened species flower, which is a perennial that grows best under partial sun exposure and wet to moist conditions. It has been found in a variety of wetland types such as edges of small rivers, swamps, shady stream banks, wet woods, marshes, wet meadows, ditches, springs, etc. (USDA 2018b). Although Winged monkey flower was not identified within the agricultural portion of the action area in the 2015 survey (Stantec 2015), there is a potential for the species to occur in other portions of the action area.

3.4.2.1.2.7 Green Fringed Orchid

Green fringed orchid (*Platanthera lacera*) is a state species of concern documented on IAAAP. Only two populations of this species are known to exist in Iowa, on IAAAP and in Lee County (IAAAP 2018). This perennial wildflower prefers moist prairies and sand prairies, sandy swamps, moist open woodlands, shrubby bogs, acidic gravelly seeps, low areas along streams, sandy fields, powerline clearances, and ditches. It requires an appropriate endomycorrhizal fungus in the soil for proper growth and development (USDA 2018b). It appears that the preferred habitat of green fringed orchid is not likely to occur within the project limits (IAAAP 2015a).

3.4.2.1.2.8 Southern Adder's-tongue fern

Southern Adder's-tongue (*Ophioglossum vulgatum*) is a state species of concern documented on IAAAP. Only two populations of this species are known to exist in Iowa, on IAAAP and in Lee County (IAAAP 2018). Southern adder's tongue is a fern which occurs in open woodland, meadows and damp pastures (USDA 2018b). It appears that the preferred habitat of southern adder's tongue is not likely to occur within the action area (IAAAP 2015a).

3.4.2.1.2.9 Butternut

Butternut (*Juglans cinerea*), formerly listed as a federal candidate species, was found on the IAAAP as recently as 1996 (Horton et. al. 1996), but it has not been found in recent years (IAAAP 2018). Although Butternut was not observed within the agricultural portion of the action area during the 2015 Threatened and Endangered Species Survey (IAAAP 2015a), there is limited potential for it to occur within other portions of the action area not previously surveyed.

3.4.2.1.3 Additional Special Status Species

The INAI Interactive Website was reviewed for additional threatened, endangered, and species of special concern that are known to occur within Des Moines County (INAI 2018). This list was cross referenced with the 2018 INRMP and findings made in the 2015 Threatened and Endangered Species Report (IAAAP 2015a). All species in the 2015 were determined not likely to occur or had a very low probability of occurring within the agricultural portion of the action area. (Note that the developed, forested and wetland portions of the action area were not surveyed in the 2015 Threatened and Endangered Species Report).

TABLE 3-7: INAI LIST OF SPECIAL STATUS FLORA IN DES MOINES COUNTY

INAI List of Special Status Flora in Des Moines County		
Common Name	**Scientific Name**	**Status**
Bent Milk-vetch	*Astragalus distortus*	State Species of Concern
Downy Woodmint	*Blephilia ciliata*	State Threatened
Dwarf Dandelion	*Krigia virginica*	State Endangered
Fogg's Goosefoot	*Chenopodium foggii*	State Species of Concern
French-grass	*Orbexilum onobrychis*	State Endangered
Hill's Thistle	*Cirsium hillii*	State Species of Concern
Hortulan Plum	*Prunus hortulana*	State Species of Concern
Low Bindweed	*Calystegia spithamaea*	State Species of Concern
Paw Paw	*Asimina triloba*	State Species of Concern
Purple Cress	*Cardamine douglassii*	State Species of Concern
Rose Turtlehead	*Chelone obliqua*	State Species of Concern
Rough Buttonweed	*Diodia teres*	State Species of Concern
Sessile-leaf Tick-trefoil	*Desmodium sessilifolium*	State Species of Concern
Slender Copperleaf	*Acalypha gracilens*	State Species of Concern
Small Morning Glory	*Ipomoea lacunosa*	State Species of Concern
Smooth Black-haw	*Viburnum prunifolium*	State Species of Concern
Softleaf Arrow-wood	*Viburnum molle*	State Species of Concern
Spring Avens	*Geum vernum*	State Species of Concern
Stiff Yellow Flax	*Linum medium*	State Species of Concern
Sumpweed	*Iva annua*	State Species of Concern
Toothcup	*Rotala ramosior*	State Species of Concern
Veined Skullcap	*Scutellaria nervosa*	State Species of Concern
Virginia Snakeroot	*Aristolochia serpentaria*	State Threatened
Water Willow	*Justicia americana*	State Endangered
Waxleaf Meadowrue	*Thalictrum revolutum*	State Endangered
Waxyfruit Hawthorn	*Crataegus pruinosa*	State Species of Concern

INAI List of Special Status Flora in Des Moines County		
Common Name	**Scientific Name**	**Status**
Winged Monkey Flower	*Mimulus alatus*	State Threatened
Yellow Monkey Flower	*Mimulus glabratus*	State Threatened
Broom Sedge	*Andropogon virginicus*	State Species of Concern
Bush's Sedge	*Carex bushii*	State Species of Concern
False Hellebore	*Veratrum woodii*	State Threatened
Green Arrow Arum	*Peltandra virginica*	State Endangered
Green Fringed Orchid	*Platanthera lacera*	State Species of Concern
Oval Ladies'-tresses	*Spiranthes ovalis*	State Threatened
Ovate Spikerush	*Eleocharis ovata*	State Species of Concern
Sedge	*Carex gracilescens*	State Species of Concern
Shallow Sedge	*Carex lurida*	State Species of Concern
Slender Crabgrass	*Digitaria filiformis*	State Species of Concern
Slender Fimbry	*Fimbristylis autumnalis*	State Species of Concern
Slender Ladies'-tresses	*Spiranthes lacera*	State Threatened
Southern Adder's-tongue	*Ophioglossum vulgatum*	State Species of Concern
Western Prairie Fringed Orchid	Platanthera leucophaea	Federally and State Listed Threatened
Prairie bush clover	Lespedeza leptostachya	Federally and State Listed Threatened
Sources: IAAAP 2015a; INAI 2018; USFWS 2019b		

Of these special status species, only two federally protected species are listed on the INAI Interactive Website: the western prairie fringed orchid (*Platanthera leucophaea*), and the Prairie bush clover (*Lespedeza leptostachya*). The USFWS Information for Planning and Consultation (IPAC) website was also reviewed for threatened, endangered, and species of special concern species that have the potential to occur within the action area. IPAC listed both the prairie fringed orchid and Prairie bush clover as having the potential to occur within the action area. Neither species has been documented on IAAAP (IAAAP 2018).

3.4.2.1.3.1 Western Prairie Fringed Orchid

The federally and state listed threatened western prairie fringed orchid (*Platanthera* leucophaea) occur most often in mesic to wet unplowed tallgrass prairies and meadows but have been found in old fields and roadside ditches (USFWS 2019b).

3.4.2.1.3.2 Prairie bush clover

The federally and state listed threatened prairie bush clover (*Lespedeza leptostachya*) grows only in the tallgrass prairie, mainly in dry areas. The soils may be gravelly, sandy, and/or calcareous, and are generally well-drained. (NatureServe 2019).

3.4.2.2. Areas of Special Interest

3.4.2.2.1 Native Prairie

The IAAAP INRMP lists native prairie as an area of special interest which occurs within the ROI, but not within the action area. The installation has relatively undisturbed native prairie communities. These sites are usually less than one acre. One site is on the east boundary, behind

D Yard; another site is southwest of Stump Lake, northwest of Test Fire where the railroad track splits. (IAAAP 2018).

3.4.2.2.2 Wetlands

The IAAAP INRMP lists wetlands as an area of special interest at IAAAP. In 1999, a National Wetlands Inventory was conducted on IAAAP by the USFWS (Swords et al. 1999). IAAAP contains 113.2 acres of wetlands. Forested wetlands are the dominant type, representing about 50 percent of the installation's wetlands. (Swords et al. 1999; IAAAP 2018).

In 2012, McConnell Environmental conducted a wetland survey within portions of the action area, delineating 3.0 acres of channel wetland system with an open pond, and 0.25 acres of emergent wetland (see Figure 3-1 Vegetation and Land Use Types Within the action area). On August 1, 2012, the USACE field office in Rock Island, Illinois reviewed and approved the delineation. In the approved jurisdictional determination, the USACE stated that the wetlands in the action area were jurisdictional waters of the U.S. (USACE 2012a). In 2015, Klinger and Associates, P.C. conducted a wetland delineation of agricultural portion of the action area (Yard L) in preparation of constructing an Industrial Park. The Waters of the U.S. Survey found no jurisdictional wetlands within the agricultural portion of the property. According to the National Wetlands Inventory mapping application (USFWS 2018a), there is a 0.91-acre freshwater pond with habitat classified as an impounded palustrine wetland system dominated by trees, shrubs, persistent emergent, emergent mosses or lichens. Portions of Long Creek and Spring Creek, riparian habitat and floodplain forest are also located within the action area (see Figure 3-2).

3.4.2.2.3 Critical Habitat

Under Section 7 of the ESA, all federal agencies are required to use their authorities to help conserve imperiled species. The 2018-2023 IAAAP INRMP serves to provide *adequate management or protection*; therefore, no critical habitat is present in or adjacent to the action area. Furthermore, although there is final critical habitat for the Indiana bat, the IAAAP is located outside the critical habitat.

3.4.2.3 Fauna

3.4.2.3.1 Common Wildlife Species

Many wildlife species known to occur within the ROI of the action area include species that are indigenous to the Southern Iowa Drift Plain. The IAAAP INRMP documents 37 mammal species, 127 bird species, 16 reptile species, 10 amphibian species, 33 fish species, as well as various other insects and invertebrates, including 11 mollusk species, 20 dragonfly and 15 damselfly species, worms, beetles, and grubs. (IAAAP 2018)

Table 3.8 includes a list of common wildlife species documented within the ROI. A complete list of wildlife known to occur on IAAAP is maintained by the IAAAP Natural Resources Manager.

TABLE 3-8: COMMON WILDLIFE SPECIES

Common Wildlife Species			
Common Name	**Scientific Name**	**Common Name**	**Scientific Name**
Mammals		**Fish**	
White-tailed dear	Odocoileus virginianus	Yellow and black bullhead	Ameriurus natalis and A. melas

Common Wildlife Species			
Common Name	**Scientific Name**	**Common Name**	**Scientific Name**
Eastern cotton tail	Sylvilagus floridanus	Green sunfish	Lepomis cyanellus
Eastern fox squirrel	Sciurus niger	Largemouth bass	Micropterus salmoides
Eastern gray squirrel	Sciurus carolinensis	Bluegill	Lepomis macrochirus
Raccoon	Procyon lotor	Channel catfish	Ictalurus punctatus
Coyote	Canis latrans	Central stoneroller	Campostoma anomalum
Red fox	Vulpes vulpes	Spotfin shiner	Cyprinella spiloptera
Gray fox	Urocyon cineroargeneus	Common shiner	Luxilus cornutus
Bobcat	Lynx rufus	Bigmouth shiner	Notropis dorsalis
River otter	Lontra canadensis	Suckermouth minnow	Phenacobius mirabilis
Beaver	Castor canadensis	Creek chub	Semotilus atromaculatus
Striped skunk	Mephitis mephitis	**Reptiles**	
Opossum	Didelphis virginiana	Snapping turtle	Chelydra serpentina
American Badger	Taxidea taxus	Western painted turtle	Chrysemys picta
Muskrat	Ondantra zibethica	Black rat snake)	Elaphe obsoleta
Woodchuck	Marmota monax	Northern water snake	Natrix sipedon
Birds		Brown snake	Storeria dekayi
Wild turkey	Meleagris gallopavo	Western spiny softshell	Trionyx spinifer
Northern bobwhite quail	Colinus virginianus	Eastern hognose snake	Heterodon platyrhinos
American woodcock	Philohela minor	Blue racer	Coluber constrictor
American crow	Corvus brachyrhnchos	Eastern garter snake	Thamnophis sirtalis
Turkey vulture	Cathartes aura	**Amphibians**	
Red-tailed hawk	Buteo jamaicensis	American toad	Bufo americanus
Mourning dove	Zenaidura macroura	Northern spring peeper	Hyla crucifer
Red-headed woodpecker	Melanerpes erthrocephalus	Gray treefrog	Hyla chrysoscelis
American robin	Turdus migratorius	Blanchard's cricket frog	Acris crepitans
European starling	Sturnus vulgaris	Western chorus frog	Pseudacris triseriata
Northern Cardinal	Cardinalis cardinalis	Bullfrog	Rana catesbeiana
Song Sparrow	Melospiza melodia	Green frog	Rana clamitans
Red-winged Blackbird	Agelaius phoeniceus	Plains leopard frog	Rana blairi

Common Wildlife Species			
Common Name	**Scientific Name**	**Common Name**	**Scientific Name**
Eastern Meadowlark	Sturnella magna	Pickerel frog	Rana palustris
American Goldfinch	Carduelis tristis		
Source: IAAAP 2018			

3.4.2.4 Special Status Wildlife Species

Special status wildlife species are those species listed, have been proposed for listing, or are candidates for listing as threatened or endangered under the Endangered Species Act (ESA), and other species of concern as recognized by state or federal agencies. **Table 3.9** presents a list of Special Status Species that may occur at IAAAP. (IAAAP 2018). As previously noted, the USFWS Illinois and Iowa Ecological Services Field Office was notified of the proposed action and the preparation of this EA on February 4, 2019. On March 20, 2019, IDNR environmental specialist noted that the state-threatened orange-throated darter (*Etheostoma spectabile*) is known to occur in streams, and he provided best management practices to minimize potential impacts. He also noted that the Indiana bat (*Myotis sodalis*), a state- and federally-endangered species, and the Northern long-eared bat (*Myotis septentrionalis*), a federally threatened species, have the potential to inhabit this area of the state and may occur in the area of this project. He provided information about the habitat requirements and survey methods for Indiana bat summer habitat and indicated the guidelines may also be used for the northern long-eared bat. This information has been addressed in this section. The USFWS IPAC website was reviewed for threatened, endangered, and species of special concern species that are known to occur within the IAAAP (USFWS 2019b). The INAI Interactive Website was also reviewed for additional threatened, endangered, and species of special concern species that are known to occur within Des Moines County (INAI 2018). This list was cross referenced with findings made in the 2015 Threatened and Endangered Species Report, which stated all that species on the list were determined not likely to occur or had a very low probability of occurring within the action area (IAAAP 2015a). The 2015 report did not include surveys of the entire action area associated with this EA. For a more detailed discussion of the environmental baseline and status of biological resources, refer to Chapter 3.3 of the 2018 IAAAP INRMP.

TABLE 3-9: SPECIAL STATUS SPECIES AT IAAAP

Special Status Species at IAAAP		
Common Name	**Scientific Name**	**Status**
Birds		
Bald Eagle	Haliaeetus leucocephalus	State Species of Concern
Barn Owl	Tyto alba	State Endangered
Henslow's Sparrow	Ammodramus henslowii	State Threatened
Red-shouldered Hawk	Buteo lineatus	State Endangered
Mammals		
Indiana Bat	Myotis sodalis	State and Federally Endangered
Northern Long-eared Bat	Myotis septentrionalis	Federally Threatened

Special Status Species at IAAAP		
Common Name	**Scientific Name**	**Status**
Southern Flying Squirrel	Glaucomys volans	State Species of Concern
Fish		
Grass Pickerel	Esox americanus	State Threatened
Orangethroat Darter	Etheostoma spectabile	State Threatened
Pugnose Minnow	Opsopoeodus emiliae	State Species of Concern
Western Sand Darter	Ammocrypta clara	State Threatened
Amphibians		
Mudpuppy	Necturus maculosus	State Threatened
Reptiles		
Blanding's Turtle	Emydoidea blandingii	State Threatened
Copperhead	Agkistrodon contortrix	State Endangered
Western Worm Snake	Carphophis amoenus	State Threatened
Yellow Mud Turtle	Kinosternon flavescens	State Endangered
Insects		
Zabulon Skipper	Poanes zabulon	State Species of Concern
Freshwater Mussels		
Butterfly	Ellipsaria lineolata	State Threatened
Creeper	Strophitus undulatus	State Threatened
Fat Pocketbook	Potamilus capax	Federally Endangered
Higgin's-eye Pearly Mussel	Lampsilis higginsii	State and Federally Endangered
Pistolgrip	Tritogonia verrucosa	State Endangered
Spectaclecase	Cumberlandia monodonta	State and Federally Endangered
Yellow Sandshell	Lampsilis teres	State Endangered
Sheepnose Mussel	Plethobasus cyphyus	Federally Endangered
Sources: IAAAP 2015a; IAAAP 2018; USFWS 2019b		

The following is a select list of special status wildlife species known to occur on IAAAP as described in the 2018-2023 INRMP, along with a brief rationale for their potential to occur within the action area.

3.4.2.4.1 Indiana Bat and Northern Long-Eared Bat.

The federally listed endangered Indiana bat (*Myotis sodalis*) and federally listed threatened Northern long-eared bat (*Myotis septentrionalis*) are the only federally listed mammal species documented on IAAAP (IAAAP 2018). There is a potential for them to roost within the bark of trees in the small patch of forested land within the action area. In a 1987 southern Iowa study, Indiana bats were found associated with trees known to occur on IAAAP including eastern cottonwood, black walnut shagbark hickory and bitternut hickory (Clark et al 1987). The Indiana bat is present in Iowa from April through October before it migrates to a warmer climate during the winter months where it hibernates in caves in Indiana. The female and young bats roost under the loose bark of trees, especially hickory trees (Sierra Club 2019). Indiana bats in south-central Iowa have been found using barns, primarily as night roosts. Barns represent important roosting and breeding resources in south-central Iowa for big brown and little brown bats (Benedict et al

2017). Conversely, the Northern long-eared bat has rarely been found roosting in structures, like barns and sheds. During the summer, northern long-eared bats roost individually or in colonies underneath bark, in cavities or in crevices of both live trees and snags (dead trees). Males and non-reproductive females may also roost in cooler places, like caves and mines. Northern long-eared bats seem to be flexible in selecting roosts, choosing roost trees based on suitability to retain bark or provide cavities or crevices (USFWS 2018c). Northern long-eared bat hibernacula[2] occur in Des Moines County. Although Indiana bats and Northern long-eared bats have not been documented within the action area, there is a potential for them to forage, and to a limited extent, roost in trees in and near the action area.

Although foraging and potential roosting habitat at IAAAP may comprise only a relatively small fraction of these species total summer ranges and is not considered to be habitat essential to the conservation of the species, the Endangered Species Management Plan (Stantec 2015) has been prepared for the Indiana and Northern long-eared bat on IAAAP.

3.4.2.4.2 Bald Eagle

Bald eagle (*Haliaeetus leucocephalus*) a State listed species of special concern, has been documented at IAAAP as transients during the migratory period. No nests are known to occur on IAAAP or within action area. Other protected raptors such as the state endangered red-shouldered hawk (*Buteo lineatus*) and the state endangered barn owl *(Tyto alba*) have the potential to forage within the action area.

3.4.2.4.3 Red-Shouldered Hawk

The red-shouldered hawk requires at least 250 acres of medium-to-mature, even-aged floodplain forests dominated by maple or cottonwood trees that have not been logged in 45 to 55 years. (IAAAP 2015a). There is potential for red-shouldered hawks to forage within the action area.

3.4.2.4.4 Barn Owl

The barn owl is a savanna species that nests and roosts in dark, secluded places. Historically, it nested in tree cavities, specifically in silver maple, American sycamore, and white oak. Today, barn owls are often found roosting and nesting in old barns or abandoned buildings. Barn owls hunt in grassland habitats along field edges, fence-rows, and wetland edges where their favored prey is most available. (IAAAP 2015a). There is potential roosting and forage habitat within the action area.

3.4.2.4.5 Henslow Sparrow

The Henslow sparrow (*Ammodramus henslowii*), a state listed threated species has been observed along eastern edge of Yard K outside of the action area. Henslow sparrow habitats have included tallgrass prairie, lowland prairie and marsh, meadows, and weedy pastures. As native habitats declined, species have moved into additional cultivated habitats (IAAAP 2015a); Therefore, there is a potential for the Henslow sparrow to forage within the action area.

[2] hibernacula (Latin, "tent for winter quarters") is a place of refuge

3.4.2.4.6 Orange Throat Darter

Orange throat darter (*Etheostoma spectabile*) is a state listed threatened species of fish found in Brush and Spring Creeks. This species' habitat often includes slow to swift, shallow gravel riffles in cooler streams. Sometimes the orange throat darter will inhabit rocky runs and pools, of headwaters, creeks, and small rivers, with sand, gravel, rubble, or bedrock substrates; spring runs or quiet backwaters in some areas. (IAAAP 2015a). No such habitat occurs within the action area; therefore, orange throat darter is not likely to occur within the action area.

3.4.2.4.7 Western Worm Snake

Western worm snake (*Carphophis amoenus*) is a state listed threatened species was documented on IAAAP (IAAAP 2018) and has the potential to occur within the action area.

3.4.2.4.8 Freshwater Mussels

According to the USFWS IPAC website, the following special status freshwater mussels have the potential to occur within the action area: The state and federally endangered Higgin's-eye pearly mussel (*Lampsilis higginsii*), the state and federally endangered Spectaclecase (*Cumberlandia monodonta*), and the federally endangered sheepnose mussel (*Plethobasus cyphyus*).

3.4.3. Environmental Consequences

3.4.3.1 Significance Criteria

The significance criteria for biological resource impacts would be exceeded if the alternative would:

- Jeopardize the continued existence of any federally listed threatened or endangered species or result in destruction of critical habitat;
- Decrease the available habitat for commonly found species to the extent that the species could no longer exist in the area; or
- Eliminate a sensitive habitat such as breeding areas, habitats of local significance, state or federally designated significant or natural communities needed for the survival of a species; or
- Result in the killing of migratory birds or destruction of active migratory bird nests and/or eggs (MBTA).

3.4.3.2 Alternative 1 (Preferred Alternative)

This subsection evaluates the potential environmental consequences resulting from the implementation of the proposed action in two phases: Grading and construction activities, and operational activities. If the Army decides to proceed with the proposed action, the development of the rail transload facility will most likely occur in phases overtime. In addition, if implemented, there will be a design stage followed by construction. Development details are still evolving; therefore, conceptual site plans with grading and construction locations were not available at the time of the writing of this EA.

Suitable habitat for migratory birds and raptors, as well as other common and protected plant and animal species, occurs within and around the action area. Grading and construction within the action area has the potential to result in direct impacts to those species through actions such as

the removal of vegetation, noise, vibration, fugitive dust and other activity from equipment and personnel.

The proposed action would permanently remove up to 154 acres of agricultural lands for the development of new facilities, road and rail extension, and utility installation. Existing warehouse and other developed areas may be demolished and reconstructed or retrofitted but would remain within the existing footprint. Demolition, grading, and construction activities would result in noise, vibration, fugitive dust, increased traffic, and other disturbances that could result in impacts to nesting birds and roosting bats; however, vegetation within the floodplain forest and wetlands would be avoided.

Additional grading would be required for new and upgraded utilities (including telecommunication, electrical, natural gas, water and waste water services). On and off-site road and rail improvements may also be made. The action area is relatively flat, and earthwork would likely result in minimal grading and balance cut/fill.

Once fully constructed, the proposed action would result in an increased intensity of use. Impacts to biological resources would include increased noise and vibration from proposed light or heavy manufacturing, vehicle traffic, and rail operation, and an increase of artificial lighting.

3.4.3.2.1 Vegetation – State Listed Plant Species

Army regulations require consideration of state-listed species in all army actions. There is a potential for several state-listed threatened plants to occur within the action area, including blue ash, pagoda plant, and sharpwing monkey flower. These species were not identified within the agricultural area during the 2015 survey (IAAAP 2015a). Although most of the remaining land within the action area has been developed and heavily disturbed, there is potential for special status plant species to occur within these portions of the action area not previously surveyed. Following the avoidance and minimization measures as presented in Chapter 5, a preconstruction survey would be conducted to determine the types and quantities of vegetation proposed for removal. The survey would also identify trees within the action area. Since renovation of the existing facilities will remain within the existing footprint, it is unlikely floodplain forest species would be impacted.

