PROGRAMMATIC ENVIRONMENTAL ASSESSMENT FOR FORT DRUM 10th COMBAT AVIATION BRIGADE AND 10th SUSTAINMENT BRIGADE MISSION AND TRAINING ACTIVITIES FORT DRUM, NEW YORK

June 2020

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Prepared By:

U.S. Army Corps of Engineers, Baltimore District

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DRAFT FINDING OF NO SIGNIFICANT IMPACT

The National Environmental Policy Act (NEPA) of 1969 (42 United States Code §4321 et seq.) requires federal agencies to consider the potential environmental impacts prior to undertaking a course of action. Within the Department of the Army, NEPA is implemented through regulations promulgated by the Council on Environmental Quality (40 Code of Federal Regulations (CFR) §§1500-1508) with supplemental requirements provided under Army Regulations 32 CFR §651, (Environmental Analysis of Army Actions). In adherence with NEPA, 40 CFR §§1500-1508, and 32 CFR §651, the United States Army (Army) prepared a Programmatic Environmental Assessment (PEA) to evaluate the potential impacts of increasing mission and training activities at Fort Drum Army Installation, Fort Drum, New York, and within the Local Flying Area (LFA) of Fort Drum.

The PEA describes the application of criteria provided by Fort Drum to select specific sites for the proposed training events. Future NEPA reviews will be tiered from the PEA and will be consistent with this document, incorporating by reference where appropriate. A tiered environmental analysis is an analysis that focuses on project-specific issues and summarizes or references (rather than repeats) the broader issues discussed in the PEA.

Proposed Action

The Proposed Action supports an increase in the air and land-based training activities conducted by the 10th Combat Aviation Brigade (CAB) and the 10th Sustainment Brigade (SBDE), including in the LFA training areas located in the following nine counties: Essex, Hamilton, Herkimer, Jefferson, Lewis, Oneida, Onondaga, Oswego, and St. Lawrence. It is important to note that the potential nine-county area of effect excludes all Sovereign Nation Indian lands.

Purpose of and Need for the Proposed Action

The purpose of the Proposed Action is to ensure that the Army aviators of the 10th CAB and support units of the 10th SBDE at Fort Drum are provided with the practical and realistic flight proficiency and support services training.

The Proposed Action is needed to meet mission requirements and maintain combat readiness and to provide additional and enhanced realistic training to 10th CAB and 10th SBDE. Additionally, the Proposed Action is needed to enhance the commanders' effectiveness and improve the Soldier's survivability on the modern-day battlefield. The units at Fort Drum need to train in realistic, large-scale, collective training events that mimic the manner in which they would fight in a real-life scenario. These training events include ground and air resources of assigned and visiting units (mechanized, infantry, support, and combat aviation assets). Training activities would be designed to further develop and sustain proficiency in mission essential tasks, air and ground integration training, and collective training at Fort Drum and within the LFA as defined in Fort Drum Regulation 95-1.

The increased training would enhance the 10th CAB and 10th SBDE capability to be ready to fight across multiple domains and contested areas, to gain advantage over their enemies, and achieve national security objectives. The areas in and around Fort Drum are excellent locations for such training. LFA training exercises provide an increased proficiency in low and slow flying techniques that would provide the aviation forces with a tactical advantage in the event they are called to action against an advanced adversary. Flying low at decreased speeds and using the terrain to its advantage allows the Army to fly undetected through enemy air defenses and territory. During the war on terror over the last two decades, helicopters have typically flown at high altitudes to avoid small arms fire. Today, emerging threats and potential enemies may possess the same advanced air defense systems as the U.S. military. Honing their abilities at home provides more success abroad, where seconds translate to the lives of Soldiers. The increase in training would also allow 10th SBDE to be ready to rapidly deploy to conduct full spectrum combat service support and combat support under a variety of environmental conditions.

Alternatives

In accordance with CEQ regulations (40 CFR 1502.14) and U.S. Army NEPA regulations (32 CFR Part 651), the PEA identifies and describes all reasonable Alternatives to the Proposed Action, including the No Action Alternative. The PEA analyzed two Action Alternatives and the No Action Alternative.

Alternative 1

Alternative 1 is to provide full mission support by increasing low level flight modes and movement techniques in the existing nine-county LFA outside the Fort Drum Army Installation Restricted Airspace area. The 10th CAB and 10th SBDE would conduct up to six high-intensity, multi-day training events per year to replicate multi-domain battle. Each training exercise could last up to 14 days, plus a seven-day period to return the property to its condition prior to the exercise. All multi-domain training events would include integrating the ground and air resources of assigned and visiting units (mechanized, infantry, support, and combat aviation assets) in simulated battle scenarios. The number of personnel participating in a training event and the types and numbers of aircraft systems (AH-64, UH-60, HH-60, CH-47) would be dependent on the training event mission.

Events would serve to integrate air and/or ground operations, and sustainment activities by simulating real-world distances and threats, challenging logistical supply lines and mission command systems over distances beyond the geographic boundaries of Fort Drum, as well as expanding logistical routes via air and ground to simulate a large-scale battlefield.

Temporary off-post locations would be used in support of training scenarios, training aids (i.e., training emitters during division exercises for aviation detection), and temporary sustainment sites (e.g., providing food, water, sleep area, shower, fuel, communications). Sustainment sites would include tent structures for sleeping, meetings, meals, and maintenance of equipment. Other areas within the sustainment sites would include generators, fuel containers, fuel dispensing trucks, food kitchen, storage containers, and parking areas for supply trucks. All equipment containing petroleum, oils, and lubricants (POL) or hazardous materials would have secondary containment systems to prevent soil contamination.

The process for determining temporary off-post locations is criteria-based and Table FNSI-1 is a list of criteria, acceptable attributes of each criterion, and any rationale for the attributes. This PEA identifies the general areas that meet these criteria and would be feasible to use for Alternative 1. Once the specific feasible areas are identified, Fort Drum would coordinate with the appropriate owners for its use for Alternative 1 and conduct compliance documentation as appropriate, such as an Environmental Condition of Property Report to document the physical and environmental condition of the property resulting from the past storage, use, release, and disposal of hazardous substances and petroleum products; Record of Environmental Consideration for environmental review and compliance with NEPA requirements; Temporary Revocable Permits (TRPs) for the use of state lands and conservation easement lands; and Maneuver License, among others. Fort Drum's intent is to prioritize the use of public lands. The selection of the sites would be based on consultation or coordination with the appropriate regulatory agencies such as the United States Fish and Wildlife Service (USFWS), New York State Department of Environmental Conservation (NYSDEC), New York State Historic Preservation Office (NY SHPO), and through permit conditions, to avoid or minimize impacts to natural, cultural, and physical resources and humans.