3.4.3.2.3 Areas of Special Interest

3.4.3.2.3.1 Wetland Habitat

Impacts to wetlands and other aquatic habitats may be subject to regulation under Section 404 of the CWA, or other state/federal statutes. The proposed action would avoid impacts to wetland habitat and would be staked out prior to construction to ensure no impacts would occur. Wetland habitat occurs near the existing warehouses; however, renovation of the warehouses would occur within the existing footprint. All land disturbing activities would occur outside of wetlands. Indirect impacts to wetland habitat would be avoided through implementation of the avoidance and minimization measures in Chapter 5, and the prescribed BMPs in the project specific SWPPP.

3.4.3.2.3.2 Critical Habitat

Critical habitat does not occur on IAAAP or within the action area; therefore, no impacts to Critical Habitat would occur.

3.4.3.2.4 Wildlife

3.4.3.2.4.1 Common Wildlife Species

No significant impacts to wildlife are expected to result from the implementation of the proposed action. Grading and construction activities resulting in noise and vibration are likely to cause many species to flush, a temporary effect. Permanent effects would occur through conversion of agricultural lands. Following the avoidance and minimization measures, a qualified person would conduct preconstruction surveys to identify and map vegetation and potential habitat in the action area. Incidental observations of wildlife would be documented. Following the avoidance and minimization measures presented in Chapter 5, a qualified person will monitor grading activities to reduce the potential for common wildlife to be injured or killed.

3.4.3.2.4.2 State Listed Wildlife Species

Army regulations require consideration of state-listed species in all Army actions. There is a potential for several state-listed wildlife species to occur within the action area (listed in **Table 3-9**). None of these species were not identified within the agricultural area during the 2015 survey (IAAAP 2015a). Although most of the remaining land within the action area has been developed and heavily disturbed, there is potential for special status wildlife species to occur within the remnant wetland and forested portion of the action area; however, this area will remain intact and undisturbed.

3.4.3.2.4.2.1 Henslow Sparrow

Although there is a potential for the Henslow sparrow to forage within the action area, it is unlikely to nest within the action area due to the lack of suitable habitat. Following the avoidance and minimization measures in Chapter 5, grading and construction would take place outside of the bird nesting season (March 15-July 15). Furthermore, a qualified person would conduct preconstruction surveys and would provide biological monitoring during the grading phase.

3.4.3.2.4.2.2 Bald Eagle

Although the bald eagle has been documented at IAAAP as transients during the migratory period, no nests are known to occur on IAAAP or within action area. While there is marginal eagle foraging habitat in the agricultural portion of the action area, the surrounding habitat fragmentation and the distance from known bald eagle territories would indicate that the site has low value for bald eagle. Therefore, it is unlikely the bald eagle or its habitat would be impacted.

3.4.3.2.4.2.3 Red-shouldered hawk

While there is marginal red-shouldered hawk foraging habitat within the agricultural portion of the action area, there are limited areas suitable for nesting in the previously developed portion of the action area. Since the renovation of the existing warehouses would remain in the existing footprint, it is unlikely red-shouldered hawk or its habitat would be impacted.

3.4.3.2.4.2.4 Barn Owl

The barn owl is a savanna species that nests and roosts in dark, secluded places. There is limited potential roosting and forage habitat within the action area. Grading and vegetation removal would take place outside of the bird breeding season, between March 15 to July 15. If grading and vegetation removal must be conducted during bird breeding season, a qualified person will conduct preconstruction surveys for nesting birds and other special status species. Following the

avoidance and minimization measures in Chapter 5 the qualified person would monitor grading and construction activities.

3.4.3.2.4.2.5 Western Worm Snake

Western worm snake has the potential to occur within the action area. A qualified person would conduct preconstruction surveys and would provide biological monitoring during the grading phase.

3.4.3.2.4.3 Federally Listed Wildlife Species

3.4.3.2.4.3.1 The Indiana Bat and Northern long-eared bat

According to the USFWS IPAC website, the Indiana Bat and northern long-eared bat are the only federally-listed mammal species with the potential to occur within the action area. IAAAP would implement the Indiana and northern long-eared bat management prescriptions specified in the Endangered Species Management Plan (ESMP (Stantec 2015)). Indiana bats and northern long-eared bat surveys will be conducted by a qualified person approved by IAAAP and USFWS prior to ground disturbing activities. Following the avoidance and minimization measures in Chapter 5, the action proponent would consult with the USFWS to determine if USFWS protocol surveys should be conducted to determine occupancy.

3.4.3.2.4.3.2 Freshwater Mussels

According to the USFWS IPAC website, three special status freshwater mussels have the potential to occur within the action area including state and federally endangered Higgin's-eye pearly mussel and Spectaclecase (*Cumberlandia monodonta*), and the federally endangered sheepnose mussel. These species would not be impacted, because wetland and jurisdictional waters would be avoided. Indirect effects to aquatic species would be avoided through implementation of the avoidance and minimization measures in Chapter 5 including prescribed stormwater BMPs.

3.4.3.2.4.4 MBTA Species

No significant impacts to MBTA species including raptors are expected to result from implementation of the proposed action. Grading and vegetation removal would take place outside of the bird breeding season, between March 15 to July 15. If grading and vegetation removal must be conducted during bird breeding season, a qualified person will conduct preconstruction surveys for nesting birds and other special status species. Following the avoidance and minimization measures in Chapter 5 the qualified person would monitor grading and construction activities.

3.4.3.2.4 Conclusion

During the grading and construction phase there is a potential for direct and permanent impacts to biological resources as follows:

- Permanent removal of agriculture and construction of new facilities has the potential to impact wildlife and their habitat.
- Conversion of agriculture and construction of new facilities, and roads would narrow existing wildlife corridors.

Indirect impacts to biological resources during the grading and construction phase would include:

- Conversion of agricultural areas and construction of new facilities and roads would increase impervious surfaces and contribute to an increased volume of stormwater runoff.
- Grading and construction activities would result in temporary and intermittent increases of noise and vibration and fugitive dust from earth moving equipment.

With the implementation of avoidance and minimization measures listed in Chapter 5, the proposed action is not likely to result in a significant impact to any federal or state listed threatened, endangered, or candidate species or its habitat. These measures have been developed in accordance with state and federal regulations, as well as IAAAP policies and procedures.

3.4.3.3 No Action Alternative

Under the no action alternative, the site would not be developed as a rail transload facility. The vacant land would remain in agricultural use, and the existing warehouse space would continue to be used to store inert material, storage containers, and pallets. No new impacts to biological resources would occur.

3.5 WATER RESOURCES

3.5.1 Definition of Resource

Hydrology and water resources include surface water, stormwater, water quality, groundwater, and floodplains. Surface water includes lakes, ponds, rivers, streams, impoundments, nearshore waters, and wetlands. Groundwater is water that is below the ground surface. Water quality describes the chemical and physical composition of water as affected by natural conditions and human activities. Floodplains are relatively flat areas adjacent to rivers, streams, watercourses, bays, or other bodies of water that are subject to inundations during flood events. A 100-year floodplain is an area that is subject to a 1 percent chance of flooding in any year (U.S. Geological Survey (USGS) 2019).

Water resource regulations focus on the right to use water and protection of water quality. The principal federal laws enforced by the USEPA to protect water quality are the CWA, as amended (33 U.S.C. 1251, et seq.), and the Safe Drinking Water Act (42 U.S.C. 300f, et seq.). The CWA provides for the protection of surface water quality and preservation of wetlands.

The IDNR manages water quality through the implementation of the state's Water Quality Standards. These Water Quality Standards help ensure that all Iowans have surface waters that are fishable and swimmable to the fullest extent practicable, and that safe drinking water, groundwater which is free from harmful contamination, protection from the adverse effects of floods, and water resources are put to their best beneficial uses. (IDNR 2018).

IDNR is also responsible for implementing provisions of the CWA delegated to states, such as NPDES, which regulates point and nonpoint discharges of pollutants to water resources. The State's Water Quality Standards set objectives for water quality that must be maintained to protect the designated beneficial uses of water resources in the Iowa, and it must conform to the state's antidegradation policy (IDNR 2018).

Jurisdictional Waters of the U.S. other than wetlands are defined as areas under the USACE's jurisdiction pursuant to Section 404 of the CWA and are generally defined by the ordinary high-water mark. The USACE's jurisdiction can extend beyond the ordinary high-water mark to the limit of adjacent wetlands, when present. Wetlands are defined under CWA regulations (33 CFR

328) as "those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted to life in saturated soil conditions. Wetlands generally include swamp, marshes, bogs, and similar areas." (33 CFR 328).

EO 11990, *Protection of Wetlands*, requires that governmental agencies, in carrying out their responsibilities, provide leadership and "take action to minimize the destruction, loss, or degradation of wetlands, and to preserve and enhance the natural and beneficial values of wetlands." Each agency is to consider factors relevant to a proposed project's effect on the survival and quality of the wetlands by maintenance of natural systems, including conservation and long-term productivity of existing flora and fauna, species and habitat diversity and stability, hydrologic utility, fish, and wildlife. If no practical alternative can be demonstrated, agencies are required to provide for early public review of any plans or proposals for new construction in wetlands.

EO 11988, *Floodplain Management*, directs all federal agencies to refrain from conducting, supporting, or allowing any activity that would significantly encroach into a floodplain or impact floodplain resources, unless it is the only practicable alternative. If the lead agency finds that the only practicable alternative requires siting in a floodplain, the agency shall either design or modify its action to minimize harm to or within the floodplain and publicly explain why the action is proposed to be located in a floodplain.

AR 200-1, *Environmental Protection and Enhancement*, *Environmental Asset Management, 4-2 Water Resources* (Army 2007) establishes policy and objectives for managing water resources and watershed management on Army lands, including but not limited to:

- Comply with applicable Federal, State, and local laws and regulations regarding water resources management and permitting.
- Obtain and comply with all required Federal, State, and local CWA, Coastal Zone Management Act, and Safe Drinking Water Act permits (includes wastewater and storm water permits, operational permits for drinking water systems, groundwater discharge permits, wetland 404/401 permits, septic system permits, underground injection control, etc.).
- Identify and implement pollution prevention initiatives.
- Participate with regional authorities in the development and implementation of water resource initiatives and plans.

Potable water at IAAAP (discussed under 3.10. Utilities) is provided by the City of Burlington (Burlington Water Works). Wastewater (also discussed under 3.10. Utilities) is treated on-site.

3.5.2 Existing Conditions

3.5.2.1 Groundwater

Four major aquifers exist in the IAAAP area (IAAAP 2018), the Mississippian, Devonian, Jordan sandstone, and Cambrian-Ordovician. The Mississippian aquifer is 250 to 500 feet below ground surface and has a yield of less than 20 gallons per minute. Water quality is fair to good with a high mineral content. The Devonian aquifer is 750 to 1,000 feet below ground surface. In the vicinity of IAAAP, the yield is only 20 to 50 gallons per minute. Water quality is fair to poor with a very high mineral content. The Jordan sandstone, which is part of the Cambrian-

Ordovician aquifer, is 1,850 to 2,000 feet in depth. It yields 1,000 gallons per minute and is the source of water for most industry and cities in southeast Iowa that do not use river or stream water. Water is hard, but quality is fair. It is less highly mineralized than the Mississippian and Devonian aquifers (IAAAP 2018).

Historical operations by both the Army and Atomic Energy Commission, resulted in releases of hazardous substances to soil, surface water, and groundwater at IAAAP. The site was added to the National Priorities List in 1990. The primary contaminants of concern include explosives, metals, volatile organic compounds, and depleted uranium. The Army is currently performing a base-wide Remedial Investigation to better define the extent of contamination in order to move forward with remediation. The Remedial Investigation includes extensive groundwater sampling (USEPA 2018). Long-term monitoring is designed to test for total metals, explosives, volatile organic compounds, and semi-volatile organic compounds. A total of over 500 wells are monitored on an as-needed basis. There is also some pesticide and radionuclide testing of groundwater. Some mission-associated groundwater contamination exists both on and off of IAAAP (IAAAP 2018). The action area is not located on any site subject to an environmental cleanup program, nor is it located within any explosive safety quantity distance arcs.

3.5.2.2 Surface Water

The action area is located within the Long Creek, Little Flint Creek, Brush Creek, and Spring Creek Watersheds (IAAAP 2016). A short section of Brush Creek is located within the southeastern portion of the action area. It leaves the installation in the extreme southeastern corner and runs to the Skunk River and eventually to the Mississippi River. A portion of Long Creek is located within the action area and flows southwest. Long Creek is in the Skunk River watershed. Skunk River is located adjacent to the southern border of the installation and is a major tributary of the Mississippi River, located approximately eight miles east of IAAAP. (IAAAP 2018). These drainages primarily flow from northwest to southeast on the installation. The watershed of Long Creek is impounded in two places by Stump Lake and Mathes Lake (Mason & Hanger Corporation 1986).

Almost all crop and pasture lands had tile drains installed before the land was purchased by the government. Tile drainage systems have been maintained by lessees as part of lessee services. There are also about 500 miles of drainage ditches on the installation (IAAAP 2018).

The NWI web-based mapping application indicates that there is a 0.91-acre Freshwater Pond in the western portion of the action area, with portions of Long Creek and Brush Creek in the western and southeastern portions of the Action area, respectively (USFWS, 2018a).

3.5.2.3 Wetlands and Jurisdictional Waters of the U.S.

Wetlands or other waters that are subject to federal control are referred to as "jurisdictional waters of the U.S." Examples of jurisdictional waters of the U.S. include navigable waters, interstate waters, territorial seas, impoundments, tributaries, adjacent wetlands/waters (wetlands and other open waters such as ponds adjacent to jurisdictional waters), and other waters with a significant nexus to navigable waters, interstate waters, territorial seas, impoundments, tributaries (American Rivers 2019). Under Section 404 of the CWA, a wetland must exhibit three traits: (1) hydrophytic vegetation, (2) hydric soil, and (3) wetland hydrology (USACE 1987). Areas that are periodically wet, but do not meet all three criteria, are not jurisdictional wetlands subject to Section 404 of the CWA.

In 2012, McConnell Environmental conducted a wetland survey within portions of the action area, delineating 3.0 acres of channel wetland system with an open pond, and 0.25 acres of emergent wetland (see **Figure 3-1** Vegetation and Land Use Types Within the action area). On August 1, 2012, the USACE field office in Rock Island, Illinois reviewed and approved the delineation. In the approved jurisdictional determination, the USACE stated that the wetlands in the action area were jurisdictional waters of the U.S. (USACE 2012a). In 2015, Klingner and Associates, P.C. conducted a wetland delineation of agricultural portion of the action area (Yard L) in preparation of constructing an Industrial Park. The Waters of the U.S. Survey found no jurisdictional wetlands within the agricultural portion of the property. According to the National Wetlands Inventory mapping application (USFWS 2018a), there is a 0.91-acre freshwater pond with habitat classified as an impounded palustrine wetland system dominated by trees, shrubs, persistent emergent, emergent mosses or lichens. Portions of Long Creek and Spring Creek, riparian habitat and floodplain forest are also located within the action area (see **Figure 3-1**).

3.5.2.4 Stormwater Management and Water Quality

Stormwater at the IAAAP is currently regulated under a NPDES permit authorized under Iowa Code Section 455B.174, and Rule 567-64.3, Iowa Administrative Code, and issued by the Director of the IDNR. The permit regulates point source discharges and establishes monitoring requirements and effluent pollutant limitations on the discharges. The NPDES permit allows industrial discharges at five active locations, sanitary discharges from two domestic treatment plants, non-contact cooling water from four locations, and monitoring of non-point source storm water runoff at two locations. There are seven inactive industrial discharge locations. Discharges from the units are to Brush Creek, Long Creek, and several unnamed tributaries of the Skunk River. Brush Creek and Long Creek are also tributaries of the Skunk River (IAAAP 2018).

IAAAP controls or eliminates runoff and erosion through sound vegetative and land management practices and considers nonpoint source pollution abatement in all construction, operations, and land management plans and activities (IAAAP 2016).

3.5.2.5 Floodplains

Floodplains on IAAAP consist primarily of riparian areas associated with IAAAP's streams. (IAAAP 2018). The action area lies between 270 and 290 feet amsl. The Federal Emergency Management Agency (FEMA) National Flood Hazards map indicates the action area is within Zone X, Area of minimal flood hazard, also referred to as the base flood or 100-year flood. The designated frequency for floodplain identification used by the FEMA is the 100-year flood area. Flood hazard areas are identified as a Special Flood Hazard Area, which is an area that would be inundated by a flood event having a 1 percent chance of being equaled or exceeded in any given year (FEMA 2018).

3.5.3 Environmental Consequences

3.5.3.1 Significance Criteria

The significance criteria for water resources impacts would be exceeded if the alternative would result in any alteration of local surface water; change to regional groundwater patterns or depletion of groundwater; notable adverse impact on natural and beneficial floodplain values; or substantial degradation of wetlands.

3.5.3.2 Alternative 1 (Preferred Alternative)

3.5.3.2.1 Groundwater

3.5.3.2.1.1 Grading and Construction Activities

Groundwater is not likely to be encountered during grading activities. Should groundwater be encountered during grading, it would be captured, sampled, and pretreated before discharge in accordance with the project-specific SWPPP or potentially under a Solid Waste Management Plan and Dewatering General Permit.

3.5.3.2.1.2 Operational Activities

The proposed action would not result in an increase to groundwater extraction or any new impacts to groundwater.

3.5.3.2.2 Surface Water

The proposed action would result in a minimal amount of earth work since the action area is relatively flat. Grading and construction activities would not occur in surface waters, and no materials would be stored or stockpiled in surface waters. Grading and construction activities would result in no direct impacts on surface water through implementation of a specific construction SWPPP and applicable BMPs.

Although a portion of the action area was previously developed with roads, rail, and warehouses, the agricultural portion of the site would be converted from a pervious to impervious surface, which would increase the current volume of stormwater runoff. Indirect impacts on surface waters would be avoided through implementation of a project specific construction SWPPP and applicable BMPs (refer to Stormwater Management and Water Quality below).

3.5.3.2.3 Wetlands and Jurisdictional Waters of the U.S.

Impacts to wetlands and other aquatic habitats may be subject to regulation under Section 404 of the CWA, or other State/Federal statutes. The proposed action would avoid impacts to wetlands and Waters of the U.S. Jurisdictional waters would be staked out prior to construction to ensure no impacts would occur. All land disturbing activities would occur outside of wetlands and Jurisdictional Waters of the U.S. Furthermore, indirect impacts to regulated waters would be avoided through implementation of the avoidance and minimization measures in Chapter 5, and the prescribed BMPs in the project specific SWPPP.

Although the proposed action has been designed to avoid wetlands and regulated waters to the greatest extent possible, appropriate permits would be obtained prior to construction. Impacts that cannot be avoided will be mitigated at a serviceable wetland mitigation bank, or as directed by the USACE and the USFWS.

3.5.3.2.4 Stormwater Management and Water Quality

Grading and construction activities associated with the proposed action would disturb more than 1 acre of land. The IDNR Storm Water Program requires Construction Stormwater (NPDES) Permits and associated SWPPP for construction activities greater than one acre. The construction contractor would be responsible for complying with the NPDES permit requiring a project-specific SWPPP through the IDNR. The project specific SWPPP would be prepared with applicable BMPs and would be implemented to minimize the potential for pollutants to enter receiving waters during demolition. The SWPPP would also be designed to meet the

requirements of the state of Iowa drainage regulations and the Army Low Impact Development guidelines, which includes requirements for bioretention/infiltration basins, surface water wet pond/basin, vegetated swales, and other low impact stormwater management techniques. Following grading and construction, the topography would match the surrounding grade. (USACE 2013).

The proposed action would result in a net decrease of pervious ground cover and increase in impervious surface areas. Manufacturing, transportation and other operational activities could generate pollutants, including sediment and other constituents (e.g., nutrients, trace metals, oil and grease, miscellaneous waste, other toxic chemicals). Without controls, the pollutants could potentially enter receiving waters; however, controls would be identified in the impact avoidance and minimization measures in the project-specific SWPPP which would minimize soil erosion and stream sedimentation and degradation; and would not result in a change in receiving water's temperature, flow, turbidity reduction or degradation in water quality. A modification to the NPDES permit would be required for the additional sanitary or industrial discharges associated with the proposed action.

3.5.3.2.5 Floodplains

The action area is not located in FEMA's 100-year floodplain therefore, the proposed action would not result in any new direct impacts to floodplain. The proposed action would avoid sensitive resource areas resulting in no impacts on floodplains.

3.5.3.2.6 Conclusion

Impacts on water resources within or downstream of the action area would be minimized, avoided or abated through proactive measures prior to and during grading and construction activities. With adherence to the NPDES permit and project specific SWPPP, and through implementation of the impact avoidance, minimization, and abatement measures (described in Chapter 5) the proposed action would not result in a significant impact to water resources. These measures have been developed in accordance with state and federal regulations as well as IAAAP policies and procedures.

3.5.3.3 No Action Alternative

The no action alternative would not increase impervious surfaces, alter local surface water, change groundwater, impact a floodplain or degrade a wetland because no development is included in the no action alternative.

3.6 CULTURAL RESOURCES

3.6.1 Definition of Resource

Cultural resources are any prehistoric or historic district, site, building, structure, or object considered important to a culture, subculture, or community for scientific, traditional, religious or other purposes. They include archaeological resources, historic architectural resources, and traditional cultural resources. Archaeological resources are locations where prehistoric or historic activity measurably altered the earth or produced deposits of physical remains (e.g., arrowheads, bottles). Historic architectural resources include standing buildings and other structures of historic or aesthetic significance. Architectural resources generally must be more than 50 years old to be considered for listing on the National Register of Historic Places (NRHP); however, more recent structures, such as Cold War-era resources, may warrant protection if they have the

potential to gain significance in the future and are considered extraordinary in nature. Traditional cultural resources are associated with cultural practices and beliefs of a living community that are rooted in its history and are important in maintaining the continuing cultural identity of the community.

Historic properties (as defined in 36 CFR 60.4) are significant archaeological, architectural, or traditional resources listed on, or eligible for listing on the NRHP. Historic properties are evaluated for potential adverse impacts from an action, as are significant traditional cultural resources identified by American Indian tribes or other groups. In 2018, DoD reissued its policy on DoD interactions with federally recognized tribes, which emphasizes the importance of respecting and consulting with tribal governments on a government-to-government basis (DoD Instruction 4710.02 and AR 200-1). The policy requires an assessment, through consultation, of the effect the proposed DoD actions with the potential to significantly affect protected tribal resources, tribal rights, and Indian lands before decisions are made by the Services. The ROI for cultural resources consists of the areas on the IAAAP that would be directly affected by ground-disturbing activities and building demolitions, alterations, and construction. For the purposes of cultural resources analysis, the ROI is considered equivalent to the Area of Potential Effects (APE), as defined by 36 CFR 800.16(d).

3.6.2 Existing Conditions

Cultural resources at the IAAAP are managed under the facility's Integrated Cultural Resources Management Plan (ICRMP), which was last updated in 2015 (IAAAP 2015c). The ICRMP provides a review and documentation of the historic properties within the IAAAP. At the time the ICRMP was prepared in 2015, there had been 22 archaeological surveys. Since then Bear Creek Archaeology (BCA) has conducted an archaeology and above-ground survey within the area of Alternative 1, the Preferred Alternative.

As of 2015, three separate architectural assessments had been conducted at IAAAP (IAAAP 2015c). As of 2015, no architectural properties were listed on the NRHP.

The IAAAP was evaluated for eligibility as a NRHP-eligible historic district for its involvement in World War II, the Cold War, and other historic contexts, with architectural elements considered as contributing elements to this potential plant-wide historic district (Blikre 2015). However, in 2006, the Advisory Council on Historic Preservation (ACHP) issued a Program Comment, *Program Comment for World War II and Cold War Era (1939 – 1974) Army Ammunition Production Facilities and Plants*, which applies to the IAAAP. Under the Program Comment the IAAAP is precluded from being considered a historic district. Section 3.6.2.4 describes the Program Comment in more detail.

At the time of the ICRMP, 320 archaeological sites had been recorded at IAAAP. Of these, 68 were determined not eligible, 4 are eligible, 20 are potentially eligible, and the remaining 228 sites are to be protected from disturbance until further testing is completed to determine NRHP eligibility (IAAAP 2015c).

3.6.2.1 Archaeological Resources

The project area has been the subject of two archaeological surveys that cover the entire project area (Blikre 2015). Six archaeological sites and six isolated finds are located within the Site A boundaries (**Table 3-10**).

In 1991, the Augustana College of Sioux Falls, South Dakota, conducted a surface survey that included a portion of the Preferred Alternative location. Five archaeological sites within the Alternative 1 area were identified: 13DM600, 13DM601, 13DM602, 13DM603, and 13DM604. Four of the sites were recommended not eligible for listing on the NRHP and one, 13DM600, was unevaluated. The sites that are recommended not eligible are considered unevaluated until the Iowa SHPO concurs with the evaluations. In addition, six isolated finds were located, prehistoric finds 367, 368, 373, and 383, and two historic period finds, 369, and 375 (Blikre 2015). One of the isolated finds, 367, was subsequently assigned a site number, 13DM1322.

In 2015, BCA conducted a Phase I archaeological survey and geomorphological investigation in the area of the proposed Yard L expansion project and re-examined the sites and isolated finds first identified by the Augustana College survey (Blikre 2015). That BCA survey included portions of the current Alternative 1 proposed location. They concluded that none of the sites were eligible for listing on the NRHP.

TABLE 3-10: ARCHAEOLOGICAL SITES AND ISOLATED FINDS WITHIN SITE A

Archaeological Sites and Isolated Finds within Site A			
Site/Isolated Find Number	**Time Period**	**NRHP Eligibility Recommendation**	**Comments**
Sites			
13DM600	Historic	Unevaluated	Historic artifact scatter
13DM601	Historic	Recommended not eligible	Remnant of historic farmstead
13DM602	Prehistoric	Not eligible*	Artifact scatter
13DM603	Prehistoric	Not eligible*	Artifact scatter
13DM604	Historic	Recommended not eligible	Remnant of late-19th-century historic farmstead
13DM1322	Prehistoric	Recommended not eligible	Resurvey of isolated find 367 area; prehistoric site 1322 identified; that portion of the site recommended not eligible.
Isolated Finds			
367	Prehistoric	Recommended not eligible	First identified by Augustana College; resurveyed by BCA.
368	Prehistoric	Recommended not eligible	First identified by Augustana College; resurveyed by BCA; located within Site 13DM603
369	Historic	Recommended not eligible	Cement fragments and railroad ties, first identified by Augustana College; resurveyed by BCA; located within Site 13DM603
373	Prehistoric	Recommended not eligible	First identified by Augustana College; resurveyed by BCA
375	Historic	Recommended not eligible	Gravel area First identified by Augustana College; resurveyed by BCA
383	Prehistoric	Recommended not eligible	First identified by Augustana College; resurveyed by BCA
Source: Blikre, 2015 * SHPO concurrence			

3.6.2.2 Above-Ground Historic Resources

The IAAAP was established in 1940, originally called the Iowa Ordnance Plant. Production began in 1941; it ended in 1945 at the end of World War II but resumed production in 1949. Prior to its establishment, the area that is now the IAAAP was historically a rural agricultural region.

At the time of the ICRMP, three separate architectural assessments had been conducted at the IAAAP (IAAAP 2015c).

In 2015, BCA conducted a reconnaissance survey within a 0.25-mile radius of the portion of the current project area they had surveyed for the proposed Yard L expansion area. They examined architectural properties that were older than 50 years. Nine properties were identified (**Table 3-11**), four of which had been recorded previously, by Conard and Nash, in 1994 (Blikre 2015). Of these one was recommended eligible for listing on the NRHP, as part of a potential historic district that would include the entire IAAAP facility. This was the IAAAP car barn (Site Inventory No. 29-03463) (Blikre 2015). Other properties recorded in the 2015 survey included Yard L and Line 1. All the properties identified within the IAAAP were recommended NRHP eligible as contributing to the potential historic district.

In addition, the Iowa Historic Preservation Office online public data map, ISites, also lists warehouses #L28-L34 (#29-03465), constructed in 1940, identified as eligible under Criterion A (Iowa Department of Cultural Affairs 2019).

TABLE 3-11: ABOVE-GROUND HISTORIC RESOURCES OLDER THAN 50 YEARS WITHIN 0.25-MILE RADIUS OF SITE A

Above-ground Historic Resources Older than 50 Years within 0.25-mile radius of Site A				
Property	**Site Inventory Number**	**Date of Construction**	**NRHP-Eligibility**	**Comments**
Soukop House	29-03378	1955	Not eligible*	One-story ranch house with attached garage
Horn House	29-03460	1909	Not eligible*	Two-story residence with Queen Anne characteristics
Siefken House	29-03461	1930	Not eligible*	1-1/2-story bungalow
IAAAP Car Barn and Heavy Equipment Shops	29-03463 and 29-03768	ca. 1941	Recommended NRHP-eligible as contributing properties to a potential IAAAP historic district	
IAAAP Yard L	29-03769	ca. 1941	Recommended NRHP-eligible as contributing properties to a potential IAAAP historic district	Storage facility including warehouse buildings, railroad tracks

Above-ground Historic Resources Older than 50 Years within 0.25-mile radius of Site A				
Property	**Site Inventory Number**	**Date of Construction**	**NRHP-Eligibility**	**Comments**
IAAAP Line 1	29-03770	1941	Recommended NRHP-eligible as contributing properties to a potential IAAAP historic district	Production facility including buildings, structures and objects.
R. Gray Farmstead and House	29-03771 (farmstead) and 29-03772 (house)	House constructed 1930	Recommended not eligible for NRHP listing	House is only building remaining that is over 50 years of age; it has been modified.
Heritage Baptist Church Outbuilding	29-03773	Shed constructed 1950	Recommended not eligible for NRHP listing	Only the single story shed remains, once part of a larger farmstead demolished in 2010.
S. and M. Nelson Elevator	29-03774	Built mid to late-20th century	Recommended not eligible for NRHP listing	Grain elevator and storage facility. No other residences or domestic buildings present.
Source: Blikre, 2015 * SHPO concurrence				

Yard L (29-03769) is a storage facility that continues to retain its historic characteristics. At the time of the review, in 2015, it consisted of 33 long, narrow warehouse buildings, divided into three primary groups and was slated for expansion. Railroad tracks run between the buildings. Yard L was built in 1941 as part of the initial plant construction and appears to be of the same configuration as it was originally.

Line 1 (29-03770) is part of the production facility. It is a complex property with multiple buildings, structures and objects. It was built in 1941 as part of the initial plant construction. From 1948 to 1975, it was used as part of the assembly production of nuclear weapons, and since then, conventional weapons. As of 2015, it appeared to have some modifications but remains almost unchanged and retains its historic feeling and context.

The heavy equipment shops area (29-03768) includes the IAAAP car barn (29-03463). The front of the car barn is brick-clad and the back portion has two large repair facilities. There are also two large Quonset huts (built ca. 1963 – 1969) and one metal-sided shed (built ca. 1994 – 2002). The area is used to service train engines and cars. The yard is composed mainly of railroad tracks, switches, and parking areas.

A number of properties were identified within the viewshed but outside of the IAAAP boundaries. These are: the R. Gray Farmstead (29-03772), the Heritage Baptist Church Outbuilding (29-03773), the S. and M. Nelson Elevator (29-03774), and the Soukop (29-03378), Horn (29-03460), and Siefken (29-03461) residences.

Properties outside of IAAAP but within the 0.25-mile viewshed of the current preferred alternative were recommended not eligible because they lack integrity and association and as such did not meet the Secretary of the Interior's criteria for NRHP listing.

3.6.2.3 Traditional Cultural Properties

There are no known traditional cultural properties at the IAAAP.

3.6.2.4 Program Comments

The Advisory Council on Historic Preservation (ACHP) issued a Program Comment, *Program Comment for World War II and Cold War Era (1939 – 1974) Army Ammunition Production Facilities and Plants*, in 2006. The Program Comment has been concurred with by the Iowa SHPO. The Program Comment provides the Army with an alternative way to comply with its NHPA Section 106 responsibilities regarding effects to such facilities and plants that may be NRHP-eligible, including from ongoing operations, maintenance and repair, rehabilitation, renovation, mothballing, cessation of maintenance, new construction, demolition, deconstruction and salvage, remediation activities, and transfer, sale, lease, and closure of the facilities.

The Program Comment does not apply to archaeological properties, properties of traditional religious and cultural significance to federally recognized Indian tribes, and/or facilities and plants listed or eligible NRHP districts where the ammunition production facility is a contributing element of the district and the proposed undertaking has a potential to adversely affect such historic district. This last exclusion does not apply to ammunition production related historic districts that are entirely within the boundaries of an ammunition production plan. In this last case, the Program Comment would apply to such districts, and applies to the IAAAP.

3.6.3 Environmental Consequences

3.6.3.1 Significance Criteria

3.6.3.2 Alternative 1 (Preferred Alternative)

Under the Preferred Alternative there would be adverse impacts to historic properties, however these impacts are mitigated under the terms of the Program Comment discussed above. The property could be developed. The existing warehouses could be renovated or demolished and replaced. New warehouse space could be constructed. The new warehouses would be constructed on the same footprint as the existing warehouses. New roads and rail could be constructed to provide access. Existing roads could be upgraded, and existing rails could be upgraded, or new rail infrastructure could be constructed. New utilities infrastructure could also be re-routed, or installed, including gas, steam, water, sewer, and/or electrical lines.

Archaeological and above-ground historic resources surveys of the project area and viewshed have been completed. There are no NRHP-eligible archaeological sites within the project area. There are historic period above-ground properties, however, these have been mitigated with the issuance of the 2006 Program Comment, which allows property transfer or sale, renovations or

demolition to World War II-era Army ammunition and production facilities and plants, based on the Army's compliance with that Program Comment.

3.6.3.3 No Action Alternative

Under the no action alternative there would be no impacts to cultural resources because with this alternative, the Army would not make property available for construction and operation of a rail transload facility. As a result, there would be no ground disturbance, no structures or existing infrastructure would be altered, and no new structures would be built. No archaeological sites would be disturbed or destroyed, and there would be no change in the viewshed from any above-ground historic properties.

3.7 LAND USE

3.7.1 Definition of Resource

The term land use refers to real property classifications that indicate either natural conditions or the types of human activity occurring on a parcel of land. Two main objectives of land use planning are to ensure orderly growth and compatible uses among adjacent property parcels or areas. In appropriate cases, the location and extent of a proposed action is evaluated for its potential effects on a project site and adjacent existing land uses. The most important consideration of a proposed action is its compliance with any applicable land use or zoning regulations. Other relevant factors include matters such as existing land use at the project site, the types of land uses on adjacent properties and their proximity to the proposed action, the duration of a proposed activity, and its "permanence."

The IAAAP and surrounding unincorporated communities such as Middletown and West Burlington are not currently subject to a zoning ordinance. The Des Moines County Comprehensive Plan designates the IAAAP an Industrial use (Des Moines 2004); however, IAAAP is owned and is under the jurisdiction of the federal government, not Des Moines County. This section relies on land use descriptions classified in the 2018-2023 IAAAP INRMP and 2017 IAAAP Vision Plan (IAAAP 2018 and IAAAP 2017, respectively). The Vision Plan will lead to development of a comprehensive, and flexible real property Master Plan at IAAAP that would provide improved guidance for future development and modernization of the IAAAP.

3.7.2 Existing Conditions

The 325-acre action area is comprised of 33 warehouses (more than 25,000 square feet each (roughly 845,000 square feet)) currently used to store inert material, storage containers, and pallets. The warehouses are owned by the Army and are operated by American Ordnance LLC.

Approximately 196 acres of active agriculture occur to the north and eastern portions of the action area. The agricultural land is owned by the Army and operated by American Ordnance LLC. It is then leased to third party contractors. Within the 196 acres of active agriculture is a 154-acre portion of the action area that has been certified under the IEDA's Site Certification Program and BNSF's Railways Site Certification Program. The use of grazing, haying, and crop production results in a significant reduction in fire hazard and maintenance costs across the Plant. These areas would normally be mowed or sprayed with herbicide at a significant cost to the government. The agricultural program also provides a significant source of income for the Plant and to the Department of Army Agricultural Reimbursable Account. (IAAAP 2018).

According to the USDA's NRCS soil maps, most of the agricultural land is located on soils types designated as Prime Farmland (USDA 2018a).

Land uses adjacent to the action area within IAAAP include munitions production, and LAP operations to the west with agricultural operations to the south, east and west. Land uses adjacent to the action area outside of the IAAAP include agricultural, residential, commercial operations located to the north of the action area. The closest residential properties are located within 0.5 mile to the west of the action area. The action area is bordered by Old Highway 34 (Highway 34 Business Route) to the north parallel to U.S. Highway 34 farther north.

Surrounding land uses adjacent to the IAAAP include low density residential, commercial, light industrial and agricultural in West Burlington and the City of Burlington to the east, and the town of Middletown to the north and west.

Surrounding transportation uses include U.S. Highway 34, less than 0.5 mile to the north, and Highway 61, less than 4.5 miles to the east); Surrounding airports include Ancam Antique Airfield in Burlington, less than 3 miles to northeast, Southeast Iowa Regional Airport in Burlington, approximately 6.5 miles to the southeast, and Fort Madison Municipal Airport in Fort Madison, approximately 12 miles to the south) and on and offsite rail transportation-related sources, (BNSF mainline extends westward from Burlington to Mount Pleasant, and ultimately to Des Moines and Omaha, Nebraska). The Burlington Northern Railroad and AMTRAK provides passenger rail services. The 34 Raceway is located about 0.5 miles to the north.

Two daycare centers are located within 5 miles to the south, six schools within 5 miles to the north south west and east, two hospitals to the east, one church to the west, and scattered rural residences. According to the 2004 Des Moines County Comprehensive Plan, the IAAAP, (a federal military installation outside the jurisdiction to Des Moines County) is identified as an Industrial Use (Des Moines 2004).

3.7.3 Environmental Consequences

3.7.3.1 Significance Criteria

The significance criteria for land use/zoning impacts would be exceeded if the alternative would result in substantial alteration of the existing or planned land use or zoning regulations in the affected area.

3.7.3.2 Alternative 1 (Preferred Alternative)

The proposed action would result in the renovation or demolition of the existing warehouses and construction of new facilities. Up to 154 acres of agricultural land would be converted into new warehouses and other facilities which would require new or upgraded utilities and/or infrastructure to serve the proposed action (discussed under 3.10. Utilities). The conversion of agriculture would increase impervious surfaces (discussed under 3.5. Water Resources).

The IAAAP, including the action area, was acquired by the Federal Government before August 4, 1984, before the passage of the FPPA. Therefore, the proposed action does not qualify as a "Federal program" under the FPPA, and USDA analysis of the loss of agricultural land is not required. Although the proposed action would result in a change of use, the uses within the action area would remain consistent with the 2004 Des Moines County Comprehensive Plan as an Industrial Use and would not result in a change in land ownership.

As previously stated, the action area has the amenities and resources necessary to attract and retain rail-centric industries to perform light and heavy manufacturing, transloading/reloading operations (rail-to-truck, truck-to-rail), value-added operations offered by 3PL partners.

The proposed action would comply with many goals of the IAAAP Vison Plan, a prerequisite for a future Master Plan for the IAAAP which includes:

- Enhancement of existing facilities, adapting to anticipate future requirements.
- Retrofit existing facilities to accommodate significant increases or decreases to work production or new missions.
- Efficient and flexible facilities and infrastructure.
- Rebuild /renovate current facilities to withstand the 20-year outlook through segmented modernization projects.
- Design facilities with flexibility to meet changing demand or support new missions.
- Explore new manufactural layouts.

The action area has been certified under IEDA's Site Certification Program and BNSF's Railways Site Certification Program, which will facilitate the goals of the Vision Plan and attract new business opportunities for the IAAAP. It would thereby result in new investment and employment opportunities.

With implementation of impact avoidance measures (described in Chapter 5) the proposed action would not result in a significant impact on Land Uses. These measures have been developed in accordance with state and federal regulations, as well as IAAAP policies and procedures.

3.7.3.3 No Action Alternative

The no action alternative would leave the IAAAP facilities in their current state. No construction activities would occur; therefore, there would be no physical changes relative to existing conditions that could result in improvements and modernization of the action area. There would be no impact.

3.8 TRANSPORTATION AND CIRCULATION

3.8.1 Definition of Resource

For the purposes of this analysis, transportation refers to the movement of traffic (i.e., passenger vehicles, trucks) on public and private roadways. Roadway operating conditions are described in terms of Level of Service (LOS) ratings, which have been developed by the Transportation Research Board of the National Academies (TRBNA; TRBNA 2010). LOS is a qualitative measure that describes the operational conditions within a traffic stream, generally in terms of such factors as speed and travel time, freedom to maneuver, traffic interruptions, comfort and convenience, and safety. LOS is rated on a scale of A to F, with LOS A reflecting free-flowing traffic conditions and LOS F representing heavily congested conditions Generally, LOS C or better is considered an acceptable operating condition during peak traffic periods in more rural contexts, while LOS D is considered to be adequate in urbanized areas. (TRBNA 2010).

The proposed action would generate traffic above baseline conditions on transportation facilities under the jurisdiction of Des Moines County and Iowa Department of Transportation (IDOT). The proposed action will be reviewed by these agencies to determine if specific traffic mitigation measures would be required.

3.8.2 Existing Conditions

The IAAAP is located at 17571 Des Moines County (DMC) 79 in Middletown Iowa, approximately 5 miles west of the City of Burlington, in Des Moines County, which borders Lee County to the south and Henry County to the west. Surrounding transportation routes include the DMC 79/Highway 34 Business Route (a four-lane highway), which runs in a west/east direction bordering the action area to the north. U.S. Highway 34, which runs east and west through Iowa from Illinois to Nebraska is located less than 0.5 mile to the north of the action area. Highway 34 runs parallel to DMC 79 / Business Route 34, bypassing Middletown and crossing Business Route 34 in a south-east direction west of West Burlington. To the west, Business Route 34 heads north west to Danville where it again joins U.S. Highway 34 toward New London. Approximately 4.5 miles east of the action area, U.S. Highway 61 (which generally runs parallel to the Mississippi River) intersects Burlington in a north/south direction. IDOT has long-term plans to widen Highway 61 to 4 lanes to the Quad City area (Davenport, Bettendorf, Rock Island, Moline and East Moline Illinois).

Secondary routes include North Beaverdale Road, which leads to Prairie Grove to the north and West Burlington to the southeast. North Gear Avenue (north/south direction) located between Beaverdale and Highway circles back to Beaverdale Road from West Burlington. West of the action area DMC 79, also known as Junction 10 (J-10) is mostly used to get to and from Geode State Park (Des Moines County 2019)

Surrounding Airports include Ancam Antique Airfield in Burlington, less than 3 miles to northeast, Southeast Iowa Regional Airport in Burlington, approximately 6.5 miles to the southeast, and Fort Madison Municipal Airport in Fort Madison, approximately 12 miles to the south. The Burlington Airport provides freight and passenger services.

As previously stated, the action area has been certified under the IEDA's Site Certification Program and BNSF's Railways Site Certification Program. Rail transportation is located both on and offsite. The action area has easy access to over 100 miles of track, including five rail yards that link directly to the BNSF mainline that extends westward from Burlington to Mount Pleasant, and ultimately to Des Moines and Omaha, Nebraska. The Burlington Northern Railroad and AMTRAK provide rail services.

Public transportation in Burlington consist of Burlington Urban Service with daily service from Burlington to Middletown, with stops near the IAAAP. The Burlington Trailways and Hawkeye Express provide bus transportation throughout the region.

According to IDOTs Bikes Interactive Map, DMC 79/ Business Route 34 does not have a dedicated bicycle lane (IDOT 2018a).

3.8.2.1 Site Access

The primary access road to the action area is Middletown Road (DMC 79/ Business Route 34), then south to the Texas Avenue Gate or the 48th Street Gate to South Drive. IAAAP is currently constructing a fence around the proposed action area to allow primary access to the facility via a new gate off of U.S. Highway 34. The proposed action area will eventually be fenced off from the remainder of the installation. Grading and construction personnel as well as operational personnel would be expected to use this new access point,

IDOT uses manual traffic counters, portable tube counters and Continuous Count Stations, including Weigh In Motion sites, throughout the state to collect traffic data used in the calculation of Annual Average Daily Traffic (AADT). Traffic Volume is aggregated based on the Federal Highway Administration's (FHWA's) 13 vehicle category classification for the primary highway system or as a summed total for secondary and municipal roads. Continuous Count Stations including Weigh In Motion Sites operate 24 hours a day, year round to provide traffic volume data (IDOT 2018b).

3.8.2.2 Traffic Counts

The IDOT updates City and County traffic maps every four years. The latest complete counts for primary routes in the ROI are for the year 2016 and are summarized in **Table 3-12**.

TABLE 3-12: 2016 PRIMARY ROUTES AADT COUNTS

2016 Primary Routes AADT Counts						
Route	**2016**	**Rural / Municipal**	**Section length (miles)**	**AADT**	**Average Daily Vehicle Miles**	
	Primary Route Section Description				**All Vehicles**	**Trucks and Buses**
34	West Limits of Middletown	Rural	0.097	7,700	747	89
34	East Limits of Middletown	Municipal	0.525	7,400	3,885	465
34	North Limits of West Burlington	Rural	0.648	8,990	5,767	732
34	West Limits of Burlington	Municipal	1.331	13,000	17,303	1,653
34	East Limits of Burlington	Municipal	0.178	11,200	1,994	254
34	US 61 Interchange	Municipal	0.272	13,000	3,536	338
61	North Limits of Burlington	Municipal	0.446	6,900	3,077	301
61	South Limits of Burlington	Rural	3.288	12,800	42,086	3,604
Source: IDOT 2018c						

The heaviest traffic within a 5-mile radius of the action area is on primary roads which occur east of the action area at the south, eastern and western limits of Burlington. The most recent IDOT traffic count maps within the ROI are from 2014 is presented in Appendix B.

3.8.3 Environmental Consequences

3.8.3.1 Significance Criteria

The significance criteria for traffic and transportation impacts would be exceeded if the alternative would result in either of the following:

- Substantial degradation of the existing level of service; or

- Severance of an existing major route for motor vehicles, bicyclists or pedestrians.

3.8.3.2 Alternative 1 (Preferred Alternative)

3.8.3.2.1 Grading and Construction Traffic

Grading and construction activities would generate a net increase in traffic for the duration of the grading and construction phase. This temporary increase in grading and construction traffic would include workers arriving and departing for the day, as well as grading and construction vehicles bringing supplies and equipment. The most direct north bound route to the action area is from Highway 34 to and from the DMC 79/Highway 34 Business Route north to the Texas or 48th Street Gates. The most direct south bound route to the action area is from Highway 34 to and from the Beaverdale or West Mount Pleasant Street interchange north to the Texas or 48th Street Gates. A traffic control plan (TCP) would be implemented to ensure the highest level of circulation and public safety is maintained. The TCP could result in some temporary, adjacent street lane closures/reroutes during certain phases of construction to optimize circulation. The TCP could limit the construction traffic during peak traffic periods. Any required temporary closures or re-routes would be conducted in coordination with the Des Moines County Department of Public Works and will follow the prevailing County traffic and safety regulations, signage, and permit requirements. Construction materials and vehicle would be staged on the IAAAP, not on public streets, facilities or rights of ways. Considering the relatively small increase in traffic generated by grading and construction, impacts on transportation and circulation on the IAAAP and its vicinity are expected to experience minor delays during grading and construction phase. This additional traffic would cease once construction is complete. Construction-related traffic impacts are expected to be short term and less than significant.