Daily operations would include aircraft flights to and from the training event location and may include destinations in the Training Area, Cantonment Area, and/or Wheeler-Sack Army Airfield on Fort Drum. The number of aircraft, number of sorties, and time of day would be determined by the training event mission. Aircraft flight altitudes, routes, and speeds would be dependent on the training mission, but all flights would comply with Army Regulation (AR 95-1 and AR 95-2). The size of the sustainment site would be dependent on the training mission, number of personnel, and length of the exercise. Training events would be similar to exercises performed in previous years.

Alternative 1 would not include the use of live-fire ammunition, explosives or demolitions, or un-manned air operations (except as allowed by the Federal Aviation Administration [FAA]).

Table FNSI-1. Criteria for Selecting Possible Exercise Locations

Criterion	Attributes for Consideration	Rationale
General Location	Within nine-county LFA; 60 to 75 miles from Fort Drum	10th CAB aircraft approved for LFA; aircraft can be hangared at Fort Drum if less than 60 to 75 miles
Rural Areas Outside City Boundaries	Avoid populated areas, churches, schools, malls, highways, interstates	Reduce safety hazards, reduce noise annoyance, simulate real world conditions, avoid public disturbance
Location Size	Large event: 10 acres or greater; small event: 5 acres or less	Sufficient for sustainment operations, vehicle parking, aircraft ground operations
Vegetation Cover	Preferably grass, fields with few to no trees or shrubs	Reduce aircraft hazards; improved Line of Sight (LOS); reduced wildlife hazards
Surface Grade	Relatively level, <5 percent slope	Ease of sustainment set up; reduced erosion/ground disturbance
Soil Type	Well-drained and dry (no wetlands or floodplains); loam or clay soils without a lot of rocks; avoid prime farmland	Ease of sustainment set up; avoid impacts to wetlands/floodplains; prime farmland is protected under the Farmland Protection Policy Act (7 CFR 658)
Land Ownership	Public lands with signed Memorandum of Agreement or private land with a lease agreement; avoid protected lands, parks and recreation areas, if possible	Must establish a use agreement with the landowner as to what actions can or cannot be performed by the Army on the property owners of allowable actions
Flight Hazards	Avoid tall structures: towers, buildings, wind turbines, electrical poles/towers	Reduce flight safety risks; avoid populated areas
Airspace	Avoid restricted areas; accessible by helicopter using MTRs, MOAs or LFA	Approved FAA flight routes
Accessibility	Existing road or trail access	Less ground disturbance for surface vehicles
Cultural Resources	Avoid properties and sites listed on the National Register of Historic Properties; avoid Tribal land.	Avoid impacts to cultural resources
Wetlands	Avoid siting in National Wetland Inventory (NWI and State Jurisdictional Wetlands)	Avoid impacts to wetlands
Threatened or Endangered species	Avoid known occurrence locations/sites through consultation and coordination with the USFWS and NYSDEC, respectively	Avoid Threatened or Endangered species impacts

Alternative 2

Alternative 2 is the same as Alternative 1 except training exercises would be limited to two high-intensity, up to 14-day training events per year to replicate multi-domain battle, plus a 7-day period to return the property to its condition prior to the exercise. The same criteria proposed in Alternative 1 would be used to identify possible training sites for Alternative 2.

Alternative 2 would not include the use of live-fire ammunition, explosive or demolitions, un-manned air operations (except as allowed by the FAA).

Alternative 3 (No Action Alternative)

Under the No Action Alternative, there would be no changes to the amount of current training exercises at Fort Drum. The 10th CAB's routine flight training and mission activities within the defined LFA and the

10th SBDE training activities would stay the same. Training rates (number and frequency of sorties within a given time period) would remain essentially unchanged. Current, limited off-post training exercises using temporary off-post locations to support training scenarios, training aids, and temporary sustainment sites during large-scale training exercises would continue. This Alternative does not fully satisfy the purpose and need for the Proposed Action.

Discussion of Anticipated Environmental Impacts

In the PEA, which is attached and incorporated by reference into this finding of no significant impact (FNSI), the potential impacts of the Proposed Action under Alternative 1, up to six high-intensity, multi-day training events per year and Alternative 2, up to two events per year as well as Alternative 3 (No Action Alternative) were analyzed for the following resources: land use, noise, airspace, geology and soils, biological resources (vegetation, invasive species, wildlife, and threatened and endangered species), water resources, cultural resources, socioeconomics and environmental justice, transportation and traffic, and public health and safety.

Potential impacts on resources that could be affected by the Proposed Action and Alternatives are summarized in Table FNSI-2. These impacts were analyzed at a programmatic level to identify the anticipated levels that would be typical from the Proposed Action and Alternatives. The application of criteria listed in Table FNSI-1 identified areas that would be feasible for the Proposed Action, avoiding or minimizing the potential impacts. Once specific locations are identified, Fort Drum would select the sites based on consultation and coordination with the appropriate regulatory agencies and would further avoid or minimize or if appropriate, mitigate impacts to natural, cultural, and physical resources and humans.

Table FNSI-2: Summary of Environmental Impacts

Resource	Alternative 1	Alternative 2	Alternative 3 (No Action Alternative)
Land Use	Because training is temporary, any impacts to land use would be short-term in nature. Schools, churches, and populated areas would be avoided. It is recommended if parks and recreation areas are used, they are avoided during peak times (hunting, fishing, and boating seasons). Coordination with owner would occur prior to the start of training exercises. Impacts to land use would be adverse, short-term and minor as no permanent changes to designated land uses would be made. Tiered NEPA analysis would determine the impact once sites have been selected.	Because training is temporary, any impacts to land use would be short-term in nature. Schools, churches, and populated areas would be avoided. It is recommended if parks and recreation areas are used, they are avoided during peak times (hunting, fishing, and boating seasons). Coordination with owner would occur prior to the start of training exercises. Impacts to land use would be adverse, short-term and minor as no permanent changes to designated land uses would be made. Tiered NEPA analysis would determine the impact once sites have been selected.	There would be no changes to existing training duration and amounts. Impacts would be adverse, short-term, and minor.
Noise	Training exercises are short-term. Helicopter overflights associated with the training exercises would be infrequent and of a short duration. Aviators are instructed to avoid flyovers of residential areas, known wildlife refuges, and livestock. For areas where aviators takeoff, land, and hover, and during engine run-ups, receivers of	Training exercises are short-term. Helicopter overflights associated with the training exercises would be infrequent (two thirds less than Alternative 1) and of a short duration. Aviators are instructed to avoid flyovers of residential areas, known wildlife refuges, and livestock. Therefore, noise impacts on human annoyance	Aircraft would continue to operate as in the past. Therefore, noise from aircraft operations would be adverse, short-term, and range from negligible to minor.