3.8.3.2.2 Operational Traffic

During the operational phase, the proposed action would generate a net increase to the baseline traffic level resulting from commuting employees and receipt and delivery of materials and equipment. The operational phase would likely be implemented incrementally over time and may take several years to reach a maximum operation capacity. This incremental increase in traffic volume is expected to impact the same sections and intersection of surrounding traffic facilities, concentrating traffic at U.S. Highway 34 interchanges between DMC 79 and Beaverdale and U.S. Highway 61. This net increase of operational traffic within the ROI is expected to be less than significant for the following reasons:

- The operational phase will be implemented overtime. It may take several years before the proposed action reaches maximum capacity;
- U.S. Highway 34 and Business Route 34 run parallel west/east offering commuters viable options to avoid delays. Business Route 34 served as the primary route before the U.S. Highway 34 bypass was constructed in the early 2000s. Following construction of U.S. Highway 34 between Middletown and West Burlington, “through traffic” and “local traffic” split between the parallel highways (Des Moines County 2019). The 2002 IDOT Traffic Count Map indicates 11,500 AADT for U.S. Highway 34 between Middletown and West Burlington (before the Business Route 34 was built). The 2014 IDOT Traffic Count Map indicates 7,200 AADT on the new highway (U.S. Highway Route 34), and between 3,600 and 5,500 AADT on the old highway (Business Route 34 (IDOT 2018d));

- Business Route 34, a four-lane highway was built to accommodate residential growth in the region that has not yet been fully realized. Speeds on Business Route 34 tend to be high in Middletown. A 4-way stop was recently installed at Main and Boundary as a traffic calming measure (Des Moines County 2019);
- U.S. Highway 61 is currently being widening from two to four lanes from West Burlington to Mediapolis. IDOT has a long-term plan to widen U.S. Highway 61 to 4-lane to the Quad City area (Davenport, Bettendorf, Rock Island, Moline and East Moline, Illinois (Southeast Iowa Regional Planning Commission (SEIRPC) 2018)).
- IAAAP is currently constructing a fence around the proposed action area. Primary access to the facility will be via a new gate with direct access off of U.S. Highway 34.

For these reasons, traffic increases during the operational phase is not expected to degrade the current level of service. Impacts on Transportation within or in the vicinity of the action area would be minimized or avoided through proactive measures prior to construction and during operational activities. With implementation of these impact avoidance and minimization measures (described in Chapter 5), the proposed action would not result in a significant impact to transportation resources. These measures have been developed in accordance with state and federal regulations, as well as IAAAP policies and procedures.

3.8.3.3 No Action Alternative

The no action alternative would leave the IAAAP facilities in their current state. No construction activities would occur; therefore, there would be no physical changes relative to existing conditions that would result in an increase of traffic to local roads or highways, parking, or pedestrian facilities. There would be no impact under the no action alternative.

3.9 NOISE

3.9.1 Definition of Resource

The USEPA defines noise as an "unwanted or disturbing sound." Sound becomes unwanted when it either interferes with normal activities, such as sleeping or conversation, or it disrupts or diminishes one's quality of life (USEPA 2015a). The degree to which noise becomes disruptive depends on the way it is perceived by the receptors (people) living or working in the affected area.

The Noise Control Act of 1972 (PL 92-574) directs federal agencies to comply with applicable federal, state, interstate, and local noise control regulations. In 1974, the USEPA provided information on negative effects of noise and identified indoor and outdoor noise limits that protect public health and welfare. In addition, sound quality criteria promulgated by the USEPA and the U.S. Department of Housing and Urban Development has identified noise levels to protect public health and welfare with an adequate margin of safety. These levels are considered acceptable guidelines for assessing noise conditions in an environmental setting. Average acceptable day-night sound pressure levels fall in a range between 50 dBA (A-weighted decibels) in quiet suburban areas and 70 dBA in very noisy urban areas (USEPA 1974).

The IAAAP implements an Environmental Noise Management Program to identify and minimize noise impacts arising from mission activities on areas outside of the IAAAP. IAAAP also implements an installation Standard Operating Procedure (SOP) for noise management,

which includes complaint management and monitoring of both the noise environment and any proposed land use changes surrounding the IAAAP.

No noise ordinance has been developed for Middletown, West Burlington, and the IAAAP; however, the City of Burlington has established and implemented a noise ordinance (Noise Control Ordinance Sec. 21-13.), which establishes specific guidelines for permissible sound levels by land use.

3.9.2 Existing Conditions

3.9.2.1 Sources of Existing Noise Generation

Sources of ambient noise generation within the ROI include vehicle traffic from nearby roads and highways including Business Route 34, which borders the action area to the north, U.S. Highway 34, less than 0.5 mile to the north, and U.S. Highway 61, less than 4.5 miles to the east. Nearby Airports include Ancam Antique Airfield in West Burlington, less than 3 miles to northeast, the Southeast Iowa Regional Airport in the City of Burlington, approximately 6.5 miles to the southeast, and the Fort Madison Municipal Airport in Fort Madison, approximately 12 miles to the south. Noise is generated by both on- and off-site rail transportation-related sources, including BNSF and the Burlington Northern Railroad and AMTRAK. A racetrack (the 34 Raceway) is located about 0.5 miles to the north. Other ambient noise in the ROI is generated by agricultural activities, manufacturing, and various ongoing construction activities at and around the IAAAP.

3.9.2.2 Sensitive Noise Receptors

Locations of land uses with receptors who may be sensitive to elevated noise levels include daycare centers, schools, hospitals, churches and residences. These sensitive noise receptors may experience sensitivity to noise and vibration generated by human activities such as grading, construction and operation of the proposed action. **Table 3-13** presents the distance of existing sensitive noise receptors from the action area. The sensitive noise receptors identified within 5 miles of the action area include two daycare centers, six schools, two hospitals/health care centers, one church and numerous rural residences. Although new residences are being constructed throughout the region, much of the residential development in Middletown and West Burlington was developed around the period of time when the IAAAP was established in July 1941 as the Iowa Ordnance Plant.

TABLE 3-13: NEAREST SENSITIVE NOISE RECEPTORS

Nearest Sensitive Noise Receptors		
Name of Sensitive Receptor	**Address**	**Distance From Action Area**
Childcare Centers		
Kids Zone Day Care Center	1701 West Agency Rd., West Burlington	3 miles west
Little Footsteps Daycare	401 Kimberly Drive, West Burlington	3.55 miles west

Nearest Sensitive Noise Receptors		
Name of Sensitive Receptor	**Address**	**Distance From Action Area**
Schools		
Southeastern Community College	1500 West Agency Road, West Burlington	2.85 miles east
Kindred Spirits, School of Taxidermy	110 N Gear Ave, West Burlington	3 miles east
Prairie Grove School	West Ave at South Gear Ave, West Burlington	3.59 north
Buena Vista School		3.5 miles southeast
Danville Jr/Sr High School	419 S Main Street, Danville	4.1 miles northwest
Hospitals		
Great River Medical Center	1221 S Gear Ave, West Burlington	2.7 miles southeast
Community Health Center of Southeastern Iowa	1706 W Agency Rd., West Burlington	2.7 miles southeast
Churches		
Harmony Bible Church	21589 Iowa 79, Danville	4.72 miles west
Residences		
Nearest homes to north	US 34 between 165th Ave and South Prairie Grove Road	Less than 200 feet north
Nearest homes to west	Between Texas Avenue and East Street in Middletown.	Less than 500 feet west
Nearest homes to east	406th Road along West Mount Pleasant Street	1.5 miles east
Nearest homes to south	Skunk river road	4.18 miles south
Source: Google Earth 2019		

3.9.3 Environmental Consequences

3.9.3.1 Significance Criteria

An increase in noise levels would be considered significant if the alternative would cause a substantial permanent increase in noise at a noise-sensitive land use such as a residence or school.

The physical characteristics of noise include its level, frequency, and duration. Noise is measured in decibels (dB) with zero dB being the least perceptible sound to more than 130 dB, the level at which noise becomes a health hazard. Because the human ear is more sensitive to certain ranges of the sound spectrum, a weighted scale has been developed to more accurately reflect what the human ear perceives. These measurements are adjusted into units known as A-weighted decibels. (FHWA 2018).

3.9.3.2 Alternative 1 (Preferred Alternative)

3.9.3.2.1 Grading and Construction Phase

The proposed action is expected to generate noise and vibration during the grading and construction phase that may be noticeably distinct from ambient conditions for sensitive receptors within the ROI. Grading and construction may use equipment listed in **Table 3-14**, which presents the unattenuated noise levels for that equipment at a distance of 50 feet.

TABLE 3-14: ESTIMATED GRADING AND CONSTRUCTION EQUIPMENT NOISE LEVELS

Estimated Grading and Construction Equipment Noise Levels			
Equipment	**Typical Noise Level (dBA) 50 feet from source**	**Equipment**	**Typical Noise Level (dBA) 50 feet from source**
Air Compressor	81	Loader	85
Backhoe	80	Paver	89
Ballast Equalizer	82	Pneumatic Tool	85
Ballast Tamper	83	Pump	76
Compactor	82	Rail Saw	90
Concrete Mixer	85	Roller	74
Concrete Pump	82	Saw	76
Concrete Vibrator	76	Scarifier	83
Crane Derrick	88	Scraper	89
Crane Mobile	83	Shovel	82
Dozer	85	Spike Driver	77
Generator	81	Tie Cutter	84
Grader	85	Tie Handler	80
Impact Wrench	85	Tie Inserter	85
Jack Hammer	88	Truck	88
Source: FHWA 2018			

The highest anticipated grading and construction noise levels within the action area are expected to be produced by rail saws and hydraulic hammers, which are jackhammers attached to backhoes used to demolish concrete. Temporary and intermittent noise associated with grading and construction would range from approximately 74 to 90 dB at 50 feet from the source. During grading and construction phase, the overall noise from the site would typically be dominated by the three or four loudest noise generators among the equipment in use at the time. Equipment noise from grading and construction is usually considered to be a point source, with attenuation at a rate of 6 dB per doubling of distance. The noise levels would therefore dissipate to nearly imperceptible levels above ambient levels at most of the sensitive receptors due to the intervening distance and attenuation from noise barriers such as existing structures (as calculated in **Table 3-15**). The nearest sensitive receptors are the residences to the north and to the west of the action area. To evaluate the level of potential impact, a qualitative analysis was performed that considered the noise generated by grading equipment; the attenuation of noise over distances; and the reduction in noise caused by obstructions (e.g., topography, buildings) that lie between the noise source and the sensitive receptors.

TABLE 3-15: CALCULATED NOISE ATTENUATION BASED ON DISTANCE

Calculated Noise Attenuation Based on Distance		
Name of Sensitive Receptor	**Distance from Action Area**	**Approximate Noise Level dB**
Childcare Centers		
Kids Zone Day Care Center	3 miles west	39.98
Little Footsteps Daycare	3.5 miles west	38.65
Schools		
Southeastern Community College	2.85 miles east	40.40
Kindred Spirits, School of Taxidermy	3 miles east	39.98
Prairie Grove School	4 north	38.40
Buena Vista School	3.5 miles southeast	38.64
Danville Jr/Sr High School	4 miles northwest	38.40
Hospitals		
Great River Medical Center	2.7 miles southeast	40.90
Community Health Center of Southeastern Iowa	2.7 miles southeast	40.90
Churches		
Harmony Bible Church	4.72 miles west	36.05
Residences		
Nearest homes to north	Less than 200 feet north	77.96
Nearest homes to west	Less than 500 feet west	70.00
Nearest homes to east	1.5 miles east	44.92
Nearest homes to south	4.2 miles south	37.06
Source: Omnicalculator 2018		

The highest anticipated noise levels would be at the residences to the north and west of the action area. These noise levels would be further attenuated by the presence of existing tree buffers, and structures between the noise generating source and the sensitive receptor. All demolition would be done in an incremental and methodical manner; no explosions or instantaneous complete structure demolition (implosions) would occur. The surrounding community would be given notice prior to commencement of grading and construction. The simultaneous use of multiple noise generating equipment should be limited to the greatest extent possible. In addition, BMPs such as prohibiting engines to run idle and installation of mufflers on equipment would be used to further reduce public exposure to noise. Operation of grading and construction equipment and vehicles would be limited to 7:00 a.m. to 9:00 p.m. as permitted in the Burlington Noise Control Ordinance. Noise from grading and construction activities would be limited to the working hours of the construction crews and machinery; outside of working hours, noise levels would return to the normal ambient levels for existing conditions, reflective of the industrial area. With implementation of these impact avoidance and minimization measures (described in Chapter 5), the grading and construction phase would not result in a significant impact to sensitive noise receptors. These measures have been developed in accordance with state and federal regulations, as well as IAAAP policies and procedures.

3.9.3.2.2 Operational Phase

Once grading and construction is complete, the proposed action would result in no significant noise impacts associated with operational activities. Permanent noise increases associated with operation of the proposed action is anticipated to include increased vehicular circulation, rail activity, manufacturing, etc.; However, due to the distance to sensitive receptors and the presence of tree buffers, and structures, this increase would be unlikely to cause a substantial increase in noise to noise sensitive land uses. Furthermore, operation of any power equipment machinery would be limited to 7:00 a.m. to 9:00 p.m., except in emergency situations, as permitted in the Burlington Noise Control Ordinance.

For these reasons, increased noise during the operational phase is anticipated to be a minor increase to baseline conditions and are thereby expected to be less than significant. Impacts on sensitive noise receptors within the vicinity of the action area would be minimized, avoided or lessened through proactive measures prior to construction activities. With implementation of these impact avoidance and minimization measures (described in Chapter 5), the proposed action would not result in a significant impact to sensitive noise receptors. These measures have been developed in accordance with state and federal regulations, as well as IAAAP policies and procedures.

3.9.3.3 No Action Alternative

The no action alternative would leave the IAAAP facilities in their current state. No construction activities would occur; therefore, there would be no physical changes relative to existing conditions that could result in improvements and modernization of the action area. The no action alternative would not change noise within the ROI. There would be no impact under the no action alternative.

3.10 SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE

3.10.1 Definition of Resource

Socioeconomics is defined as the basic attributes and resources associated with the human environment, particularly characteristics of population and economic activity. Regional birth and death rates and immigration and emigration affect population levels. Economic activity typically encompasses employment, personal income, and industrial or commercial growth. Changes in these fundamental socioeconomic indicators typically result in changes to additional socioeconomic indicators, such as housing availability and the provision of public services. Socioeconomic data at county, state, and national levels permit characterization of baseline conditions in the context of regional, state, and national trends.

NEPA requires an analysis of impacts to the human environment, which includes economic and social elements in the affected area. Indicators such as demographics, income levels, education and employment are considered in assessing socioeconomic impacts. In addition, the potential for impacts related to EO 13045, *Protection of Children from Environmental Health Risks and Safety Risks* and EO 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations* are discussed in this section.

3.10.2 Existing Conditions

IAAAP is a significant employer in southeastern Iowa with approximately 20 government personnel on staff at IAAAP. The prime contractor American Ordnance, LLC, employs 700 to

800 persons at IAAAP. There are numerous third-party tenants operating under arrangements with American Ordnance, LLC. All have small operations and a few personnel on the Plant (IAAAP 2018).

The agricultural leasing program has the highest degree of impact on the mission of IAAAP. Foremost, the proper use of grazing, haying, and crop production results in a significant reduction in fire hazard and maintenance costs across the Plant. These areas would normally be mowed or sprayed with herbicide at a significant cost to the government. The agricultural leasing program also provides a significant source of income for the Plant and to the Department of Army Agricultural Reimbursable Account (IAAAP 2018).

IAAAP is located about five miles west of the City of Burlington and immediately south of Middletown, Iowa in Des Moines County, in southeastern Iowa. The City of Des Moines is the capital and most populous city in Iowa. Des Moines has an estimated population of 209,000 people, up from 203,000 in 2010 (U.S. Census Bureau (USCB) 2010). Des Moines ranks 104th in the United States in terms of population, with a density of 2,517 people per square mile or 972 per square kilometer (World Population Review 2019). By contrast, Middletown and Burlington are far more rural. The population of Middletown was estimated to be 336 in 2014 (City-Data 2019). Other communities near IAAAP include Augusta, Danville, and Burlington. Burlington, which is the nearest city to the action area, had an estimated population of 25,579 in 2010 (USCB 2010). **Table 3-16**. presents Burlington Demographics relevant to this section discussing socioeconomics.

TABLE 3-16: BURLINGTON CITY RACE DEMOGRAPHICS

Burlington City Race Demographics		
Population	**Burlington City**	
	Number	**Percent**
Total population	26,839	100.0
White	24,581	91.6
Black/African American	1354	5.0
Hispanic/Latino	554	2.1
Asian	177	0.7
Native American	89	0.3
Other	84	0.3
Total minority population	2,258	8.4
Source: USCB 2019		

According to the 2010 Census, Burlington was comprised of a 91.6 percent white majority and 8.4 percent minority population. According the USCB, minority areas would be comprised of a 50 percent minority population. Burlington is therefore not considered a minority population.

TABLE 3-17: BURLINGTON CITY EMPLOYMENT DEMOGRAPHICS

Burlington City Employment Demographics		
Employment and Income	**Burlington City**	
	Number	**Percent**
Median Household income	42,907	100.0
Poverty rate	--	19.2

Burlington City Employment Demographics		
Employment and Income	Burlington City	
	Number	Percent
Labor Force (civilian)	13,041	65.3
Employed	12,237	61.3
Unemployed	804	4.0
Population Age 16 and over	19,959	80.7
Population Below Age 14	4,203	19.6
Median Age	41.1	--
Source: USCB 2019		

In 2017, Burlington had a 19.2 percent poverty rate. According to the USCB, areas with 20 percent or more are considered poverty areas. Areas with 40 percent or more are considered extreme poverty areas. Burlington is therefore not considered a poverty area.

TABLE 3-18: BURLINGTON CITY HOUSING DEMOGRAPHICS

Burlington City Housing Demographics		
Housing Occupancy	Burlington City	
	Number	Percent
Total housing units	11,899	100.0
Occupied housing units	10,938	91.9
Vacant housing units	961	8.1
Source: USCB 2019		

According to the 2013-2017 American Community Survey 5-Year Estimates, Burlington has experienced a high rate of vacant housing units, an indicator of economic stress. The 154-acre portion of the action area containing active agriculture has been certified under the IEDA's Site Certification Program and BNSF's Railways Site Certification Program. Certified sites are more attractive to prospective companies, as they have undergone a rigorous evaluation of economic and environmental factors, and thus are considered ready for development and relatively risk free. Promoting the highest and best use of this site will bring in additional revenue to offset IAAAP's production and operating costs, as well as create additional skilled jobs, preserve and expand existing and valuable rail infrastructure, and support and strengthen the region's agricultural-based economy.

3.10.3 Environmental Consequences

3.10.3.1 Significance Criteria

The significance criteria for socioeconomic impacts would be exceeded in the event the alternative would result in any of the following:

- Substantial change to location or distribution of population;
- Substantial change in income, employment or tax base;
- High and adverse health or safety risks that would disproportionately affect children, minority or low-income populations.

3.10.3.2 Alternative 1 (Preferred Alternative)

The proposed action is anticipated to result in net economic benefits to both the IAAAP and the region within Des Moines County. Although the proposed action would result in a loss of a maximum of 196 acres of agriculture, those agricultural jobs would not be lost as the current lessees will be eligible to lease other agricultural parcels on IAAAP. IAAAP would generate a net increase of local employment opportunities during both the construction and operations phases. 154 acres of the action area has been certified under the IEDA's Site Certification Program and BNSF's Railways Site Certification Program. Certified sites are more attractive to prospective companies, as they have undergone a rigorous evaluation of economic and environmental factors, and thus are considered ready for development and relatively risk free. Promoting the highest and best use of this site will bring in additional revenue to offset IAAAP's production and operating costs, as well as create additional skilled jobs, preserve and expand existing and valuable rail infrastructure, and support and strengthen the region's agricultural-based economy. The number of employees needed during the operational phase of would likely increase resulting in a moderate economic benefit to Middletown and Burlington City as follows:

- It would generate local employment opportunities;
- It would generate local procurements of materials and services during the construction and operation phases;
- It is likely to increase demand for housing that could be accommodated with current 9 percent housing vacancy inventory;
- It would not result in disproportionate impacts to minority populations or low-income populations since the proposed action would occur entirely within IAAAP, which is not classified as a minority, low income area.

The proposed action is not expected to result in disproportionate effects to minority or low-income populations; the potentially affected census tracts are not considered minority or low-income populations. The proposed action is not expected to result in adverse health or safety risks that would disproportionately affect children because no significant impacts to air quality and water quality would occur, nor would there be any changes to the IAAAP's handling of hazardous materials or waste.

Phasing the implementation of the project to allow the local economy time to adjust to employment, income, and population growth or decline should lessen any adverse socioeconomic impacts. If the Army decides to proceed with the proposed action, the development and operation of the rail transload facility will most likely occur in phases allowing the local economy and population adjustments to occur incrementally rather than with a large and rapid change.

Potential local employment benefits of the proposed action can be encouraged by providing appropriate skills training programs and employment opportunities for the local population. Additional benefits to the local economy can be done by encouraging potential local suppliers of goods and services to register for construction and operations procurements.

3.10.3.3 No Action Alternative

The no action alternative would leave the IAAAP facilities in their current state. No construction activities would occur; therefore, there would be no physical changes relative to existing conditions that could result in improvements, modernization and economic stimulation of the region. Therefore, the no action alternative would not result in positive or negative socioeconomic impacts or cause disproportionate impacts to children, minority populations, or low-income populations.

3.11 UTILITIES

3.11.1 Definition of Resource

Utilities are an intricate part of infrastructure, which supply communities with critically needed services. The availability of utilities such as electricity, potable water and telecommunication is regarded as basic human needs and are essential to the economic growth of an area.

3.11.2 Existing Conditions

Existing utilities at IAAAP include electric, potable water, wastewater, natural gas, and communications utilities.

3.11.2.1 Natural Gas and Electricity

Natural gas and electrical service is currently provided to the IAAAP, including the existing warehouses within the action area by Alliant Energy. Alliant is the primary energy provider in Des Moines County and throughout Iowa.

3.11.2.2 Potable Water

The town of Burlington (Burlington Municipal Water Works) provides potable water to IAAAP. Water is purchased under a long-term contract with the Burlington Regional Water Works, which draws water from the Mississippi River. The Burlington Municipal Water Works has the capacity to treat 15 million gallons per day. Its peak demand, which occurs in summer, is about 12 million gallons per day. Water is pumped to the City of Burlington's distribution center from the water treatment plant. The water is then pumped to a series of storage towers. The primary storage tower has a 1 million-gallon capacity (IAAAP 2018). One electrical pump on IAAAP distributes water throughout the installation.

A secondary source of potable water was provided by wells located within the installation. Prior to 1977, water was obtained from George H. Mathes Lake and treated at a waterworks on the installation (IAAAP 2018). These systems are no longer operational. IAAAP's distribution center supplies water to Middletown through a meter in the administration area. Middletown has no storage capacity or alternate water system. The installation provides water to the U.S. Army Reserve Center located west of IAAAP, and the installation transports water to the city of Danville (IAAAP 2018).

3.11.2.3 Wastewater

IAAAP has two sewage treatment plants. The main wastewater treatment plant consists of a two-stage high rate trickling filter plant, which includes primary and final settling with separate digestion and rotary distributors. It has a capacity of treating 800,000 gallons per day. (IAAAP 2018).

3.11.2.4 Telecommunications

Telecommunication services, including fiber optics, dial-up, DSL, digital phone is provided to IAAAP and most of southeast Iowa by LISCO.