Resource	Alternative 1	Alternative 2	Alternative 3 (No Action Alternative)
	noise may experience additional disturbances. The number and amount of disturbances will also be dependent on the number of aircraft involved in the training exercises. Therefore, noise impacts on human annoyance and domestic animals would be adverse, short-term, and range from negligible to minor. Noise impacts on wildlife would be adverse, short-term, and range from negligible to moderate.	and domestic animals would be adverse, short-term, and range from negligible to minor. Noise impacts on wildlife would be adverse, short-term, and range from negligible to moderate.	
Airspace	10th CAB helicopters would continue to use the airspace as they currently do; no changes are proposed to the current airspace; therefore, there would be no impacts to airspace in the Action Area.	10th CAB helicopters would continue to use the airspace as they currently do; no changes are proposed to the current airspace; therefore, there would be no impacts to airspace in the Action Area.	Aircraft would continue to operate in the existing airspace as in the past. Aircraft operations would have no impact to airspace in the Action Area.
Geology and Soils	There would be no direct effects to geology and soils because training locations would be chosen based on criteria designed to minimize impact. Minor short-term impacts to surface topography would occur due to aircraft and heavy vehicles onsite. If prime farmland areas are used, coordination with owner would occur prior to the start of training exercises. Impacts would be adverse, short-term, and minor. Tiered NEPA analysis would determine the impact once sites have been selected. Appropriate measures would be taken to minimize impacts and restore the site to its original condition following the exercise.	There would be no direct effects to geology and soils because training locations would be chosen based on criteria designed to minimize impact. Minor short-term impacts to surface topography could occur due to aircraft and heavy vehicles onsite. If prime farmland areas are used, coordination with owner would occur prior to the start of training exercises. Impacts would be adverse, short-term, and minor. Tiered NEPA analysis would determine the impact once sites have been selected. Appropriate measures would be taken to minimize impacts and restore the site to its original condition following the exercise.	Under the No Action Alternative, there would be no new adverse impacts to geology and soils compared to existing conditions. Minor short-term impacts to surface topography could occur, and appropriate measures would continue to be taken to minimize impacts and restore the site to its original condition following the exercise.
Biological Resources	Training activities would result in adverse, short- and long-term, negligible to moderate impacts to biological resources. Impacts could include removal of vegetation from clearing, crushing, or trampling; spreading of invasive species from soil disturbances; and disturbances to wildlife, including threatened or endangered species, and habitats from noise and visual disturbances during training exercises. There could also be long-term impacts from habitat alteration, mortality of individual animals, or	Potential adverse impacts to biological resources would be the same in nature as those described under Alternative 1 but reduced in frequency because off-base training exercises would occur less frequently. Implementing appropriate conservation measures, terms and conditions and following permit conditions would ensure that adverse impacts are avoided, minimized, or mitigated as necessary. Impacts would be adverse, short- and long-term, and negligible to moderate. Final conservation measures would be	Under the No Action Alternative, there would be no new adverse impacts to biological resources compared to existing conditions. Impacts would be adverse, short- and long-term, and negligible to moderate.

Resource	Alternative 1	Alternative 2	Alternative 3 (No Action Alternative)
	destruction of nests and eggs of ground-nesting birds. Implementing appropriate conservation measures and terms and conditions and following permit conditions would ensure that adverse impacts are avoided, minimized, or mitigated as necessary. Final conservation measures would be developed in consultation with USFWS and NYSDEC at the time of site selection.	developed in consultation with USFWS and NYSDEC at the time of site selection	
Water Resources	There would be no direct impacts to surface waters, floodplains, wetlands, and water supplies because training would not occur in areas near these resources. Activities would not increase the demand for groundwater and would not directly impact any surface waters. Adverse, minor, short-term impacts to surface waters and water resources would occur. Appropriate stormwater management design and Best Management Practice (BMP) implementation on site would minimize impacts.	There would be no direct impacts to surface waters, floodplains, wetlands, and water supplies because training would not occur in areas near these resources. Activities would not increase the demand for groundwater and would not directly impact any surface waters. Adverse, minor, short-term impacts to surface waters and water resources would occur. Appropriate stormwater management design and BMP implementation on site would minimize impacts.	There would be no changes to existing training duration and amounts. Impacts would be adverse, short-term, and minor.
Cultural Resources	Known historic resources would be avoided. However, training exercises have the potential to impact unknown archaeological resources. BMPs would be followed to ensure impacts to cultural resources remain minor. Impacts to cultural resources would be adverse, short- or long-term and minor to moderate.	Alternative 2 would have a minor impact on known and potentially unknown cultural resources on Fort Drum and nine-county Action Area. The BMPs would be followed to ensure impacts to cultural resources remain minor. Impacts to cultural resources would be adverse, short or long-term and minor to moderate.	Under the No Action Alternative, impacts to cultural resources would remain unchanged from the current conditions. Impacts to cultural resources would be adverse, short- or long-term and minor to moderate.
Socioeconomic, Environmental Justice	Any temporary construction needed to accommodate these training exercises would be performed by the Soldiers as part of the training. If the sites selected for the training area is private, the owner would be compensated for the lease. Therefore, there could be negligible beneficial economic impacts. Overall, impacts would be beneficial, short-term, and negligible.	Impacts would be similar to but less than Alternative 1. Overall, impacts would be beneficial, short-term, and negligible.	Under the No Action Alternative, the social and economic conditions of the area would remain unchanged from the current conditions. Impacts would be beneficial, short-term, and negligible.
Transportation and Traffic	Adverse, short-term, and minor to moderate impacts would occur to traffic operations and bicycle safety. Fort Drum would employ potential mitigation	Impacts would be similar to but less than Alternative 1. Fort Drum would employ potential mitigation measures to avoid or reduce transportation impacts	There would be no change in the potential for adverse impacts compared to existing conditions. Adverse, short-term, and minor to

Resource	Alternative 1	Alternative 2	Alternative 3 (No Action Alternative)
	measures to avoid or reduce transportation impacts.		moderate impacts would occur to traffic operations and bicycle safety.
Public Health and Safety	Fort Drum would follow its safety protocols and plans to minimize the potential for accidents and coordinate with the appropriate emergency services contacts within the affected county or counties. Noise impacts on human annoyance would be adverse, short-term and negligible to minor and there would be no impacts to Airspace. Fort Drum would employ mitigation measures to avoid impacts to traffic and transportation.	Fort Drum would follow same safety protocols and plans and coordination as with Alternative 1. Impacts would be similar to but less than Alternative 1.	There would be no change compared to existing conditions. Impacts would be adverse, short- or long-term, and negligible to minor.