3.11.3 Environmental Consequences

3.11.3.1 Significance Criteria

The significance criteria for utility impacts would be exceeded if the alternative would result in an increase in demand requiring substantial utility improvements. Long-term disruption of utilities in the neighboring areas would also result in a utility impact that would exceed the significance criteria.

Effects on infrastructure are evaluated for their potential to disrupt or improve existing levels of service and create additional needs for energy (electrical, liquid fuel, natural gas), water, sanitary sewer and wastewater service, storm water drainage, solid waste management, and communications. For example, effects might arise from energy needs created by either direct or indirect workforce and population changes related to activities. An effect would be significant if the project resulted in any of the following:

- Exceeded capacity of a utility;
- Long-term interruption of the utility;
- Violation of a permit condition;
- Violation of an approved plan for that utility.

3.11.3.2 Alternative 1 (Preferred Alternative)

Implementation of the proposed action would increase the demand for utilities including water, waste water, electricity, natural gas, and telecommunications. The proposed renovation of existing warehouse facilities may include upgrades to these existing utilities. Construction of new warehouses and other proposed facilities would require additional extended underground and overhead infrastructure.

3.11.3.2.1 Natural Gas and Electricity

The renovated warehouses would not require an increase of natural gas or electricity from Alliant Energy; however, the new facilities are anticipated to result in an increased demand. The gas and electric service would require approval by Alliant Energy through a service availability letter and service agreement. With approval by Alliant Energy, the proposed action is not anticipated to result in a significant impact to gas and electric supplies.

3.11.3.2.2 Potable Water

The renovated warehouses would not require an increase of water from Burlington Water Works; however, the new facilities are anticipated to require a net increase of water, depending on the specific uses proposed. A portion of the increased demand for water would be offset by converting agriculture to a less intense water consumptive use. The increased use of water would require approval by Burlington Municipal Water through a service availability letter and service agreement. With approval by the Burlington Water Works, the proposed action is not anticipated to result in a significant impact to existing water supplies.

3.11.3.2.3 Wastewater

The renovated warehouses would not require additional wastewater capacity; however, the new facilities are anticipated to generate an additional wastewater service. IAAAP has plans to modernize its existing wastewater treatment plant and to increase its capacity to treat wastewater. Work on upgrading IAAAP's wastewater treatment plant is anticipated to occur in 2020, years before the complete buildout of the proposed action is completed. Therefore, the proposed action is not anticipated to result in a significant impact to wastewater capacity.

3.11.3.2.4 Telecommunications

Installation and service of telecommunications by LISCO would require an application to LISCO for service. LISCO currently provides telecommunications to IAAAP. The additional demand for the new facilities is anticipated to be minor. The proponents for projects in support of the proposed action in the action area would be required to apply and pay for service through LISCO (https://www.lisco.com) or other available telecommunications provider with service in the area.

3.11.3.2.5 Conclusion

The proposed action would not result in a significantly increased demand for the extension of existing utilities because they would continue to be maintained and operated in accordance with required permits and capabilities of the systems. Through the application for service and approval of service agreement from each affected utility, implementation of the proposed action would not result in a significant impact on the demand for utilities.

3.11.3.2 No Action Alternative

The no action alternative would leave the IAAAP facilities in their current state. No construction activities would occur; therefore, there would be no physical changes relative to existing conditions that could result in improvements, modernization of existing utilities. Therefore, the no action alternative would not alter current demands for utilities. There would be no impact from implementing the no action alternative.

3.12 Hazardous Materials and Solid/Hazardous Waste

3.12.1 Definition of Resource

Hazardous material is defined as any substance with the physical properties of ignitability, corrosivity, reactivity, or toxicity that might cause an increase in mortality, serious irreversible illness, and incapacitating reversible illness or that might pose a substantial threat to human health or the environment. Hazardous waste is defined as any solid, liquid, contained gaseous, or semisolid waste or any combination of wastes that poses a substantial present or potential future hazard to human health or the environment. Evaluation of environmental impacts from hazardous materials and wastes focuses on underground storage tanks (USTs) and aboveground storage tanks (ASTs) and the storage, transport, and use of pesticides and herbicides; fuels; petroleum, oils, and lubricants (POLs), and a variety of chemicals. Impacts also may occur with the generation, storage, transportation, and disposal of hazardous wastes when such activities occur at or near the project site of a proposed action. In addition to being a threat to humans, the improper release of hazardous materials and wastes can threaten the health and well-being of wildlife species, botanical habitats, soil systems, and water resources. In the event of a release of hazardous materials or wastes, the extent of contamination varies based on type of soil, topography, and water resources. In general, statutes such as the Resource Conservation and

Recovery Act (RCRA) (42 U.S.C. 6901 et seq.), Toxic Substances Control Act (TSCA) (15 U.S.C. 2601 et seq.), Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) (42 U.S.C. 9601 et seq.), CAA, CWA, Safe Drinking Water Act (SDWA) (42 U.S.C. 300f to 300j-26), Federal Facility Compliance Act (Pub. L. 102-386), Military Munitions Rule (62 FR 6622), and Federal Hazardous Materials Transportation Act (49 U.S.C. 5101 – 5127) govern hazardous material and hazardous waste issues. ARs and EOs have also been established pursuant to these and subsequent federal and state regulations.

Special hazards are those substances that might pose a risk to human health but are not regulated as contaminants under the hazardous waste statutes. Included in this category are asbestos-containing materials (ACMs), radon, lead-based paint (LBP), and polychlorinated biphenyls (PCBs). The presence of special hazards or controls over them may influence implementation of the proposed action described in this EA.

The Region of Influence (ROI) for hazardous materials and solid/hazardous wastes is defined as the boundary of the IAAAP, including contaminated sites and other areas where hazardous materials may be utilized and hazardous waste may be generated as part of the proposed action.

3.12.2 Existing Conditions

The 200+-acre action area is comprised of 33 warehouses that are used to store inert material, storage containers, and pallets. The remainder of action area is currently in the IAAAP's agricultural leasing program and is used for grazing, haying, and crop production. No hazardous wastes are generated by the current uses of the action area. Aerial photographs taken of the action area indicate that the warehouses were built prior to 1963 (Klingner & Associates, P.C. 2015). Structures built prior to 1963 may contain ACMs, LBP, and PCBs.

ACMs were widely used in construction for fire resistance and insulation until it was banned in the 1970s. ACM is most commonly found in window caulking, exterior grout, vinyl floor tiles/mastic, drywall systems, fire doors, ceiling tiles, pipe insulation, roofing materials, and window glazing. It can also be found on ancillary infrastructure such as steam lines, boiler room equipment, and piping. LBP has been banned since 1978, but facilities constructed before that year could have LBP on woodwork, siding, windows, and doors. Army policy requires each installation to develop and implement a facility management plan for identifying, evaluating, managing, and abating LBP hazards. PCBs were domestically manufactured from 1929 until their manufacture was banned in 1979. PCBs can be found in pad- and pole-mounted electrical transformers, fluorescent light ballasts, and other electrical equipment. PCB materials were used in paints and caulking to increase pliability and chemical resistance. PCB-containing paints were widely used on facilities associated with the production, storage, and packaging of explosives and propellants (e.g., ammunition storage igloos, explosive production plants, testing laboratories) (USACE 2012b).

Radon is a naturally occurring radioactive gas that can cause lung cancer. Des Moines County is located in the USEPA's Radon Zone 1 for average residential indoor radon concentrations. Based on data that have been collected by the USEPA, indoor radon gas levels in these zones may exceed 4 picocuries per liter (pCi/L). When radon levels exceed 4 pCi/L, the USEPA recommends mitigation measures, such as forced ventilation and sub-slab depressurization to reduce exposure risk to building occupants (USEPA 2019e).

There are currently no known or suspected USTs or sites subject to an environmental cleanup program in the action area. Site reconnaissance activities conducted for the Phase I Environmental Site Assessment found no ASTs/USTs or indicators of their presence. The registered and leaking UST database review conducted during the Phase I Environmental Site Assessment also identified no targets in the action area, although a possibility exists that a UST(s) could have existed in the past because not all USTs are registered, and records may have been lost (Klingner & Associates, P.C. 2015).

3.12.3 Environmental Consequences

3.12.3.1 Significance Criteria

An impact would be considered significant if implementing the proposed action were to result in any of the following conditions:

- Using hazardous materials that are highly toxic or have the potential to cause severe environmental damage (e.g., extremely hazardous substances as listed in the Superfund Amendments and Reauthorization Act, Title III) (Pub. L. 99-499).
- Generating hazardous waste types or quantities or solid waste quantities that could not be accommodated by the current management systems.
- Disturbing a contamination site that would pose a potential for environmental or health impacts or result in new/additional remediation measures.

3.12.3.2 Proposed Action – Alternative 1

Short-term and long-term minor adverse effects would be expected if the Army implements the proposed action, construction and operation of a rail transload facility at Site A. Every warehouse proposed for renovation or demolition would be assessed for the presence of hazardous materials before demolition or renovation would occur. The assessment would include reviews of records related to the warehouse's historical use; surveys for ACM, LBP, and PCBs; and targeted sampling of parts of the structure, as necessary. Structures with hazardous materials would not be demolished until the hazardous materials that they contain are safely abated in accordance with the environmental statutes and regulations that govern hazardous materials management activities at DoD installations. Any hazardous waste generated as a result of LBP abatement would be managed in accordance with federal regulations.

Minor POL spills from engines and equipment operation could occur during construction and operation of the rail transload facility. Appropriate BMPs, including preparing and adhering to a Spill Prevention, Control, and Countermeasure Plan, would be implemented during all construction activities and operations to ensure that any leaks or spills would have only negligible environmental effects. Contractors would be responsible for handling all regulated materials in accordance with federal and state regulations. Solid wastes generated during the construction and operation of the rail transload facility would be managed in accordance with the installation's policies regarding municipal solid waste collection and disposal. No hazardous wastes are anticipated to be generated during the operation of the rail transload facility, although if hazardous wastes are generated, they would be managed in accordance with IAAAP's RCRA Part B permit.

Although the action area is located in USEPA's Radon Zone 1, radon is unlikely to substantially increase the risk to human health or safety. The action area will be developed for non-residential uses, and much of those uses will involve warehouses with open areas and sufficient ventilation.

Some quantities of hazardous or toxic materials may be handled or temporarily stored during transloading and reloading operations. If so, these materials will be managed in accordance with all applicable federal, state and local requirements.

3.12.3.3 No Action Alternative

Long-term minor adverse effects related to the use, disposal, and storage of hazardous materials would be expected from implementing the no action alternative. Unused warehouses with hazardous materials would continue to deteriorate over time, and an increase in the release of hazardous materials, such as ACM, LBP, and PCBs, into the environment would be likely. The continued presence of hazardous materials in the warehouses would put personnel conducting activities at the warehouses at risk of exposure to those materials.

4.0 CUMULATIVE IMPACTS ANALYSIS

The CEQ regulations implementing NEPA require that the cumulative impacts of a proposed action be assessed (40 CFR 1500-1508). A cumulative effect, as defined by 40 CFR 1508.7, 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.

The CEQ's guidance for considering cumulative effects states that NEPA documents "should compare the cumulative effects of multiple actions with appropriate national, regional, State, or community goals to determine whether the total effect is significant" (CEQ 1997). The first step in assessing cumulative effects involves identifying and defining the scope of other actions and their interrelationship with a proposed action or alternatives. The scope must consider other projects that coincide with the location and timeline of a proposed action and other actions. Section 4.2.1 identifies the projects considered for the cumulative analysis. Section 4.3 provides an analysis of cumulative impacts for each of the environmental resources discussed in this EA.

4.1 METHODOLOGY

4.1.1 Geographic Scope of the Cumulative Effects

The Region of Influence (ROI) of cumulative effects for each resource area was established for this EA based on the natural boundaries of the resources affected, rather than jurisdictional boundaries. Although the cumulative effects analysis focuses primarily on projects within the IAAAP property, the ROI differs for each resource area issue. In cases where the proposed action was determined not to have a direct or indirect effect on a resource, no cumulative effects analysis was conducted. ROIs are defined in Section 4.3 for each resource area.

4.1.2 Timeframe of the Cumulative Effects Analysis

The temporal period for each cumulative analysis varies by resource. Each project in a region has its own implementation schedule, which may or may not coincide or overlap with the schedule for implementing the proposed action. Past actions include projects that have been approved and/or permitted or have started construction. Past actions also include projects that have been completed. Present actions are projects that are under construction or implementation at the time of the analysis in this EA. Reasonably foreseeable future actions are those for which there are existing decisions, funding, formal proposals, recent approvals, or permitting, but have not yet started construction/implementation. More importantly, these actions are all limited to those within the designated geographic scope and time frame. Note that details of the proposed action are still evolving, and detailed site plans or approximate start dates were not available at the time of the writing of this document. Therefore, it is not possible to pinpoint what other projects in the vicinity would coincide with implementation of the proposed action. If the Army decides to proceed with the proposed action, there will be a design stage followed by construction, which would likely occur in phases over time.

This analysis does not evaluate speculative future actions that are merely possible, but rather those that are highly probable based on the information available at the time of this analysis. Projects are considered speculative if there is insufficient or no information known about them or substantial uncertainty exists regarding the project.

4.2 PAST, PRESENT, AND REASONABLY FORESEEABLE FUTURE ACTIONS CONSIDERED FOR POTENTIAL CUMULATIVE EFFECTS

The descriptions of past, present, and reasonably foreseeable future actions within the IAAAP property and the potentially affected vicinity are briefly described in this section. The spatial area of consideration for potential cumulative effects varies by resource area. The cumulative effects analysis of most of the resource areas focuses on projects within the boundaries of the IAAAP property, but also considers numerous projects outside the installation boundaries. The analysis includes cumulative effects of projects under construction in the cities of Middletown, West Burlington, and the City of Burlington that could affect common resource areas such as air quality and traffic and circulation. The geographic distribution, intensity, duration, and historical effects of similar activities are considered when determining whether an activity might contribute cumulatively to the impacts of the proposed action on the resources identified in this EA.

4.2.1 Projects Within the IAAAP Property

Six future projects were identified in the IAAAP Vision Plan (IAAAP 2017):

- Relocation of the Administration Building to area secured by fencing;
- Replacement of Line 3A with a new centrally located production line for lease;
- Upgrades to sewerage system;
- Renovation to production line facilities;
- Bathroom renovations;
- Improvements to pedestrian circulation network.

Due to the lack of information about these projects at this time, it would be speculative to include them in the cumulative impact analysis; however, an additional two projects were identified within the boundaries of the IAAAP Property:

1. **Centralized Solid Waste Facility**. IAAAP proposes to centralize their existing solid waste operation. The new solid waste facility would be located immediately south of the action area in an area previously used for production;
2. **New Modern Melt Pour Site.** A new modernized melt pour site for the IAAAP is in the early NEPA planning stages. The Preferred Action would include construction of an approximately 240,000 square foot facility, sited on the Eastern portion of the IAAAP, which has been previously disturbed and developed with internal roads and rail. The facility would be constructed close to utilities (within approximately one mile) to make use of existing utilities infrastructure, as well as existing roads and rail to the greatest extent feasible.

4.2.2 Projects Outside the IAAAP Property

The following offsite construction projects (not related to the proposed action) within 5 miles of IAAAP in the communities of Middletown and West Burlington were considered for potential cumulative effects in combination with potential impacts resulting from the proposed action.

Project 1 below was considered because of the regional traffic improvement it offers to accommodate any increase in traffic due to the proposed action.

1. **Iowa Department of Transportation Highway 61 Widening Project.** A portion of Highway 61 in Des Moines, South of 210th Street to north of Mediapolis is currently being widened from two to four lanes. An additional four-lane section will be added from north of Mediapolis to one mile north of Iowa 78 in Louisa County. Northern sections of U.S. Highway 61 are anticipated to be completed in 2022. IDOT has long-term plans to widen U.S. Highway 61 to 4 lanes to the Quad City area (Davenport, Bettendorf, Rock Island, Moline and East Moline Illinois).
2. **River Trail, Burlington to Big Hollow Recreation Area.** Des Moines County is currently developing a hiking/biking trail that will extend approximately 20 miles from Downtown Burlington through the Flint River Valley. The trail will be widened to 10 feet to pass under the U.S. Highway 61 underpass to Flint Bottom Road.
3. **The Middletown School**. The Middletown School (established in 1847) located on the south side of Business Route 34 between Texas and Boundary Avenues was recently demolished. There are no firm plans for new construction at this time, although residential construction is likely to be proposed in the near future primarily because the 1.5-acre lot is mostly surrounded by residential properties.
4. **Residential Developments.** Several single-family residential units have been recently constructed in the Middletown area around Boundary Avenue and Louisiana Street. Several other parcels around Middleton are potentially available for residential development in the near future; however, no concrete subdivision plans have been submitted to the Des Moines County Planning Department (Des Moines County 2019).

Each of these two projects within IAAAP and four projects outside of IAAAP were therefore determined to have an increased potential to contribute cumulatively to the impacts of the proposed action on the resources identified in this EA.

4.3 CUMULATIVE IMPACTS ANALYSIS BY ENVIRONMENTAL RESOURCE AREA

This section addresses the potential cumulative impacts of the proposed action on each resource area in conjunction with past, present, and reasonably foreseeable projects.

4.3.1 Air Quality

4.3.1.1 Proposed Action

The Region of Influence (ROI) for cumulative impacts on air quality includes the AQCR, the Burlington-Keokuk Interstate AQCR (40 CFR 81.98), in which the action area is located. This ROI includes the two projects within the IAAAP Property, and the four projects identified outside of the IAAAP. The cumulative analysis of air quality is based on attainment of the NAAQS. The USEPA has classified the Burlington-Keokuk Interstate AQCR as an attainment/unclassifiable (40 CFR 81.316) area for criteria pollutants.

The projects located within the IAAAP property are replacing previously operating facilities and will be outfitted with the latest emissions control technologies. New or modified sources required for these projects would also be permitted to comply with the IAAAP's Title V Operating

Permit. As a result, the emissions of criteria pollutants from these facilities would likely decrease. The projects located outside of the IAAAP, including residential development, road widening, and hiking/biking trails construction, would result in short-term minor adverse effects during their construction. These short-term effects would be reduced through the use of emissions control systems (e.g., catalytic converter), dust suppression (i.e., apply water to exposed surfaces), fuel-economy standards, and vehicle inspection and maintenance programs. The permitting of new or modified sources of emissions during the construction of the projects located outside of the IAAAP are not anticipated. As a result, the emissions of criteria pollutants from these projects would likely be minor. When added to the potential effects from other construction projects at the IAAAP and surrounding communities, the proposed action is not likely to result in significant cumulative effects on air quality.

The impacts described above from the proposed action to air quality are temporary and minor and the potential impacts from the above listed projects are minor or do not overlap in time or space with the proposed action. Therefore, the proposed action in conjunction with any past, present, or reasonably foreseeable future actions is not expected to result in significant impacts to air quality.

4.3.1.2 No Action Alternative

The no action alternative would not create new impacts on air quality, only a continuation of existing conditions. When added to the effects from other projects in the cumulative effects region, the no action alternative would not result in significant cumulative effects.

4.3.2 Physical Resources (Soils)

4.3.2.1 Proposed Action

The ROI for cumulative impacts on soils erosion includes the projects within Des Moines County that are located in the Mississippi River watershed. This ROI includes the two projects within the IAAAP Property and the four projects identified outside of the IAAAP. The cumulative analysis of soil erosion is based on attainment of the state water quality goals for sediment. The receiving segment (618) of the Mississippi River is not on the IDNR's Impaired Waters Map, and a Total Maximum Daily Load has not been developed for it (IDNR 2019a; IDNR 2019b).

The projects located within and outside the IAAAP property will be required to comply with the NPDES. The NPDES requires construction or ground-disturbing projects that involve 1 acre of land disturbance or more to implement BMPs (e.g., silt fencing, wetting of exposed soils, site stabilization, use of geotextile and/or rip-rap) to minimize the potential for construction-related erosion and sedimentation. As a result, soil erosion from these projects would likely be minor. When added to the potential effects from other construction projects at the IAAAP and surrounding communities, the proposed action is not likely to result in significant cumulative effects on soil erosion.

The impacts described above from the proposed action to soil erosion are temporary and minor, and the potential impacts from the above listed projects are minor or do not overlap in time or space with the proposed action. Therefore, the proposed action in conjunction with any past, present, or reasonably foreseeable future actions is not expected to result in significant impacts to soils erosion.

4.3.2.2 No Action Alternative

The no action alternative would not create new impacts on soil erosion, only a continuation of existing conditions. When added to the effects from other projects in the cumulative effects region, the no action alternative would not result in significant cumulative effects.

4.3.3 Biological Resources

4.3.3.1 Proposed Action

The ROI for cumulative impacts on biological resources includes projects within 5 miles of the action area. This includes the two projects identified within the IAAAP and the two residential development projects identified outside of the IAAAP. The work on widening Highway 61 and the Big Hollow River trail were determined to be outside of the ROI for the purposes of the Cumulative Biological Resources impact analysis.

The cumulative analysis of biological impacts is based on the presence of plant communities that provide suitable habitat for the species most likely to be impacted by the proposed action. Projects with potential direct and indirect impacts on biological resources include those that would result in the loss of native plant communities, permanent loss of sensitive plant populations, species losses that affect population viability, and the reduction in adjacent habitat quality from temporary actions such as the addition of noise, vibration, and dust during operations. For native plant and wildlife communities, other cumulative impacts could include habitat fragmentation or the permanent loss of contiguous (interconnecting) native habitats such as migration or movement corridors.

The cumulative analysis of biological resources for this EA included an assessment of existing and proposed development in mostly agricultural areas that support a variety of habitat for species, including bats, birds, and raptors. Natural vegetative communities surrounding IAAAP have been highly modified by historic land uses, including agriculture. Despite this, IAAAP continues to support a large diversity of wildlife, including two federally protected species (Indiana and Northern long-eared bats). IAAAP prepared an INRMP (IAAAP 2018) and an ESMP (Stantec 2015) that guides the management of IAAAP's natural resources and endangered species while maintaining military mission readiness. Programmatic consultation with the USFWS provides the foundation for ESA compliance at the IAAAP. Impacts to protected species, including the Indiana and Northern long-eared bats and migratory birds, would be avoided through implementation of the Special Operating Procedures outlined in Chapter 5.

Because the proposed action and the projects identified in Section 4.2.1, including the centralized solid waste facility and the modern melt pour facility, would be built on previously disturbed areas, these projects are not expected to result in significant cumulative impacts because surrounding uses would remain agricultural. Each project would be required to comply with applicable IAAAP and federal regulations, including NEPA, to avoid or minimize impacts on plant and wildlife species, with emphasis on avoiding impacts on special status species such as Indiana and Northern long-eared bats. Although there are few details regarding these two proposed projects within IAAAP, it is likely that both projects would require coordination with the IDNR and USFWS to avoid impacts to state and federally listed species. Similarly, residential development on existing residential lots in Middletown and the redevelopment of the Middletown School lot are located within previously disturbed areas. Development of these sites

would require compliance with state and federal natural resource regulations to avoid take of special status species and to avoid impacts to wetland habitat.

When added to the potential effects from other construction projects at the IAAAP and surrounding communities, the proposed action is not likely to result in significant cumulative effects on biological resources.

The impacts described above from the proposed action to biological resources are temporary and minor, and the potential impacts from the above listed projects are minor or do not overlap in time or space with the proposed action. Therefore, the proposed action in conjunction with any past, present, or reasonably foreseeable future actions are not expected to result in significant impacts to biological resources.

4.3.3.2 No Action Alternative

The no action alternative would not create new impacts on biological resources, only a continuation of existing conditions. When added to the effects from other projects in the cumulative effects region, the no action alternative would not result in significant cumulative effects.

4.3.4 Water Resources

4.3.4.1 Proposed Action

The ROI for water resources includes IAAAP and receiving waters, which include the projects listed in Section 4.2.1. As discussed in Section 3.5, implementation of the proposed action would not result in significant impacts on water resources. Development projects within the IAAAP property and in the cities of Middletown and Burlington would comply with the same regulatory requirements and use similar erosion control measures and BMPs as described for the proposed action. Under applicable environmental regulations (i.e., NEPA), other future projects would be required to consider their potential cumulative effects and to implement measures to avoid or minimize impacts on water resources. The proposed action would comply with the NPDES Construction Permit, and SWPPP.

Although the areal extent of impervious surfaces would increase from the proposed action and each of the projects identified in Section 4.2.1, the impact to water quality would be minimal assuming appropriate stormwater quantity and quality control would be implemented. Each of the projects identified in Section 4.2.1 would be required to avoid regulated waters or wetlands. For projects that disturb more than 1 acre, erosion and sediment control plans and stormwater management plans would be prepared in accordance with state and local regulations. With implementation of BMPs from each of these overlapping requirements, the proposed action, in combination with the projects identified in Section 4.2.1, is not expected to result in a significant impact on hydrology and water. Therefore, when added to the impacts from other potentially cumulative actions, the proposed action would not result in significant cumulative impacts on water resources.

4.3.4.2 No Action Alternative

The no action alternative would not create new impacts on hydrology and water resources, only a continuation of existing conditions. When added to the effects from other projects in the cumulative effects ROI, the no action alternative would not result in significant cumulative effects.

4.3.5 Cultural Resources

4.3.5.1 Alternative 1 (Preferred Alternative)

Under the proposed action, there could be cumulative impacts to historic structures. However, impacts to the specific structures within the preferred alternative project area would be mitigated through the 2006 Program Comment discussed in Section 3.6.2.4. There are no NRHP-eligible archaeological sites within the project area, so ground disturbance would not affect any archaeological resources.

4.3.5.2 No Action Alternative

Under the no action alternative there would be no cumulative impacts to cultural resources because with this alternative, there will be no changes to the existing infrastructure and no ground disturbance. When added to the effects from other projects in the cumulative effects ROI, the no action alternative would not result in significant cumulative effects.

4.3.6 Land Use

4.3.6.1 Alternative 1 (Preferred Alternative)

The ROI for land use includes projects within a 5-mile radius of the action area identified in Section 4.2.1. The proposed action would not result in a change to IAAAP's Industrial Land Use Designation in Des Moines County Comprehensive Plan. Other actions on IAAAP, including the solid waste facility and new melt pour facility (both within agricultural areas) would not result in a change to IAAAP's Industrial Land Use Designation in Des Moines County Comprehensive Plan. The ongoing and proposed lane widening projects on U.S. Highway 61 would not involve a change to land use nor would the future development of residential properties in Middleton and Burlington.

Therefore, when added to the impacts from other potentially cumulative actions, the proposed action would not result in significant cumulative impacts from land use change.

4.3.6.2 No Action Alternative

The no action alternative would not result in changes to land use, only a continuation of existing conditions. When added to the effects from other projects in the cumulative effects ROI, the no action alternative would not result in significant cumulative effects.

4.3.7 Transportation

4.3.7.1 Alternative 1 (Preferred Alternative)

The ROI for transportation includes traffic generated from activities at the IAAAP property and traffic within a 5-mile radius of the project site, including the projects identified in Section 4.2.1. This analysis specifically focuses on the public roadway network that provides local and regional access to and from IAAAP. Projects within the IAAAP and the cities of Middletown and Burlington would lead to an increase in construction-related traffic. Traffic from operational use of these and other facilities would contribute to overall traffic conditions on the surface roads near the IAAAP.

Existing regional traffic and traffic generated from the projects identified in Section 4.2.1 combined with traffic from the proposed action are expected to result in a minor cumulative contribution to traffic facilities concentrating traffic at U.S. Highway 34 interchanges between

DMC 79 and Beaverdale, and U.S. Highway 61. Impacts during grading and construction would be short term, ending after completion of the project. Regardless, a TCP would be implemented as discussed in Section 3.8.3. The additional operational traffic to existing traffic and traffic generated by the projects identified in Section 4.2.1 are not anticipated to be cumulatively significant for the following reasons:

- Projects Within the IAAAP: After it is constructed, the Centralized Solid Waste Facility would reduce IAAAP's need to transport solid waste to off-site facilities, thereby reducing the IAAAP's cumulative traffic impact. The new modern melt pour site would result in a minor and temporary increase in traffic during the construction phase. Although few details are available at this time, the new facility is not anticipated to generate a net increase of traffic during the operational phases since this is an existing use at IAAAP.
- Projects Outside the IAAAP: According to the Des Moines County Development Services, there are currently no applications for residential development within a 5-mile radius of the proposed action (Des Moines County 2019); therefore, the timing and volume of construction and build out traffic is not known at this time. The River Trail widening project is not anticipated to have a measurable cumulative impact on traffic, whereas the U.S. Highway 61 widening project is anticipated to improve traffic and circulation in the region.
- According to the SEIRPC Great River Region Transportation and Development Plan 2050 Long Range Plan (SEIRPC 2018), a portion of Highway in Des Moines South of 210th Street to north of Mediapolis is currently being widened from two to four lanes. An additional four-lane section will be added from north of Mediapolis to one mile north of Iowa 78 in Louisa County. Northern sections of U.S. Highway 61 are anticipated to be completed in 2022. U.S. Highway 34 is 4-lanes from Burlington westward, but is 2-lanes east of Burlington within the State of Illinois. These projects will improve circulation.
- U.S. Highway 34 and parallel Business Route 34 split "through traffic" and "local traffic," improving circulation.

Although the proposed action would cumulatively contribute to the traffic volume during grading and construction, should any other construction related traffic occur concurrently, the increase in traffic would be intermittent, short-term, and minor in intensity. The operational traffic is not expected to have a significant impact on traffic when added to the existing regional traffic and traffic resulting from other projects identified in Section 4.2.1 due to in part to IDOT's and Southeast Iowa Regional Planning Commission's efforts to meet the needs of future growth. Therefore, when added to the impacts from the IAAAP, the proposed action is not expected to contribute to or result in significant cumulative impacts on the current transportation and circulation levels of service.

4.3.7.2 No Action Alternative

The no action alternative would not create new impacts on traffic and circulation. When added to the effects from other projects in the cumulative effects region, the no action alternative would not result in significant cumulative effects.

4.3.8 Noise

4.3.8.1 Alternative 1 (Preferred Alternative)

The ROI for noise consists of the IAAAP and the adjacent communities of Middletown and West Burlington. These projects are identified in Section 4.2.1. In combination with projects within the surrounding area, the proposed action would generate intermittent, short-term noise impacts within the ROI. The duration of these localized impacts would be limited to the grading and construction phase as discussed in Section 3.9. It is possible that for a period of time construction of other projects within the ROI would overlap with the phased implementation of the proposed action. Should project overlap occur, grading and construction-related noise could potentially magnify noise levels; however, due to the distance between the projects and the prevalence of shielding topography and structures, no cumulative noise impacts related to sensitive noise receptors are expected.

Therefore, when added to the impacts from other potentially cumulative actions, the proposed action would not result in significant cumulative impacts related to noise.

4.3.8.2 No Action Alternative

The no action alternative would not generate new noise impacts. When added to the effects from other projects in the cumulative effects region, the no action alternative would not result in significant cumulative effects.

4.3.9 Socioeconomics

4.3.9.1 Action Alternative 1 (Preferred Alternative)

The ROI for socioeconomic influence is within the region where employees at IAAAP are likely to reside, including Middleton, West Burlington, Burlington City, and surrounding communities. The proposed action would result in a net increase in employment opportunities for the region. As previously discussed in Section 3.10.2, IAAAP is a significant employer in southeastern Iowa with approximately 20 government personnel on staff at IAAAP. The prime contractor American Ordnance, LLC, employs 700-800 persons at IAAAP. There are numerous third-party tenants operating under arrangements with American Ordnance, LLC. All have small operations and a few personnel on the Plant. (IAAAP 2018). Additional local workforce opportunities may arise with the development of the new solid waste facility and melt pour facility.

When added to the effects from other projects in the cumulative effects region identified in Section 4.2.1, the proposed action is not expected to result in cumulatively disproportionate affects to minority or low-income populations because the potentially affected census tracts in the ROI are not considered minority or low-income populations.

4.3.9.2 No Action Alternative

The no action alternative would not generate new socioeconomic impacts. When added to the effects from other projects in the cumulative effects region, the no action alternative would not result in significant cumulative effects.

4.3.10 Utilities

4.3.10.1 Alternative 1 (Preferred Alternative)

The ROI for utilities includes projects identified in Section 4.2.1. For each of the projects proposed, the project proponent would be required to apply for and receive a service availability letter and agreement from each prospective utility (i.e., Alliant Energy, Burlington Water Works, LISCO). Therefore, when added to the impacts from other potentially cumulative actions in the ROI, the proposed action would not result in significant cumulative impacts related to utility service, because the utility service provider must determine if the utility will have adequate capacity to serve the additional utility customers.

4.3.10.2 No Action Alternative

The no action alternative would not create new impacts on utilities. When added to the effects from other projects in the cumulative effects region, the no action alternative would not result in significant cumulative effects.

4.3.11 Hazardous Materials and Solid/Hazardous Wastes

4.3.11.1 Alternative 1 (Preferred Alternative)

The ROI for cumulative impacts on hazardous materials and solid/hazardous wastes includes projects within 5 miles of the action area. This ROI includes the two projects identified within the IAAAP Property, and the four projects identified outside of the IAAAP. The cumulative analysis of hazardous materials and solid/hazardous wastes is based on the disposal of solid wastes and the capacity of installation and regional landfills to accept it. No hazardous wastes are anticipated to be generated and only minor quantities of hazardous materials, such as POLs are anticipated to be utilized or encountered by these additional projects, both within and outside of the IAAAP. Overall, the quantity of solid waste generated during construction activities is small compared to the quantity landfilled by the ROI on a continuing basis. When added to the potential effects from other construction projects at the IAAAP and surrounding communities, the proposed action is not likely to result in significant cumulative effects on hazardous materials and solid/hazardous wastes.

The impacts described above from the proposed action to hazardous materials and solid/hazardous wastes are minor and the potential impacts from the above listed projects are minor or do not overlap in time or space with the proposed action. Therefore, the proposed action in conjunction with any past, present, or reasonably foreseeable future actions are not expected to result in significant impacts to hazardous materials and solid/hazardous wastes.

4.3.11.2 No Action Alternative

The no action alternative would not create new impacts on hazardous materials and solid/hazardous wastes, only a continuation of existing conditions. When added to the effects from other projects in the cumulative effects region, the no action alternative would not result in significant cumulative effects.

5.0 SPECIAL OPERATING PROCEDURES

This section summarizes special operating procedures associated with this EA. Special operating procedures presented below in Table 5.1 are defined as best management practices that would be implemented to address minor potential environmental impacts associated with the implementation of the proposed action. These procedures involve avoiding impacts, minimizing impacts, and taking actions to compensate for unavoidable impacts. This EA is for the consideration of potential environmental impacts associated with the proposed action to make property available for the construction and operation of a rail transload facility. While there are conceptual plans for the future use of this site as a rail transload facility, currently, the installation has not received any detailed plans or development proposals. As these details start to take shape and specific development proposals are submitted, subsequent environmental analysis and NEPA documentation will be completed for specific development proposals if and when they are received. This will be done through IAAAP's RUF process. In addition, if potential environmental impacts associated with project-specific proposals are below the significance criteria presented above in Chapter 3, then subsequent NEPA documentation can be accomplished by tiering off of this EA and completing a REC. Alternatively, the Army may initiate a supplemental EA for that project.

TABLE 5-1: SPECIAL OPERATING PROCEDURES BY RESOURCE AREA

Special Operating Procedures by Resource Area	
Number	**Special Operating Procedures**
Air Quality	
AQ-1	Special operating procedures would be utilized during the implementation of the proposed action to lessen the short- and long-term minor adverse effects to air quality. These procedures for mobile sources active during construction and operation of the rail transload facility include: emissions control systems (e.g., catalytic converter), fuel-economy standards, and vehicle inspection and maintenance programs. During construction of the rail transload facility, fugitive dust would be managed through actions, such as dust suppression (i.e., apply water to exposed surfaces) and reduced vehicle speeds. If additional stationary sources are required, they would be evaluated for compliance with IAAAP's Title V Operating Permit and regulated, as necessary, to comply with it.
Soils	
S-1	Special operating procedures would be utilized during the implementation of the proposed action to reduce the short- and long-term minor adverse effects to soils. These procedures to control soil erosion during construction of the rail transload facility include: silt fencing, wetting of exposed soils, site stabilization, and use of geotextile and/or rip-rap. The loss of permanent soils and their erosion buffering capacity would be lessened through the use of sustainable design and construction techniques, such as low-impact development features, infiltration basins, bioretention basins, vegetated swales, and permeable pavers.
Biological Resources	
BIO-1	Restrict removal of vegetation that may affect potential Indiana bat and Northern long-eared bat summer habitat to the period outside the summer maternity dates of April 1 to September 30. Comply with the IAAAP Endangered Species Management Plan.

BIO-2	Restrict vegetation removal to take place outside of the bird breeding season, between March 15 to July 15. If clearing activities are required during the nesting period, a qualified person will conduct surveys of the affected habitats prior to clearing to determine if nesting migratory birds are present. This survey would be coordinated with USFWS and the results would be submitted to USFWS to determine if any migratory birds would be affected species. Clearing of vegetation will be kept to a minimum and provisions of the MBTA would be adhered to as applicable. The provisions of the MBTA are applicable to construction activities (such as clearing, grubbing, and tree removal) that may result in the taking of migratory birds, eggs, or young, including active nests. The MBTA is applicable year-round. Under the MBTA, nesting birds cannot be disturbed. If an occupied nest is encountered, work will stop until the biological monitor can make a determination of how to proceed.
BIO-3	To minimize potential impacts on state-listed species, IAAAP would minimize impacts on habitat favorable to these species to the extent practical during final design. Clearing of potential habitat favorable to state-protected species would be kept to a minimum, and provisions of laws regarding state-protected species would be adhered to as applicable
BIO-4	Comply with State water quality standards through SWPPPs, which include erosion and sediment control, spill control, runoff detention, and treatment. Potentially contaminated runoff would be managed using stormwater BMPs. Swales would be constructed adjacent to wetlands in upland areas to intercept and filter runoff before it reaches the wetland.
BIO-5	All appropriate sediment and erosion control practices should be installed to minimize risk of sedimentation of the waterbody during all phases of the proposed action.
BIO-6	Any proposed in-water activities, or associated in-water structures, should not interfere with fish passage, constrict the channel width, or reduce flows.
BIO-7	Avoid instream construction activities during spawning April through mid-May to minimize disturbance to these species during reproduction as well as Best Management Practices (BMPs) to control erosion and sedimentation.
BIO-8	Grading and construction activities would be monitored to ensure compliance with the avoidance and minimization measures listed in this document.
BIO-9	Manage fugitive dust during construction.
BIO-10	Grading and construction activities would be limited to daylight hours to the extent practical.
BIO-11	Should a sighting of any federally protected animal occur within the designated construction area during operations, the biological monitor shall be notified as soon as possible. If an animal is injured, the biological monitor must be notified immediately.
BIO-12	All personnel shall leave animals undisturbed. Never chase or harass any wildlife.
BIO-13	Avoid grading and construction in wetlands and waters of the U.S.
BIO-14	Following earth moving activities, the site will be restored by hydroseeding with a with a local, native seed mix approved by IAAAP. Utilize fill dirt, mulch, and other landscaping materials from the installation or certified weed-free sources.

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Hydrology and Water Resources	
HYD-1	Appropriate BMPs would be implemented in accordance with the Construction General Permit and SWPPP that meet requirements for Best Available Technology and Best Conventional Pollutant Control Technology to reduce or eliminate pollutants from entering receiving waters. These BMPs generally fall into four main categories: erosion control, soil stabilization, sediment control, and non-storm water management. BMPs may include but not be limited to the following: a. Stabilize disturbed soils through erosion and sediment control measures. b. Revegetate disturbed areas with native or naturalized plant species consistent with the surrounding vegetation once demolition is complete. c. Protect storm drains around the demolition sites with sediment control (e.g., fiber rolls, sediment traps). d. Store hazardous materials with proper secondary containment and establish designated vehicle and equipment maintenance areas. e. Manage spills and leaks from vehicles and equipment through inspections and use of drip pans, absorbent pads, and spill kits. Other guidance on preparing the required SWPPP and identifying appropriate construction related BMPs to minimize or reduce soil erosion and water quality impacts can be found at the IDNR Environmental Protection website: https://www.iowadnr.gov/Environmental-Protection/Water-Quality/NPDES-Storm-Water/Storm-Water-Manual and from the USEPA *Stormwater Discharges From Construction Activities* website: https://www.epa.gov/npdes/stormwater-discharges-construction-activities.
HYD-2	Avoid impacts to wetlands and regulated waters of the U.S. If grading or construction takes place that could include a wetland, river, stream, creek, run, canal, channel, ditch, lake, reservoir or embankment, contact USACE, Rock Island District, Regulatory Branch at the earliest possible time to determine if a Corps Section 404 permit is required. A minimum of four months should be allowed for wetlands permitting. In some instances, wetland permitting may take a year or more, especially if the size or quality of the wetland is significant and the activity cannot be covered under one of the Corps' nationwide permits. Additional information on wetlands can be found at: www.iowadnr.gov/InsideDNR/RegulatoryWater/WetlandsPermitting.aspx

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Cultural Resources	
CR-1	Maintenance, alteration, renovation and demolition of buildings can result in adverse effects to historic properties. Therefore, follow the SOP steps in the ICRMP including: • Define the APE. • If the affected property is a WWII-era temporary building, the Cultural Resource Manager (CRM) may allow proposed demolition to proceed without further action. However, if the temporary building is within an identified district, the undertaking should be reviewed by the SHPO. • If the structure has not been evaluated for NRHP eligibility, the CRM shall ensure that an evaluation is completed by qualified personnel. • Demolition of some NRHP-eligible or listed historic buildings or structures may require preparation of a Memorandum of Agreement (MOA) among IAAAP, the SHPO and the ACHP. • If an adverse effect on an historic building or structure cannot be avoided, alternative actions are possible, including redesign, implementing a mitigation plan based on a MOA.
CR-2	Construction of new buildings can have an adverse effect on historic properties including by intrusive visual impacts. • All planned new permanent construction shall be reviewed by the IAAAP CRM for possible adverse effects. • If new construction is not within a historic district and won't disturb the ground surface, the CRM will consult with the SHPO and undertaking may proceed. • If new construction is within an historic district, the CRM will consult with appropriate staff, other planners and the SHPO. • Follow the ICRMP for procedures to comply with NHPA Section 106.
CR-3	Every undertaking that disturbs the ground surface has the potential for the discovery of buried and previously unknown archaeological deposits. In the event of an inadvertent discovery of a protected resource, then the Inadvertent Discovery provision (Standard Operating Procedure #5) of the IAAAP ICRMP shall be followed.

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Noise	
NOI-1	Grading and construction equipment would not operate between the hours of 9:00 p.m. and 7:00 a.m. During demolition and excavation activities, BMPs such as placing mufflers on all equipment and limiting the hours of demolition and excavation activities would reduce public exposure to noise. The impact avoidance and minimization measures associated with potential noise impacts would comply with the noise requirements discussed in the Burlington Noise Control Ordinance Sec. 21-13.
NOI-2	Power equipment or machinery would not operate outdoors between the hours of 9:00 p.m. and 7:00 a.m. except in emergency situations.
NOI-3	Provide public notice to the surrounding community prior to commencement of grading and construction.
NOI-4	The facility use contractor will maintain a noise management plan to minimize the effects of noise generating activities.
NOI-5	At the discretion of the authorized wildlife biologist, provide vegetation or manmade buffers (e.g., berms, fencing, etc.) between the project and sensitive biological resource to avoid potential impacts.
Socioeconomics	
SOC-1	Potential local employment benefits of a project can be encouraged by providing appropriate skills training programs and employment opportunities for the local population. Encourage potential local suppliers of goods and services to register for construction and operations procurements.
Traffic and Circulation	
TRA-1	Prepare and submit a letter with the revised project description to the Iowa Department of Transportation. The project description should include a description of proposed road improvement outside of the IAAAP. A Traffic Impact Letter is required if the project generates less than or equal to 500 ADT. A traffic Impact Study is required if the project generates more than 500 ADT (IDNR 2013).
TRA-2	Prior to grading and construction activities, a TCP would be developed and implemented to minimize impacts to external circulation near the action area site. The plan would illustrate the transportation and hauling routes to and from the work site, contain maps of all areas likely to disrupt traffic flow, and illustrate detour routes, signage, sign placement, and/or use of worker signs
TRA-3	Encourage car or van pooling and use of public transit use.
TRA-4	To the extent feasible, schedule construction equipment movement during non-peak hours, requiring contractor employees to park remotely and be bussed to construction site, introduction of traffic-volume restrictions or controls for certain times of day, establishing detours with appropriate signing, widening of existing roads to create additional traffic lanes, providing transit service and implementing measures to reduce single-occupant vehicles, providing safe bicycle paths, providing new or improved pedestrian facilities increasing roadway and intersection capacity, reducing densities of land uses to reduce the number of vehicle trips made by the proposed action-related operations personnel, restricting the hours of construction to off-peak or nighttime periods, and using staggered work hours.

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Utilities	
UTI-1	Potable water treatment supply and distribution system mitigation measures include use of water-saving faucets and toilets, use of native and drought tolerant plants in landscaping, and reuse of storm water and grey water for irrigation. Wastewater collection and treatment system minimization measures include the incorporation of water saving devices. Storm water collection and discharge system minimization measures include implementing low-impact design best management practices such as preservation of existing vegetation, building design that includes roof runoff collection and reusing it as gray water for landscaping, and other nonpotable uses. Additional storm water minimization measures include stormwater basins and retention ponds, pervious parking lots, and vegetated buffer along roadways to increase runoff infiltration and decrease sheet flow. Electricity generation and distribution system minimization measures include energy conservation measures such as building orientation, energy-efficient glazing, and energy efficient systems. Measures to minimize impacts from utility distribution lines include designing utility routes under or adjacent to existing and planned rights-of-way. Natural gas delivery and distribution system minimization measures include incorporating energy-efficient devices in all facilities to reduce natural gas demand. Solid waste collection and disposal system minimization measures include waste reduction and recycling.
Hazardous Materials and Solid/Hazardous Waste	
HM-1	Special operating procedures would be utilized during the implementation of the proposed action to reduce the short- and long-term minor adverse effects to hazardous materials and solid/hazardous waste. These adverse effects would be reduced through the use of Spill, Prevention, Control, and Countermeasures Plans. These plans would identify the procedures to contain, cleanup, and minimize the effects of a minor POL spill that occurred during construction and operation of the rail transload facility. If hazardous wastes are generated, they would be managed in accordance with federal and state regulations, which include proper management, emergency planning, and training requirements. Any hazardous materials would be abated prior to warehouse demolition and renovation and are not part of the proposed action; however, abatement would be conducted in accordance with applicable environmental statutes and regulations that govern hazardous materials management activities at DoD installations.
HM-2	Solid wastes generated would be managed in accordance with the installation's policies. Debris generated during demolition of structures will be recycled to the greatest extent possible. Soil excavated during construction would be stockpiled for construction and landscaping uses, while woody debris from land-clearing activities may be chipped or mulched onsite and used for landscaping.

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6.0 CONCLUSIONS

No potential conflicts are expected between the proposed action and the IAAAP's Vision Plan, Des Moines County Comprehensive Plan, policies, or controls that address and guide land uses within the Installation. Based on the analysis contained herein, this EA concludes that neither the implementation of the proposed action (Alternative 1) nor the no action alternative would constitute a major federal action with a significant impact on human health or the environment.