Cumulative Impacts

Due to the programmatic nature, the PEA cumulative impacts analysis considered the two training exercises that occur within the proposed Action Area and determined that none of the alternatives would result in cumulative impacts that are significant for any of the resource areas. Once specific sites are selected, the tiered NEPA analysis will evaluate those sites for cumulative impacts.

Agency and Government to Government Coordination/Consultations

The PEA and Draft FNSI were made available for review and comments for 30 days at https://home.army.mil/drum/index.php/about/fort-drum-EA. For those who did not have ready access to a computer or the internet, the materials posted to the website were available upon request by contacting Ms. Cait Schadock, NEPA Coordinator, Directorate of Public Works, Fort Drum, by phone at (315) 772-6899, by mail at 4896 Jones St, Fort Drum, NY 13602-5097, or by email at usarmy.drum.imcom.mbx.dpw-nepa@mail.mil.

In response to the coronavirus (COVID-19) pandemic in the United States and the Center for Disease Control's recommendations for social distancing and avoiding large public gatherings, Fort Drum did not hold a public information session for this action.

Conclusion

Based on the analysis performed in this PEA, the Proposed Action under any of the action alternatives would have no significant direct, indirect, or cumulative impacts on the quality of the natural or human environment. This is due to the criteria-based selection, intended to avoid or minimize impacts, that Fort Drum will employ in choosing the training locations. Additionally, once the specific locations are identified, Fort Drum will conduct consultation and coordination with the appropriate regulatory agencies and identify further avoidance or minimization and mitigation measures, as appropriate. Therefore, preparation of an environmental impact statement for the Proposed Action is not required and issuance of a FNSI is appropriate.

Point of Contact:

For further information, please direct requests to: Ms. Cait Schadock, NEPA Coordinator, Directorate of Public Works Fort Drum, New York 13602, by phone at (315) 772-6899.

Approved by:

Jeffery P. Lucas Date
Colonel, U.S. Army
Garrison Commander

EXECUTIVE SUMMARY

This Programmatic Environmental Assessment (PEA) was prepared for the United States Army (Army) to evaluate the potential effects of increasing mission and training activities at Fort Drum Army Installation, Fort Drum, New York, and within the Local Flying Area (LFA) of Fort Drum.

This PEA describes the application of criteria provided by Fort Drum to select specific sites for the proposed training events. Fort Drum would ensure the appropriate National Environmental Policy Act (NEPA) review is conducted for specific sites when proposed for training events. This PEA was prepared in accordance with NEPA, the Council on Environmental Quality (CEQ) regulations (40 Code of Federal Regulations (CFR) Parts 1500 – 1508), and 32 CFR Part 651. Future NEPA reviews will be tiered from the PEA and will be consistent with this document, incorporating by reference where appropriate. A tiered environmental analysis is an analysis that focuses on project-specific issues and summarizes or references (rather than repeats) the broader issues discussed in the PEA.

This PEA presents an analysis of potential impacts that would result from implementation of the Proposed Action and Alternatives. Potential effects on the natural and human environment are evaluated to determine the significance of impacts on the affected environment.

Proposed Action

The Proposed Action supports an increase in the air and land-based training activities conducted by the 10th Combat Aviation Brigade (CAB) and the 10th Sustainment Brigade (SBDE), including in the LFA training areas located in the following nine counties: Essex, Hamilton, Herkimer, Jefferson, Lewis, Oneida, Onondaga, Oswego, and St. Lawrence (Figure ES-1). It is important to note that the potential nine-county area of effect excludes all Sovereign Nation Indian lands.

Purpose of and Need for the Proposed Action

The purpose of the Proposed Action is to ensure that the Army aviators of the 10th CAB and support units of the 10th SBDE at Fort Drum are provided with the practical and realistic flight proficiency and support services training.

The Proposed Action is needed to meet mission requirements and maintain combat readiness and to provide additional and enhanced realistic training to 10th CAB and 10th SBDE. Additionally, the Proposed Action is needed to enhance the commanders' effectiveness and improve the Soldier's survivability on the modern-day battlefield. The units at Fort Drum need to train in realistic, large-scale, collective training events that mimic the manner in which they would fight in a real-life scenario. These training events include ground and air resources of assigned and visiting units (mechanized, infantry, support, and combat aviation assets). Training activities would be designed to further develop and sustain proficiency in mission essential tasks, air and ground integration training, and collective training at Fort Drum and within the LFA as defined in Fort Drum Regulation 95-1.

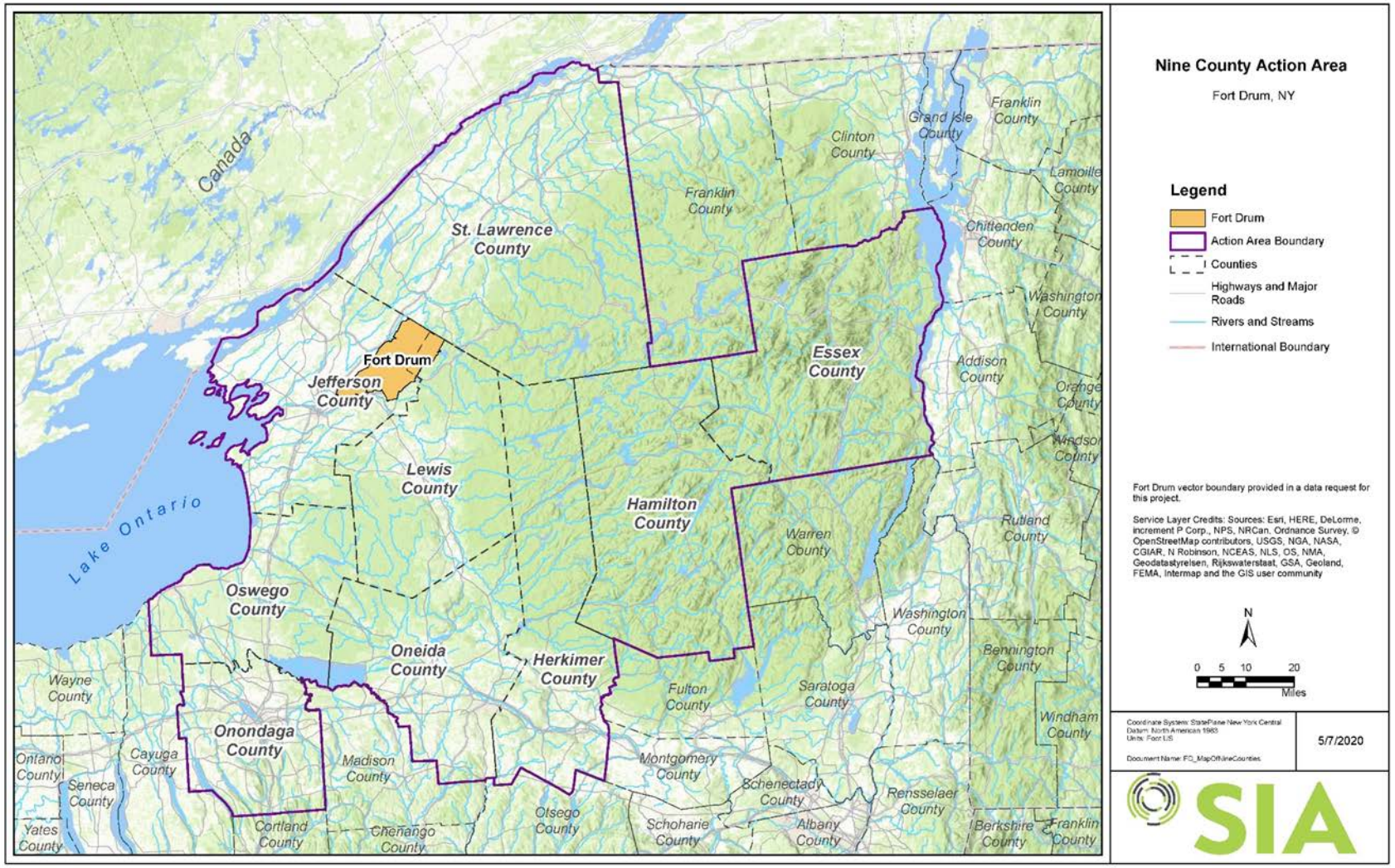

Figure ES-1: Nine-County Action Area

The increased training would enhance the 10th CAB and 10th SBDE capability to be ready to fight across multiple domains and contested areas, to gain advantage over their enemies and achieve national security objectives. The areas in and around Fort Drum are excellent locations for such training. LFA training exercises provide an increased proficiency in low and slow flying techniques that would provide the aviation forces with a tactical advantage in the event they are called to action against an advanced adversary. Flying low at decreased speeds and using the terrain to its advantage allows the Army to fly undetected through enemy air defenses and territory. During the war on terror over the last two decades, helicopters have typically flown at high altitudes to avoid small arms fire. Today, emerging threats and potential enemies may possess the same advanced air defense systems as the U.S. military. Honing their abilities at home provides more success abroad, where seconds translate to the lives of Soldiers. The increase in training would also allow the 10th SBDE to be ready to rapidly deploy to conduct full spectrum combat service support and combat support under a variety of environmental conditions.

Alternatives

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Alternative 1

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Events would serve to integrate air and/or ground operations, and sustainment activities by simulating real-world distances and threats, challenging logistical supply lines and mission command systems over distances beyond the geographic boundaries of Fort Drum, as well as expanding logistical routes via air and ground to simulate a large-scale battlefield.

Temporary off-post locations would be used in support of training scenarios, training aids (i.e., training emitters during division exercises for aviation detection), and temporary sustainment sites (e.g., providing food, water, sleep area, shower, fuel, communications). Sustainment sites would include tent structures for sleeping, meetings, meals, and maintenance of equipment. Other areas within the sustainment sites would include generators, fuel containers, fuel dispensing trucks, food kitchen, storage containers (CONEX), and parking areas for supply trucks. All equipment containing petroleum, oils, and lubricants (POL) or hazardous materials would have secondary containment systems to prevent soil contamination.

The process for determining temporary off-post locations is criteria-based and those are: General Location, Rural Areas Outside City Boundaries, Location Size, Vegetation Cover, Surface Grade, Soil Type, Land Ownership, Flight Hazards, Airspace, Accessibility, Cultural Resources, Wetlands, and Threatened or Endangered species (TES). Table ES-1 of the PEA is a list of criteria, acceptable attributes of each criterion, and any rationale for the attributes. This PEA identifies the general areas that meet these criteria and would likely be feasible for use for Alternative 1.

Once the specific feasible areas are identified, Fort Drum would coordinate with the appropriate owners for its use for Alternative 1 and conduct compliance documentation as appropriate, such as an Environmental Condition of Property Report to document the physical and environmental condition of the property resulting from the past storage, use, release, and disposal of hazardous substances and petroleum products;

Record of Environmental Consideration (REC) for environmental review and compliance with NEPA requirements; Temporary Revocable Permits (TRPs) for the use of state lands and conservation easement lands; and Maneuver License, among others. Fort Drum's intent is to prioritize the use of public lands. The selection of the sites would be based on consultation or coordination with the appropriate regulatory agencies such as the United States Fish and Wildlife Service (USFWS), New York State Department of Environmental Conservation (NYSDEC), New York State Historic Preservation Office (NY SHPO), and through permit conditions, to avoid or minimize impacts to natural, cultural, and physical resources and humans.