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Appendix A –Intergovernmental and Interagency Coordination

Tribes

Iowa Tribe of Kansas & Nebraska
Attn: Mr. Tim Rhodd
Executive Committee
3345 B. Thrasher Road
White Cloud, KS 66094

Iowa Tribe of Oklahoma
Attn: Tribal Chairperson
c/o Ms. Amy Scott
Office of Environmental Service
335588 E. 750 Road
Perkins, OK 74059

Meskwaki Nation, Sac and Fox Nation of the Mississippi in Iowa
Attn: Mr. Jarrett Pfimmer
Office of Natural Resources
1826 340th Street
Tama, IA 52339

Sac and Fox Nation
Attn: Tribal Chairperson
c/o Mr. Jeremy Fincher
Office of Environmental Services
356263 E. 926 Road
Stroud, OK 74079

Sac and Fox Nation of Missouri
Attn: Ms. Lisa Montgomery
Environmental Department
305 North Main Street
Reserve, KS 66434

Local Agencies

Des Moines County Government
Roads Department
Attn: Mr. Brian Carter, Des Moines County Engineer
13522 Washington Road
Burlington, IA 52655

Des Moines County Government
Land Use Department
Attn: Mr. Zach James, Land Use Administrator
211 N. Gear Avenue, Suite 100
West Burlington, IA 52655

State Agencies

Iowa Department of Natural Resources
Attn: Mr. Bruce Trautman, Acting Director
Wallace State Office Building
502 East 9th Street, 4th Floor
Des Moines, IA 50319-0034

Iowa Department of Natural Resources – Environmental Services Division
Air Quality Bureau
Attn: Ms. Catharine Fitzsimmons, Air Quality Bureau Chief
Wallace State Office Building
502 East 9th Street
Des Moines, IA 50319

Iowa Department of Natural Resources – Environmental Services Division
Water Quality Bureau
Attn: Mr. Jon Tack, Water Quality Bureau Chief
Wallace State Office Building
502 East 9th Street
Des Moines, IA 50319

Iowa Department of Natural Resources – Environmental Services Division
Land Quality Bureau
Attn: Mr. Alex Moon, Land Quality Bureau Chief
Wallace State Office Building
502 East 9th Street
Des Moines, IA 50319

Iowa Department of Natural Resources
Attn: Dr. Karen Kinkead, Wildlife Diversity Program Coordinator
Wallace State Office Building
502 East 9th Street
Des Moines, IA 50319

Environmental Review for Natural Resources
Iowa Department of Natural Resources
Conservation and Recreation Division
502 East 9th Street
Des Moines, IA 50319

Iowa Department of Agriculture and Land Stewardship
Division of Soil Conservation and Water Quality
Attn: Ms. Susan Kozak, Acting Division Director
Wallace State Office Building
502 East 9th Street
Des Moines, IA 50319

Iowa State Historic Preservation Office
State Historical Society of Iowa
Attn: Mr. Daniel K. Higginbottom, Archaeologist
600 E. Locust Street
Des Moines, IA 50319

Federal Agencies

U.S. Fish & Wildlife Service
Illinois and Iowa Ecological Services Field Office
Attn: Mr. Kraig McPeek, Field Office Supervisor
1511 47th Avenue
Moline, IL 61265

Natural Resources Conservation Service
Iowa NRCS State Office
Attn: Mr. Kurt Simon, State Conservationist
Neil Smith Federal Building
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U.S. Environmental Protection Agency, Region 7
National Environmental Policy Act
Attn: Mr. Larry Shepard
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Lenexa, KS 66219

U.S. Environmental Protection Agency, Region 7
Clean Air Act
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11201 Renner Blvd.
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U.S. Environmental Protection Agency, Region 7
Stormwater
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11201 Renner Blvd.
Lenexa, KS 66219

U.S. Environmental Protection Agency, Region 7
Wetlands Section 404 – Iowa Coordinator
Attn: Ms. Jeannette Schafer
11201 Renner Blvd.
Lenexa, KS 66219

U.S. Environmental Protection Agency, Region 7
RCRA – Hazardous Waste
Attn: Mr. Jim Aycock
11201 Renner Blvd.
Lenexa, KS 66219

U.S. Army Corps of Engineers, Rock Island District
Attn: Regulatory Branch
Clock Tower Building
P.O. Box 2004
Rock Island, IL 61204-2004

Appendix B – Regional Traffic Count Maps

Burlington EB Intersections

Iowa Department of Transportation
Turning Movement Traffic Count Summary
Annualized Daily Traffic For All Vehicles

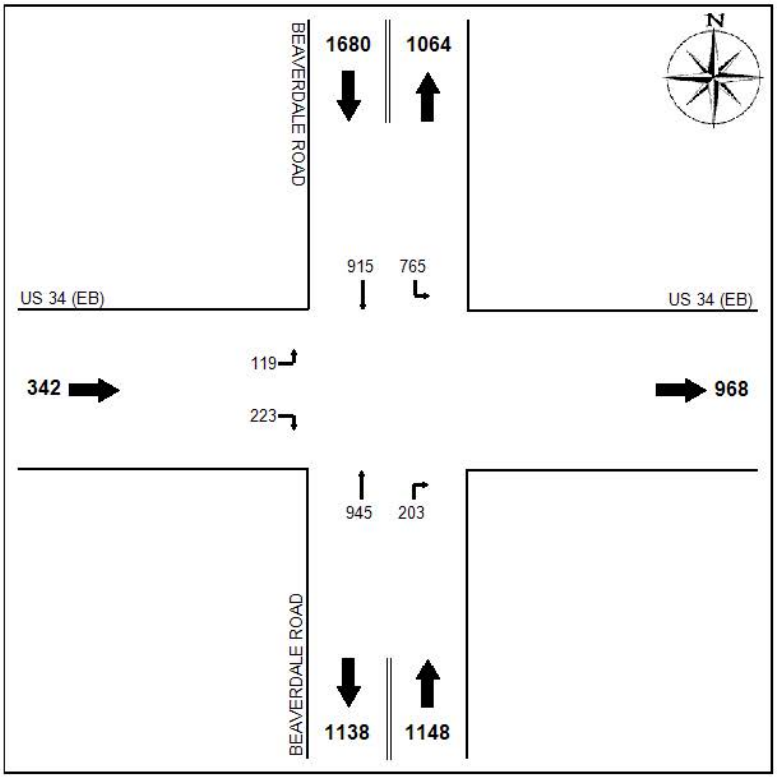
Station Number:
29222543599

Count Date:
Thursday, June 05, 2014

County:
Des Moines

Location Description:
US 34 & BEAVERDALE RD

Volume Factor: 1.849
Pass Class Factor: 1.933
SU Class Factor: 1.545
Combo Class Factor: 1.582



Raw Data-All Vehicles:

	N Leg		S Leg		W Leg	
	L	*T*	*T*	*R*	*L*	*R*
07:00	71	86	47	25	5	21
08:00	60	84	46	13	6	18
11:00	53	79	56	19	11	22
12:00	56	79	68	27	5	24
15:00	36	76	97	19	9	17
16:00	59	51	99	12	16	11
17:00	66	43	94	6	12	11

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Iowa Department of Transportation

Turning Movement Traffic Count Summary

Vehicle Type: Passenger Vehicles

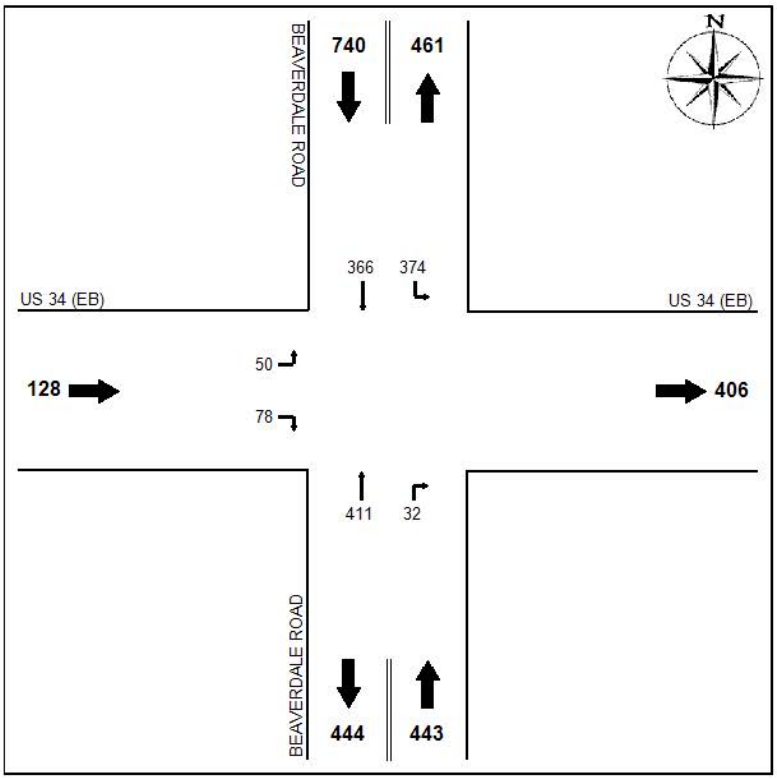
Station Number:
29222543599

Count Date:
Thursday, June 05, 2014

County:
Des Moines

Location Description:
US 34 & BEAVERDALE RD

Volume Factor: N/A
Pass Class Factor: N/A
SU Class Factor: N/A
Combo Class Factor: N/A



Raw Data-Passenger Vehicles:

	N Leg		S Leg		W Leg	
	L	*T*	*T*	*R*	*L*	*R*
07:00	68	68	34	4	5	15
08:00	53	60	30	1	5	9
11:00	48	46	36	4	6	9
12:00	49	52	48	9	3	14
15:00	35	55	85	4	9	13
16:00	57	47	92	7	14	8
17:00	64	38	86	3	8	10

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2

Iowa Department of Transportation

Turning Movement Traffic Count Summary

Vehicle Type: Single-Unit Trucks

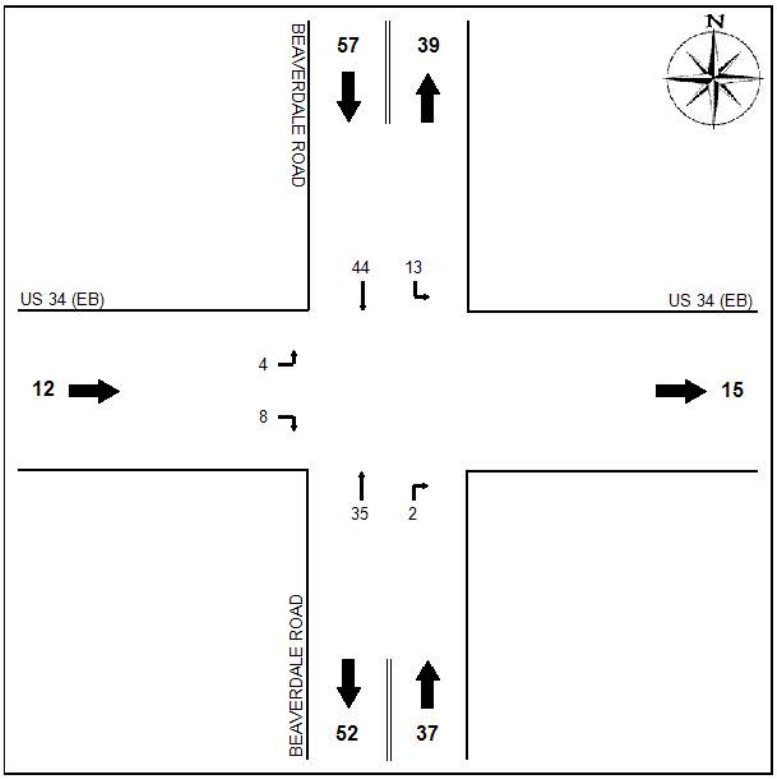
Station Number:
29222543599

Count Date:
Thursday, June 05, 2014

County:
Des Moines

Location Description:
US 34 & BEAVERDALE RD

Volume Factor: N/A
Pass Class Factor: N/A
SU Class Factor: N/A
Combo Class Factor: N/A



Raw Data-Single-Unit Trucks:

	N Leg		S Leg		W Leg	
	L	*T*	*T*	*R*	*L*	*R*
07:00	0	4	2	0	0	1
08:00	5	8	5	0	0	1
11:00	1	11	9	1	3	2
12:00	5	12	7	1	0	2
15:00	0	3	3	0	0	0
16:00	1	2	5	0	1	1
17:00	1	4	4	0	0	1

1
2

Iowa Department of Transportation

Turning Movement Traffic Count Summary

Vehicle Type: Combination Trucks

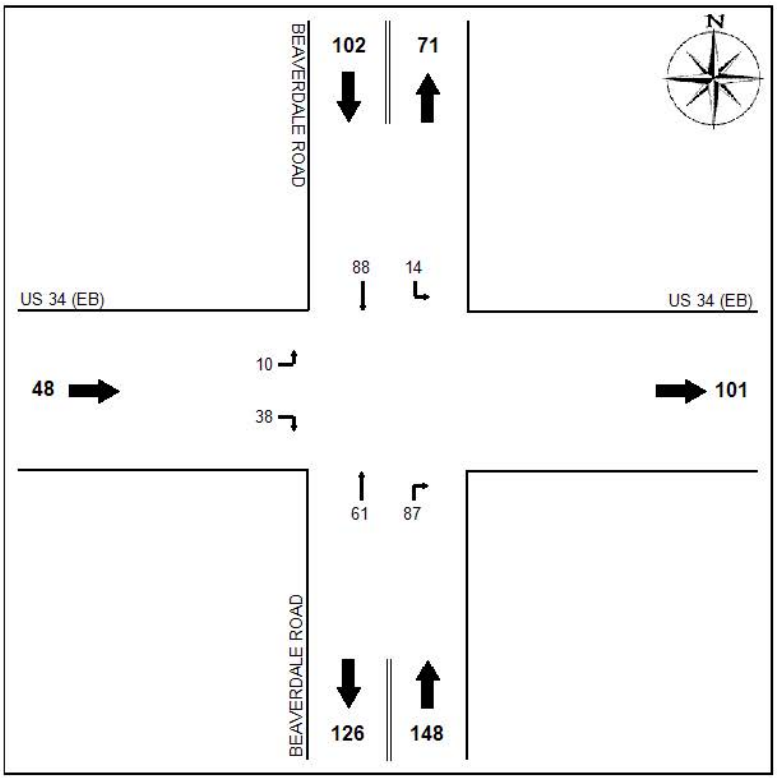
Station Number:
29222543599

Count Date:
Thursday, June 05, 2014

County:
Des Moines

Location Description:
US 34 & BEAVERDALE RD

Volume Factor: N/A
Pass Class Factor: N/A
SU Class Factor: N/A
Combo Class Factor: N/A



Raw Data-Combination Trucks:

	N Leg		S Leg		W Leg	
	L	*T*	*T*	*R*	*L*	*R*
07:00	3	14	11	21	0	5
08:00	2	16	11	12	1	8
11:00	4	22	11	14	2	11
12:00	2	15	13	17	2	8
15:00	1	18	9	15	0	4
16:00	1	2	2	5	1	2
17:00	1	1	4	3	4	0

1

2

1 **Burlington WB Intersections**

Iowa Department of Transportation
Turning Movement Traffic Count Summary
Annualized Daily Traffic For All Vehicles

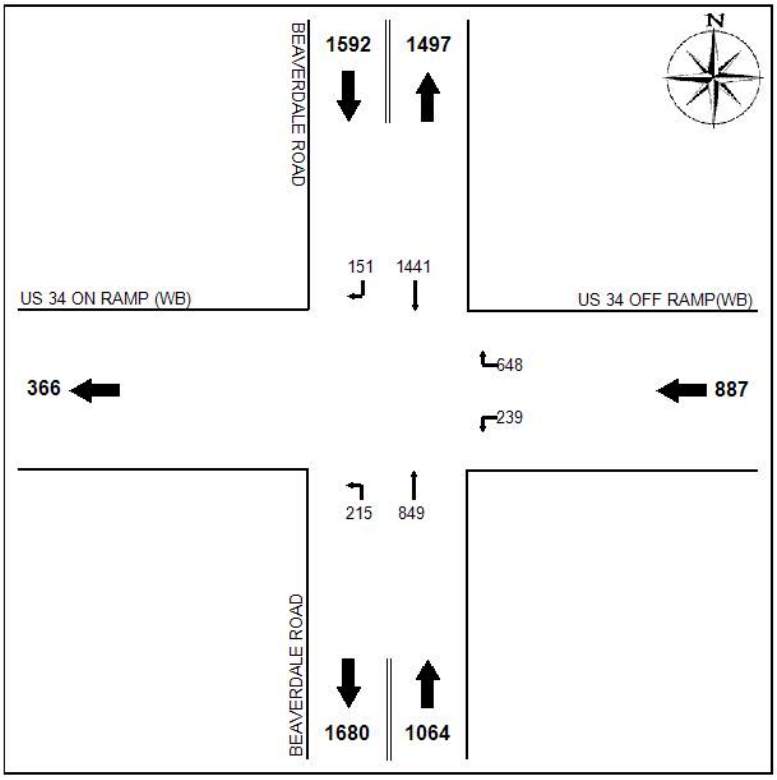
Station Number:
29222543199

Count Date:
Thursday, June 05, 2014

County:
Des Moines

Location Description:
US-34 & Beaverdale Rd.

Volume Factor: 1.849
Pass Class Factor: 1.933
SU Class Factor: 1.545
Combo Class Factor: 1.582



Raw Data-All Vehicles:

	N Leg		E Leg		S Leg	
	T	*R*	*L*	*R*	*L*	*T*
07:00	139	10	18	27	18	34
08:00	118	10	26	33	13	39
11:00	106	11	26	30	12	55
12:00	106	9	29	43	17	56
15:00	83	16	29	58	21	85
16:00	104	10	6	73	20	95
17:00	102	14	7	76	18	88

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Iowa Department of Transportation

Turning Movement Traffic Count Summary

Vehicle Type: Passenger Vehicles

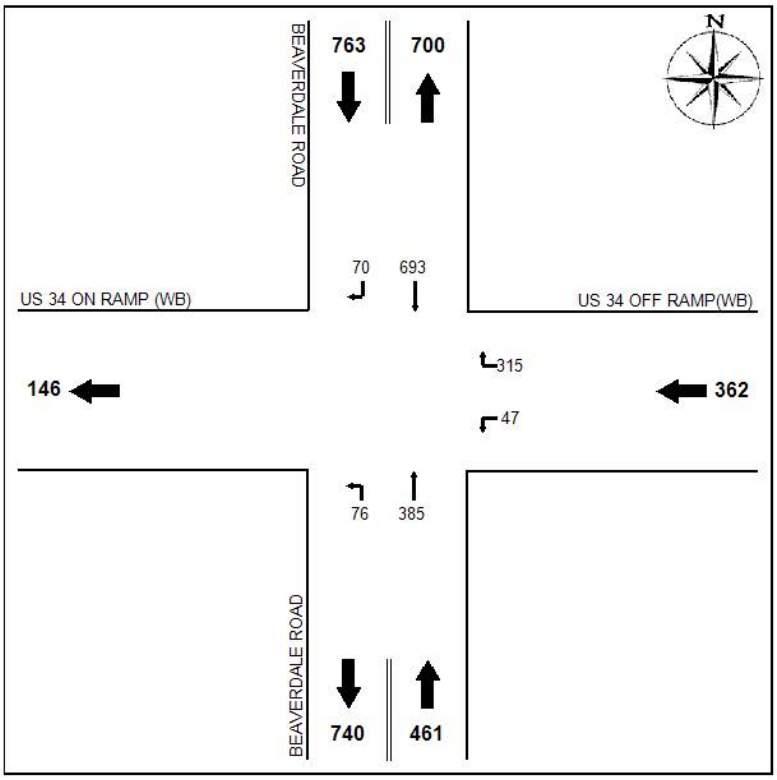
Station Number:
29222543199

Count Date:
Thursday, June 05, 2014

County:
Des Moines

Location Description:
US-34 & Beaverdale Rd.

Volume Factor: N/A
Pass Class Factor: N/A
SU Class Factor: N/A
Combo Class Factor: N/A



Raw Data-Passenger Vehicles:

	N Leg		E Leg		S Leg	
	T	*R*	*L*	*R*	*L*	*T*
07:00	132	10	4	23	7	32
08:00	106	8	7	27	7	28
11:00	88	7	6	28	4	38
12:00	89	7	12	38	6	45
15:00	81	16	9	56	17	77
16:00	100	8	4	69	18	88
17:00	97	14	5	74	17	77

1
2

Iowa Department of Transportation

Turning Movement Traffic Count Summary

Vehicle Type: Single-Unit Trucks

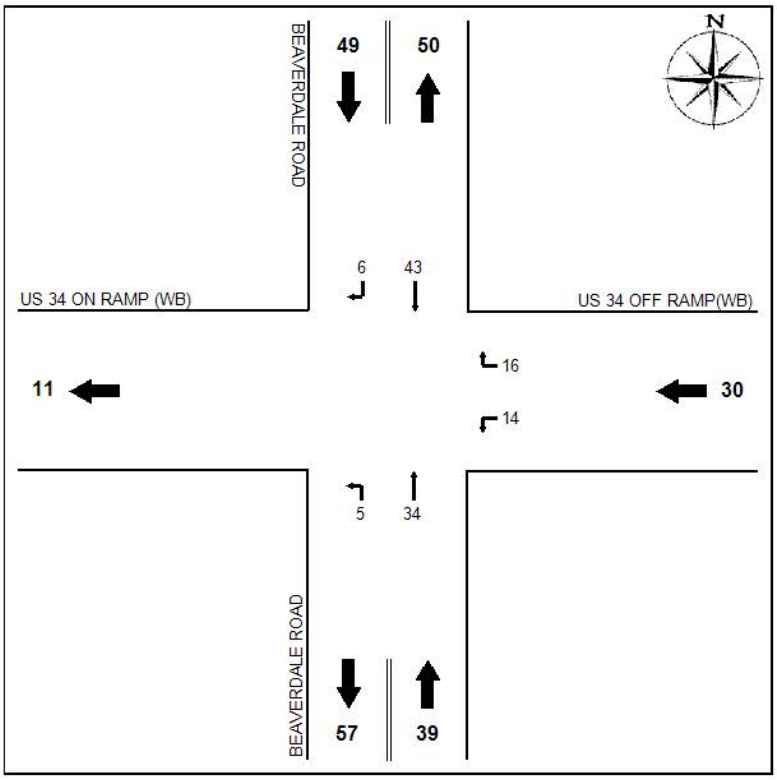
Station Number:
29222543199

Count Date:
Thursday, June 05, 2014

County:
Des Moines

Location Description:
US-34 & Beaverdale Rd.