Table ES-1. Criteria for Selecting Possible Exercise Locations

Criterion	Attributes for Consideration	Rationale
General Location	Within nine-county LFA; 60 to 75 miles from Fort Drum	10th CAB aircraft approved for LFA; aircraft can be hangered at Fort Drum if less than 60 to 75 miles
Rural Areas Outside City Boundaries	Avoid populated areas, churches, schools, malls, highways, interstates	Reduce safety hazards, reduce noise annoyance, simulate real world conditions, avoid public disturbance
Location Size	Large event: 10 acres or greater; small event: five acres or less	Sufficient for sustainment operations, vehicle parking, aircraft ground operations
Vegetation Cover	Preferably grass, fields with few to no trees or shrubs	Reduce aircraft hazards; improved Line of Sight (LOS); reduced wildlife hazards
Surface Grade	Relatively level, <5 percent slope	Ease of sustainment set up; reduced erosion/ground disturbance
Soil Type	Well-drained and dry (no wetlands or floodplains); loam or clay soils without a lot of rocks; avoid prime farmland	Ease of sustainment set up; avoid impacts to wetlands/floodplains; prime farmland is protected under the Farmland Protection Policy Act (7 CFR 658)
Land Ownership	Public lands with signed Memorandum of Agreement or private land with a lease agreement; avoid protected lands, parks and recreation areas, if possible	Must establish a use agreement with the landowner as to what actions can or cannot be performed by the Army on the property owners of allowable actions
Flight Hazards	Avoid tall structures: towers, buildings, wind turbines, electrical poles/towers	Reduce flight safety risks; avoid populated areas
Airspace	Avoid restricted areas; accessible by helicopter using MTRs, MOAs or LFA	Approved Federal Aviation Administration (FAA) flight routes
Accessibility	Existing road or trail access	Less ground disturbance for surface vehicles
Cultural Resources	Avoid properties and sites listed on the National Register of Historic Properties; avoid Tribal land	Avoid impacts to cultural resources

Criterion	Attributes for Consideration	Rationale
Wetlands	Avoid siting in National Wetland Inventory (NWI and State Jurisdictional Wetlands)	Avoid impacts to wetlands
Threatened or Endangered species	Avoid known occurrence locations/sites through consultation and coordination with the USFWS and NYSDEC, respectively	Avoid Threatened or Endangered species impacts

Daily operations would include aircraft flights to and from the training event location and may include destinations in the Training Area, Cantonment Area, and/or Wheeler-Sack Army Airfield on Fort Drum. The number of aircraft, number of sorties, and time of day would be determined by the training event mission. Aircraft flight altitudes, routes, and speeds would be dependent on the training mission, but all flights would comply with Army Regulation (AR 95-1 and AR 95-2). The size of the sustainment site would be dependent on the training mission, number of personnel and length of the exercise. Training events would be similar to exercises performed in previous years.

Alternative 1 would not include the use of live-fire ammunition, explosives or demolitions, un-manned air operations (except as allowed by the FAA).

Alternative 2

Alternative 2 is the same as Alternative 1 except training exercises would be limited to two high-intensity, up to 14-day training events per year to replicate multi-domain battle, followed by seven-day periods to return the property to its condition prior to the exercise. The same criteria proposed in Alternative 1 would be used to identify possible training sites for Alternative 2 (Table 2-1). Alternative 2 would not include the use of live-fire ammunition, explosive or demolitions, un-manned air operations (except as allowed by the FAA).

Alternative 3 (No Action Alternative)

Under the No Action Alternative, there would be no changes to the amount of current training exercises at Fort Drum. The 10th CAB's routine flight training and mission activities within the defined LFA and the 10th SBDE training activities would stay the same. Training rates (number and frequency of sorties within a given time period) would remain essentially unchanged. Current, limited off-post training exercises using temporary off-post locations to support training scenarios, training aids, and temporary sustainment sites during large-scale training exercises would continue. This Alternative does not fully satisfy the purpose and need for the Proposed Action.

Agency and Government to Government Coordination/Consultations and Public Comment

The PEA and Draft FNSI were made available for review and comments for 30 days at https://home.army.mil/drum/index.php/about/fort-drum-EA. For those who did not have ready access to a computer or the internet, the materials posted to the website were available upon request by contacting Ms. Cait Schadock, NEPA Coordinator, Directorate of Public Works, Fort Drum, by phone at (315) 772-6899, by mail at 4896 Jones St, Fort Drum, NY 13602-5097 or by email at usarmy.drum.imcom.mbx.dpw-nepa@mail.mil.

In response to the coronavirus (COVID-19) pandemic in the United States and the Center for Disease Control's recommendations for social distancing and avoiding large public gatherings, Fort Drum did not hold a public information session for this action.

Fort Drum provided copies of the PEA and Draft FNSI and consultation letters to the agencies and Federally Recognized Tribal Governments prior to the public review. Fort Drum will consider and incorporate in its final decision, as appropriate, agencies' responses and public comments received during the public review period. Fort Drum will make the final documents available to the public at the same

website as the public review PEA. Fort Drum will make copies of the document available upon request.

Environmental Consequences

The resources that are potentially impacted and discussed in detail in this PEA include: land use, noise, airspace, geology and soils, biological resources (vegetation, invasive species, wildlife, and threatened and endangered species), water resources, cultural resources, socioeconomics and environmental justice, transportation and traffic, and public health and safety.

Potential impacts on resources that could be affected by the Proposed Action and Alternatives are summarized in Table ES-2.

Table ES-2. Summary of Environmental Impacts

Resource	Alternative 1	Alternative 2	Alternative 3 (No Action Alternative)
Land Use	Because training is temporary, any impacts to land use would be short-term in nature. Schools, churches, and populated areas would be avoided. It is recommended if parks and recreation areas are used, they are avoided during peak times (hunting, fishing, and boating seasons). Coordination with owner would occur prior to the start of training exercises. Impacts to land use would be adverse, short-term and minor as no permanent changes to designated land uses would be made. Tiered NEPA analysis would determine the impact once sites have been selected.	Because training is temporary, any impacts to land use would be short-term in nature. Schools, churches, and populated areas would be avoided. It is recommended if parks and recreation areas are used, they are avoided during peak times (hunting, fishing, and boating seasons). Coordination with owner would occur prior to the start of training exercises. Impacts to land use would be adverse, short-term and minor as no permanent changes to designated land uses would be made. Tiered NEPA analysis would determine the impact once sites have been selected.	There would be no changes to existing training duration and amounts. Impacts would be adverse, short-term, and minor.
Noise	Training exercises are short-term. Helicopter overflights associated with the training exercises would be infrequent and of a short duration. Aviators are instructed to avoid flyovers of residential areas, known wildlife refuges, and livestock. For areas where aviators takeoff, land, and hover, and during engine run-ups, receivers of noise may experience additional disturbances. The number and amount of disturbances will also be dependent on the number of aircraft involved in the training exercises. Therefore, noise impacts on human annoyance and domestic animals would be adverse, short-term, and range from negligible to minor. Noise impacts on wildlife would be adverse, short-term, and range from negligible to moderate.	Training exercises are short-term. Helicopter overflights associated with the training exercises would be infrequent (two thirds less than Alternative 1) and of a short duration. Aviators are instructed to avoid flyovers of residential areas, known wildlife refuges, and livestock. Therefore, noise impacts on human annoyance and domestic animals would be adverse, short-term, and range from negligible to minor. Noise impacts on wildlife would be adverse, short-term, and range from negligible to moderate.	Aircraft would continue to operate as in the past. Therefore, noise from aircraft operations would be adverse, short-term, and range from negligible to minor.

Resource	Alternative 1	Alternative 2	Alternative 3 (No Action Alternative)
Airspace	10th CAB helicopters would continue to use the airspace as they currently do; no changes are proposed to the current airspace; therefore, there would be no impacts to airspace in the Action Area.	10th CAB helicopters would continue to use the airspace as they currently do; no changes are proposed to the current airspace; therefore, there would be no impacts to airspace in the Action Area.	Aircraft would continue to operate in the existing airspace as in the past. Aircraft operations would have no impact to airspace in the Action Area.
Geology and Soils	There would be no direct effects to geology and soils because training locations would be chosen based on criteria designed to minimize impact. Minor short-term impacts to surface topography would occur due to aircraft and heavy vehicles onsite. If prime farmland areas are used, coordination with owner would occur prior to the start of training exercises. Impacts would be adverse, short-term, and minor. Tiered NEPA analysis would determine the impact once sites have been selected. Appropriate measures would be taken to minimize impacts and restore the site to its original condition following the exercise.	There would be no direct effects to geology and soils because training locations would be chosen based on criteria designed to minimize impact. Minor short-term impacts to surface topography could occur due to aircraft and heavy vehicles onsite. If prime farmland areas are used, coordination with owner would occur prior to the start of training exercises. Impacts would be adverse, short-term, and minor. Tiered NEPA analysis would determine the impact once sites have been selected. Appropriate measures would be taken to minimize impacts and restore the site to its original condition following the exercise.	Under the No Action Alternative, there would be no new adverse impacts to geology and soils compared to existing conditions. Minor short-term impacts to surface topography could occur, and appropriate measures would continue to be taken to minimize impacts and restore the site to its original condition following the exercise.
Biological Resources	Training activities would result in adverse, short- and long-term, negligible to moderate impacts to biological resources. Impacts could include removal of vegetation from clearing, crushing, or trampling; spreading of invasive species from soil disturbances; and disturbances to wildlife, including threatened or endangered species, and habitats from noise and visual disturbances during training exercises. There could also be long-term impacts from habitat alteration, mortality of individual animals, or destruction of nests and eggs of ground-nesting birds. Implementing appropriate conservation measures and terms and	Potential adverse impacts to biological resources would be the same in nature as those described under Alternative 1 but reduced in frequency because off-base training exercises would occur less frequently. Implementing appropriate conservation measures, terms and conditions and following permit conditions would ensure that adverse impacts are avoided, minimized, or mitigated as necessary. Impacts would be adverse, short- and long-term, and negligible to moderate. Final conservation measures would be developed in consultation with USFWS and NYSDEC at the time of site selection	Under the No Action Alternative, there would be no new adverse impacts to biological resources compared to existing conditions. Impacts would be adverse, short- and long-term, and negligible to moderate.

Resource	Alternative 1	Alternative 2	Alternative 3 (No Action Alternative)
	conditions and following permit conditions would ensure that adverse impacts are avoided, minimized, or mitigated as necessary. Final conservation measures would be developed in consultation with USFWS and NYSDEC at the time of site selection.		
Water Resources	There would be no direct impacts to surface waters, floodplains, wetlands, and water supplies because training would not occur in areas near these resources. Activities would not increase the demand for groundwater and would not directly impact any surface waters. Adverse, minor, short-term impacts to surface waters and water resources would occur. Appropriate stormwater management design and Best Management Practice (BMP) implementation on site would minimize impacts.	There would be no direct impacts to surface waters, floodplains, wetlands, and water supplies because training would not occur in areas near these resources. Activities would not increase the demand for groundwater and would not directly impact any surface waters. Adverse, minor, short-term impacts to surface waters and water resources would occur. Appropriate stormwater management design and BMP implementation on site would minimize impacts.	There would be no changes to existing training duration and amounts. Impacts would be adverse, short-term, and minor.
Cultural Resources	Known historic resources would be avoided. However, training exercises have the potential to impact unknown archaeological resources. BMPs would be followed to ensure impacts to cultural resources remain minor. Impacts to cultural resources would be adverse, short- or long-term and minor to moderate.	Alternative 2 would have a minor impact on known and potentially unknown cultural resources on Fort Drum and nine-county Action Area. The BMPs would be followed to ensure impacts to cultural resources remain minor. Impacts to cultural resources would be adverse, short or long-term and minor to moderate.	Under the No Action Alternative, impacts to cultural resources would remain unchanged from the current conditions. Impacts to cultural resources would be adverse, short- or long-term and minor to moderate.
Socioeconomic, Environmental Justice	Any temporary construction needed to accommodate these training exercises would be performed by the Soldiers as part of the training. If the sites selected for the training area is private, the owner would be compensated for the lease. Therefore, there could be negligible beneficial economic impacts. Overall,	Impacts would be similar to but less than Alternative 1. Overall, impacts would be beneficial, short-term, and negligible.	Under the No Action Alternative, the social and economic conditions of the area would remain unchanged from the current conditions. Impacts would be beneficial, short-term, and negligible.

Resource	Alternative 1	Alternative 2	Alternative 3 (No Action Alternative)
	impacts would be beneficial, short-term, and negligible.		
Transportation and Traffic	Adverse, short-term, and minor to moderate impacts would occur to traffic operations and bicycle safety. Fort Drum would employ potential mitigation measures to avoid or reduce transportation impacts.	Impacts would be similar to but less than Alternative 1. Fort Drum would employ potential mitigation measures to avoid or reduce transportation impacts	There would be no change in the potential for adverse impacts compared to existing conditions. Adverse, short-term, and minor to moderate impacts would occur to traffic operations and bicycle safety.
Public Health and Safety	Fort Drum would follow its safety protocols and plans to minimize the potential for accidents and coordinate with the appropriate emergency services contacts within the affected county or counties. Noise impacts on human annoyance would be adverse, short-term and negligible to minor and there would be no impacts to Airspace. Fort Drum would employ mitigation measures to avoid impacts to traffic and transportation.	Fort Drum would follow same safety protocols and plans and coordination as with Alternative 1. Impacts would be similar to but less than Alternative 1.	There would be no change compared to existing conditions. Impacts would be adverse, short- or long-term, and negligible to minor.