Volume Factor: N/A
Pass Class Factor: N/A
SU Class Factor: N/A
Combo Class Factor: N/A



Raw Data-Single-Unit Trucks:

	N Leg		E Leg		S Leg	
	T	*R*	*L*	*R*	*L*	*T*
07:00	3	0	1	3	1	1
08:00	11	2	2	5	0	5
11:00	8	2	4	1	2	10
12:00	13	1	4	4	1	6
15:00	1	0	2	1	1	2
16:00	3	1	0	1	0	6
17:00	4	0	1	1	0	4

1
2

Iowa Department of Transportation

Turning Movement Traffic Count Summary

Vehicle Type: Combination Trucks

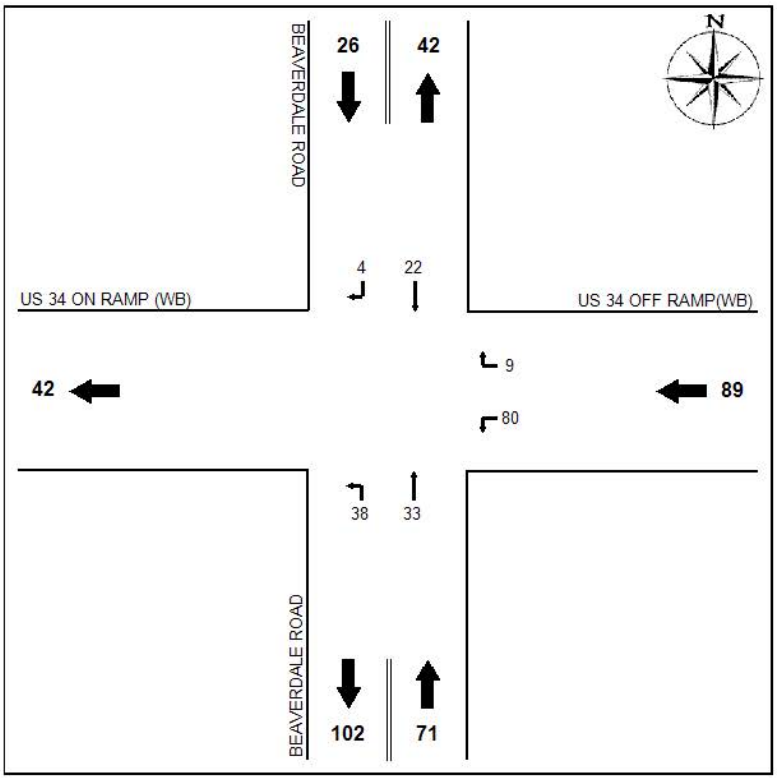
Station Number:
29222543199

Count Date:
Thursday, June 05, 2014

County:
Des Moines

Location Description:
US-34 & Beaverdale Rd.

Volume Factor: N/A
Pass Class Factor: N/A
SU Class Factor: N/A
Combo Class Factor: N/A



Raw Data-Combination Trucks:

	N Leg		E Leg		S Leg	
	T	*R*	*L*	*R*	*L*	*T*
07:00	4	0	13	1	10	1
08:00	1	0	17	1	6	6
11:00	10	2	16	1	6	7
12:00	4	1	13	1	10	5
15:00	1	0	18	1	3	6
16:00	1	1	2	3	2	1
17:00	1	0	1	1	1	7

1 **Middletown EB Intersections**

Iowa Department of Transportation
Turning Movement Traffic Count Summary
Annualized Daily Traffic For All Vehicles

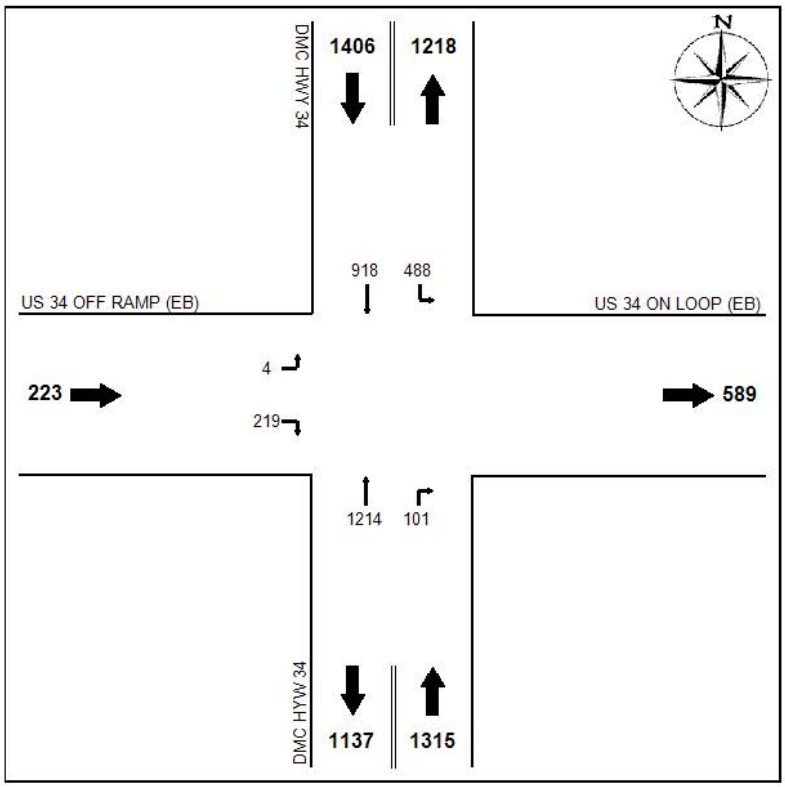
Station Number:
29212387499

Count Date:
Tuesday, June 03, 2014

County:
Des Moines

Location Description:
US 34 & DMC HWY 34

Volume Factor: 1.937
Pass Class Factor: 2.064
SU Class Factor: 1.603
Combo Class Factor: 1.586



Raw Data-All Vehicles:

	N Leg		S Leg		W Leg	
	L	*T*	*T*	*R*	*L*	*R*
07:00	57	90	61	11	0	23
08:00	42	60	49	7	0	23
11:00	25	56	60	6	0	5
12:00	19	67	69	2	1	9
15:00	27	58	110	7	0	15
16:00	41	63	102	14	1	24
17:00	26	57	149	3	0	13

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2

Iowa Department of Transportation

Turning Movement Traffic Count Summary

Vehicle Type: Passenger Vehicles

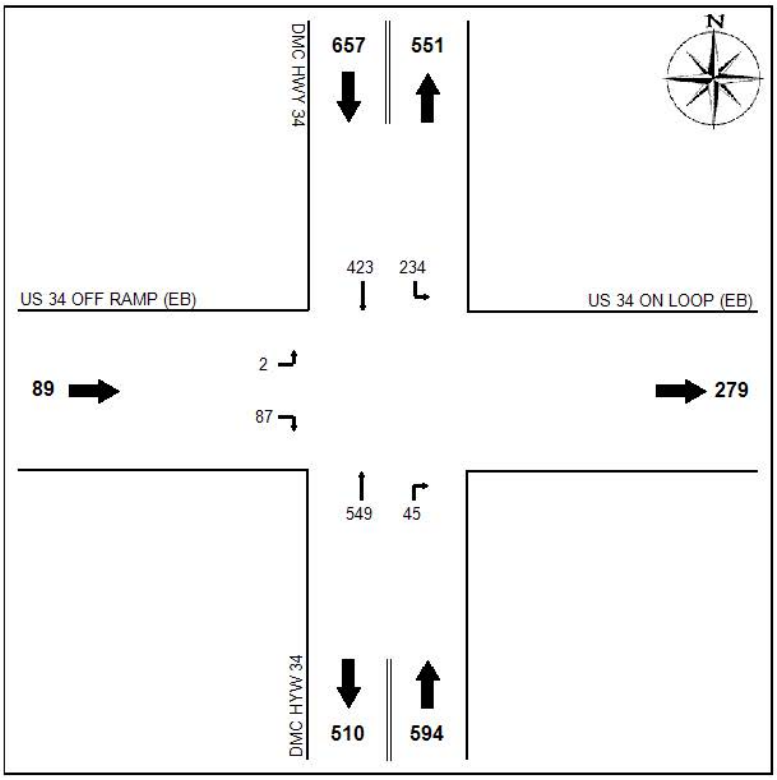
Station Number:
29212387499

Count Date:
Tuesday, June 03, 2014

County:
Des Moines

Location Description:
US 34 & DMC HWY 34

Volume Factor: N/A
Pass Class Factor: N/A
SU Class Factor: N/A
Combo Class Factor: N/A



Raw Data-Passenger Vehicles:

	N Leg		S Leg		W Leg	
	L	*T*	*T*	*R*	*L*	*R*
07:00	57	86	52	10	0	19
08:00	40	55	39	5	0	17
11:00	24	51	53	4	0	2
12:00	19	58	57	2	1	6
15:00	27	55	101	7	0	12
16:00	41	62	99	14	1	22
17:00	26	56	148	3	0	9

1
2

Iowa Department of Transportation

Turning Movement Traffic Count Summary

Vehicle Type: Single-Unit Trucks

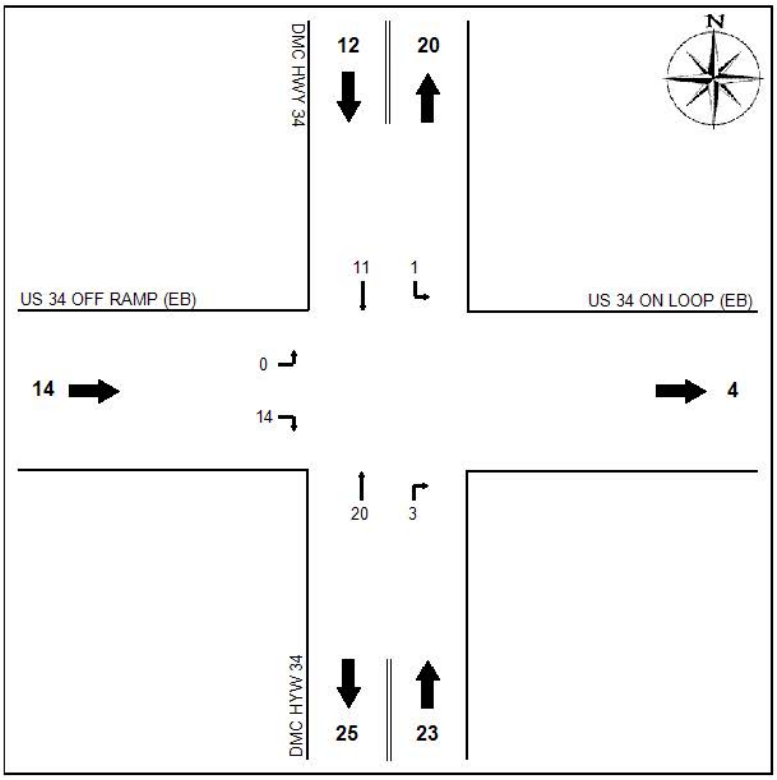
Station Number:
29212387499

Count Date:
Tuesday, June 03, 2014

County:
Des Moines

Location Description:
US 34 & DMC HWY 34

Volume Factor: N/A
Pass Class Factor: N/A
SU Class Factor: N/A
Combo Class Factor: N/A



Raw Data-Single-Unit Trucks:

	N Leg		S Leg		W Leg	
	L	*T*	*T*	*R*	*L*	*R*
07:00	0	1	2	1	0	4
08:00	1	2	4	0	0	4
11:00	0	1	3	2	0	0
12:00	0	4	6	0	0	1
15:00	0	1	3	0	0	1
16:00	0	1	1	0	0	2
17:00	0	1	1	0	0	2

1
2

Iowa Department of Transportation

Turning Movement Traffic Count Summary

Vehicle Type: Combination Trucks

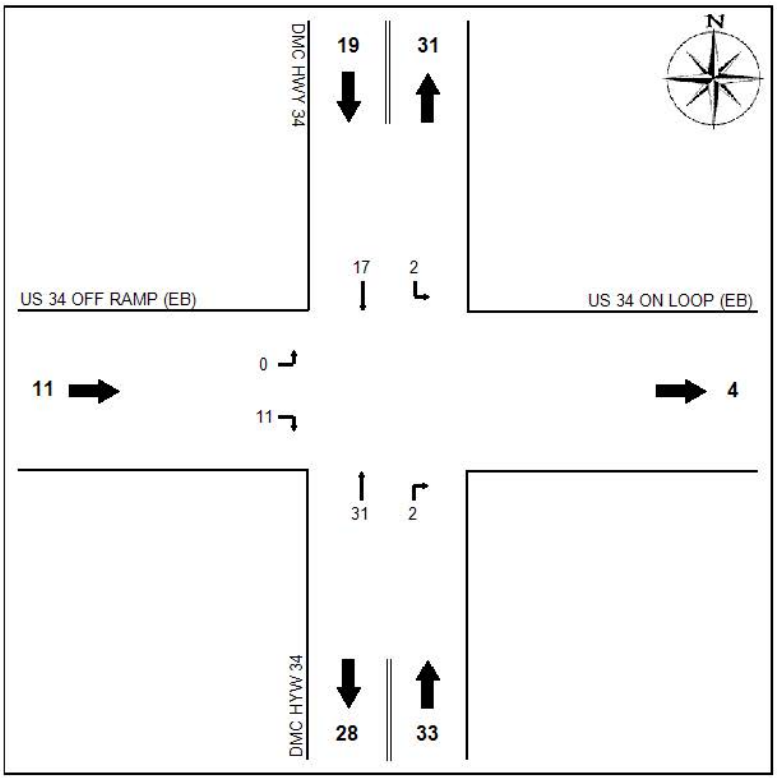
Station Number:
29212387499

Count Date:
Tuesday, June 03, 2014

County:
Des Moines

Location Description:
US 34 & DMC HWY 34

Volume Factor: N/A
Pass Class Factor: N/A
SU Class Factor: N/A
Combo Class Factor: N/A



Raw Data-Combination Trucks:

	N Leg		S Leg		W Leg	
	L	*T*	*T*	*R*	*L*	*R*
07:00	0	3	7	0	0	0
08:00	1	3	6	2	0	2
11:00	1	4	4	0	0	3
12:00	0	5	6	0	0	2
15:00	0	2	6	0	0	2
16:00	0	0	2	0	0	0
17:00	0	0	0	0	0	2

1
2

1 Middletown WB Intersections

Iowa Department of Transportation
Turning Movement Traffic Count Summary
Annualized Daily Traffic For All Vehicles

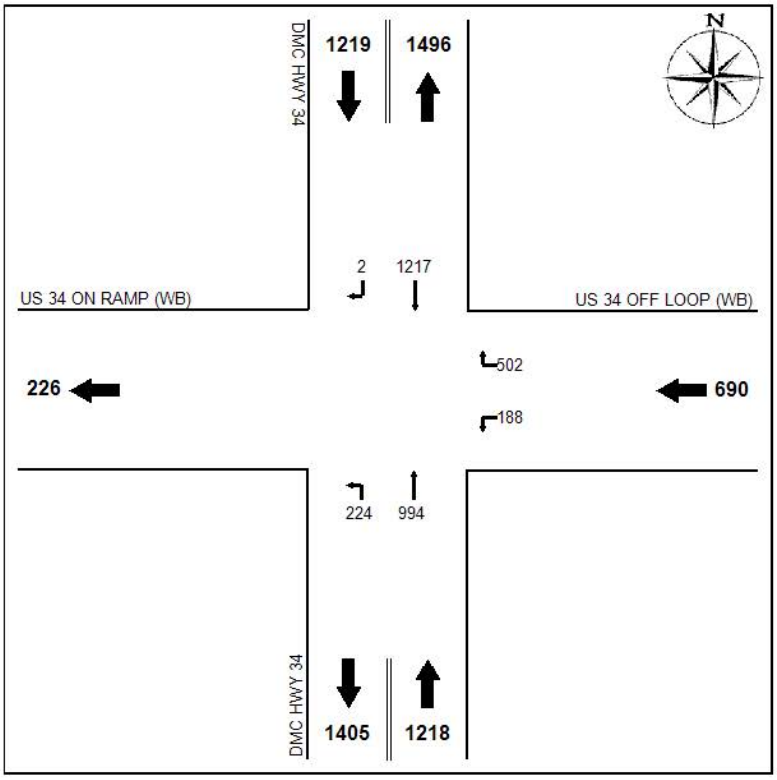
Station Number:
29212387899

Count Date:
Tuesday, June 03, 2014

County:
Des Moines

Location Description:
US 34 & DMC HWY 34

Volume Factor: 1.937
Pass Class Factor: 2.064
SU Class Factor: 1.603
Combo Class Factor: 1.586



Raw Data-All Vehicles:

	N Leg		E Leg		S Leg	
	T	*R*	*L*	*R*	*L*	*T*
07:00	133	0	14	26	9	52
08:00	98	0	4	14	12	37
11:00	72	0	9	17	7	53
12:00	72	0	14	21	23	47
15:00	63	1	22	43	25	85
16:00	88	0	16	66	14	89
17:00	70	0	13	58	22	127

Created 5/4/2015 2:04:47PM TM01 Page 1 of 4

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Iowa Department of Transportation

Turning Movement Traffic Count Summary

Vehicle Type: Passenger Vehicles

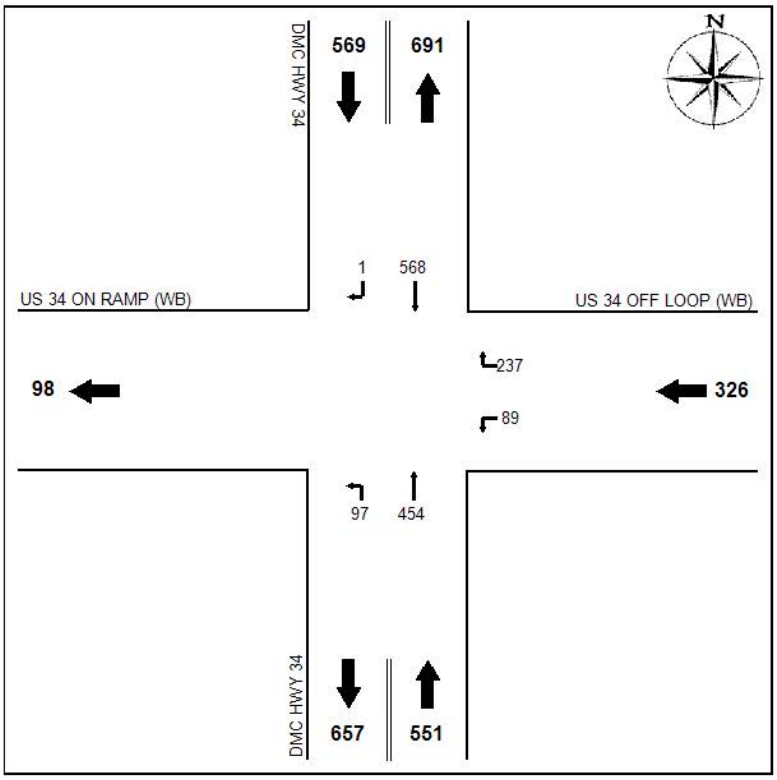
Station Number:
29212387899

Count Date:
Tuesday, June 03, 2014

County:
Des Moines

Location Description:
US 34 & DMC HWY 34

Volume Factor: N/A
Pass Class Factor: N/A
SU Class Factor: N/A
Combo Class Factor: N/A



Raw Data-Passenger Vehicles:

	N Leg		E Leg		S Leg	
	T	*R*	*L*	*R*	*L*	*T*
07:00	129	0	14	25	7	45
08:00	92	0	3	13	8	31
11:00	66	0	9	15	5	48
12:00	65	0	12	21	17	41
15:00	60	1	22	42	24	77
16:00	87	0	16	64	14	86
17:00	69	0	13	57	22	126

Iowa Department of Transportation

Turning Movement Traffic Count Summary

Vehicle Type: Single-Unit Trucks

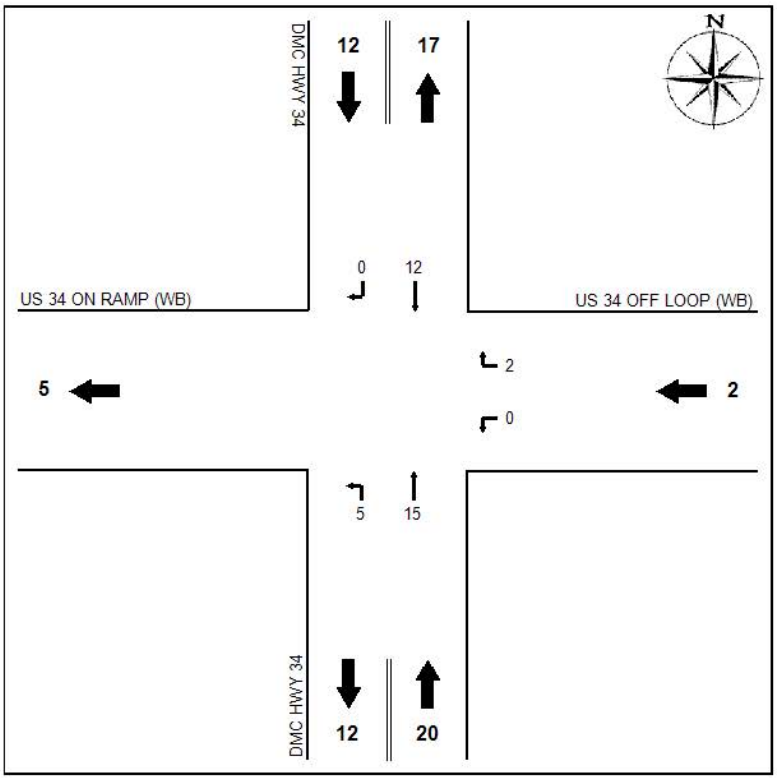
Station Number:
29212387899

Count Date:
Tuesday, June 03, 2014

County:
Des Moines

Location Description:
US 34 & DMC HWY 34

Volume Factor: N/A
Pass Class Factor: N/A
SU Class Factor: N/A
Combo Class Factor: N/A



Raw Data-Single-Unit Trucks:

	N Leg		E Leg		S Leg	
	T	*R*	*L*	*R*	*L*	*T*
07:00	1	0	0	0	0	2
08:00	3	0	0	0	1	3
11:00	1	0	0	1	1	2
12:00	4	0	0	0	2	4
15:00	1	0	0	0	1	2
16:00	1	0	0	1	0	1
17:00	1	0	0	0	0	1

Iowa Department of Transportation

Turning Movement Traffic Count Summary

Vehicle Type: Combination Trucks

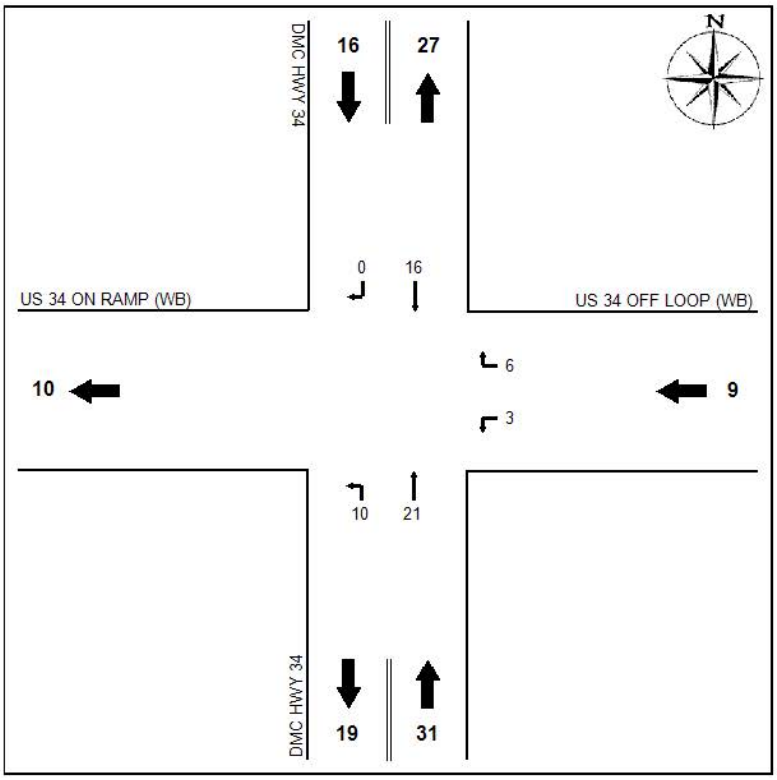
Station Number:
29212387899

Count Date:
Tuesday, June 03, 2014

County:
Des Moines

Location Description:
US 34 & DMC HWY 34

Volume Factor: N/A
Pass Class Factor: N/A
SU Class Factor: N/A
Combo Class Factor: N/A



Raw Data-Combination Trucks:

	N Leg		E Leg		S Leg	
	T	*R*	*L*	*R*	*L*	*T*
07:00	3	0	0	1	2	5
08:00	3	0	1	1	3	3
11:00	5	0	0	1	1	3
12:00	3	0	2	0	4	2
15:00	2	0	0	1	0	6
16:00	0	0	0	1	0	2
17:00	0	0	0	1	0	0

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Des Moines County Traffic Flow Map