ACRONYMS AND ABBREVIATIONS

AADT	Annual Average Daily Traffic
ACUB	Army Compatible Use Buffer
ADNL	A-weighted day-night average level
ANG	Air National Guard
Army	United States Army
Army Aviation	U.S. Army Aviation Branch
ACS	American Community Survey
AGL	Above Ground Level
ATC	Air Traffic Control
BMP	Best Management Practices
CAB	Combat Aviation Brigade
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CONEX	Storage Container (Container Express)
COVID-19	Corona Virus Disease 2019
CWA	Clean Water Act
dB	Decibel
dBA	A-Weighted Decibels
DNL	Day-Night Average Sound Level+
EIS	Environmental Impact Statement
FAA	Federal Aviation Administration
FARP	Forward Arming and Refueling Point
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FNSI	Finding of No Significant Impact
Hz	Hertz
ICRMP	Integrated Cultural Resource Management Plan
IFR	International Flight Rules
JLUS	Joint Land Use Study
Leq	Equivalent Sound Level
LFA	Local Flying Area
LI	Light Infantry
LOS	Line of Site

MOA	Military Operations Area
MSL	Mean Sea Level
MTR	Military Training Routes
NATO	North Atlantic Treaty Organization
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NHS	National Highway System
NOE	Nap of the Earth
NOI	Notice of Intent
NRHP	National Register of Historic Places
NWI	National Wetlands Inventory
NY	New York
NYS	New York State
NYSDEC	New York State Department of Environmental Conservation
NYSDH	New York State Department of Health
NYSDHSES	New York State Division of Homeland Security and Emergency Services
NYSDOT	New York State Department of Transportation
OHSSC	Oil and Hazardous Substance Spill Contingency
PEA	Programmatic Environmental Assessment
POL	Petroleum, Oils and Lubricants
REC	Record of Environmental Consideration
SBDE	Sustainment Brigade
SEL	Sound Exposure Level
SHPO	State Historic Preservation Office
SLELO-PRISM	St. Lawrence-Eastern Lake Ontario Partnership for Regional Invasive Species Management
SPCC	Spill Prevention, Control, and Countermeasure
STRAHNET	the Strategic Highway Network
SUA	Special Use Airspace
SVFR	Special Visual Flight Rule
SWPP	Stormwater Pollution Prevention Plan
TA	Training Area
TES	Threatened and Endangered Species
TNT	Trinitrotoluene
TOC	Tactical Operations Center

TRP	Temporary Revocable Permits
USAF	U.S. Air Force
USEPA	U.S. Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
V/C	Volume to Capacity
VEC	Valued Environmental Components
VFR	Visual Flight Rule
WSAAF	Wheeler-Sack Army Airfield

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1.0 INTRODUCTION

This Programmatic Environmental Assessment (PEA) was prepared for the United States Army (Army) to evaluate the potential effects of increasing mission and training activities at Fort Drum Army Installation, Fort Drum, New York, and within the Local Flying Area (LFA) of Fort Drum. The Proposed Action includes conducting up to six high-intensity, multi-domain (air and ground) division-level training events per year and establishing temporary off-post locations that can support training scenarios, trainings aids, and temporary sustainment sites to be used during Brigade-level training exercises.

This PEA describes the application of criteria provided by Fort Drum to select specific sites for the proposed training events. Fort Drum would ensure the appropriate National Environmental Policy Act (NEPA) review is conducted for specific sites when proposed for training events. This PEA was prepared in accordance with NEPA, the Council on Environmental Quality (CEQ) regulations (40 Code of Federal Regulations (CFR) Parts 1500 – 1508), and 32 CFR Part 651. Future NEPA reviews will be tiered from the PEA and will be consistent with this document, incorporating by reference where appropriate. A tiered environmental analysis is an analysis that focuses on project-specific issues and summarizes or references (rather than repeats) the broader issues discussed in the PEA.

This PEA presents an analysis of potential impacts that would result from implementation of the Proposed Action and Alternatives. Potential effects on the natural and human environment are evaluated to determine the significance of impacts on the affected environment.

1.1 FORT DRUM BACKGROUND

Fort Drum is a 108,733-acre Army Installation in northern New York (Figure 1-1). Fort Drum is approximately 24 miles in length and eight miles wide, measured northeast to southwest (Army Public Health Center, 2016). It is located in Jefferson and Lewis Counties, New York, approximately 10 miles northeast of the City of Watertown within the Great Lakes drainage basin. It is the largest military installation in the northeast United States. Fort Drum, formerly known as Pine Camp, has been used as a military training site since 1908. Pine Camp was the site of tactical field exercises used to test the mobilization ability of the Army. In 1941, Pine Camp was expanded when an additional 75,000 acres were purchased, and an entire city was built at Pine Camp to house the divisions scheduled to train there. In 1951, Pine Camp became Fort Drum named after Lieutenant General Hugh A. Drum, who commanded the First Army during World War II (U.S. Army, 2018). Fort Drum was considered a temporary training facility for the Army until 1974 when a permanent Garrison was assigned.

On February 13, 1985, the Army's 10th Mountain Division (Light Infantry [LI]) was officially reactivated at Fort Drum Army Installation. It was the first division of any kind formed by the Army since 1975 and the first based in the northeast since World War II. The 10th Mountain Division was established to meet a wide range of worldwide infantry-intensive contingency missions. It has played important roles in U.S. military operations in Iraq and Afghanistan and is currently the most deployed division in the Army. The mission of the 10th Mountain Division is to provide trained and combat-ready forces for rapid global deployment in order to prevent, shape, or win in ground combat (U.S. Army Garrison Fort Drum, 2019a).

Fort Drum's current population includes 15,000 Soldiers and 2,500 civilians, and it also supports approximately 20,000 reservists and 9,000 active duty from all military services for training purposes. The Installation provides operations support for multi-forces training, mobilization, and deployment and provides installation services for military and civilians. Fort Drum provides land and air space for firing range practice, combat skills practice, and cold weather training. Two of the units stationed at Fort Drum include the 10th Combat Aviation Brigade (CAB) and the 10th Sustainment Brigade (SBDE).

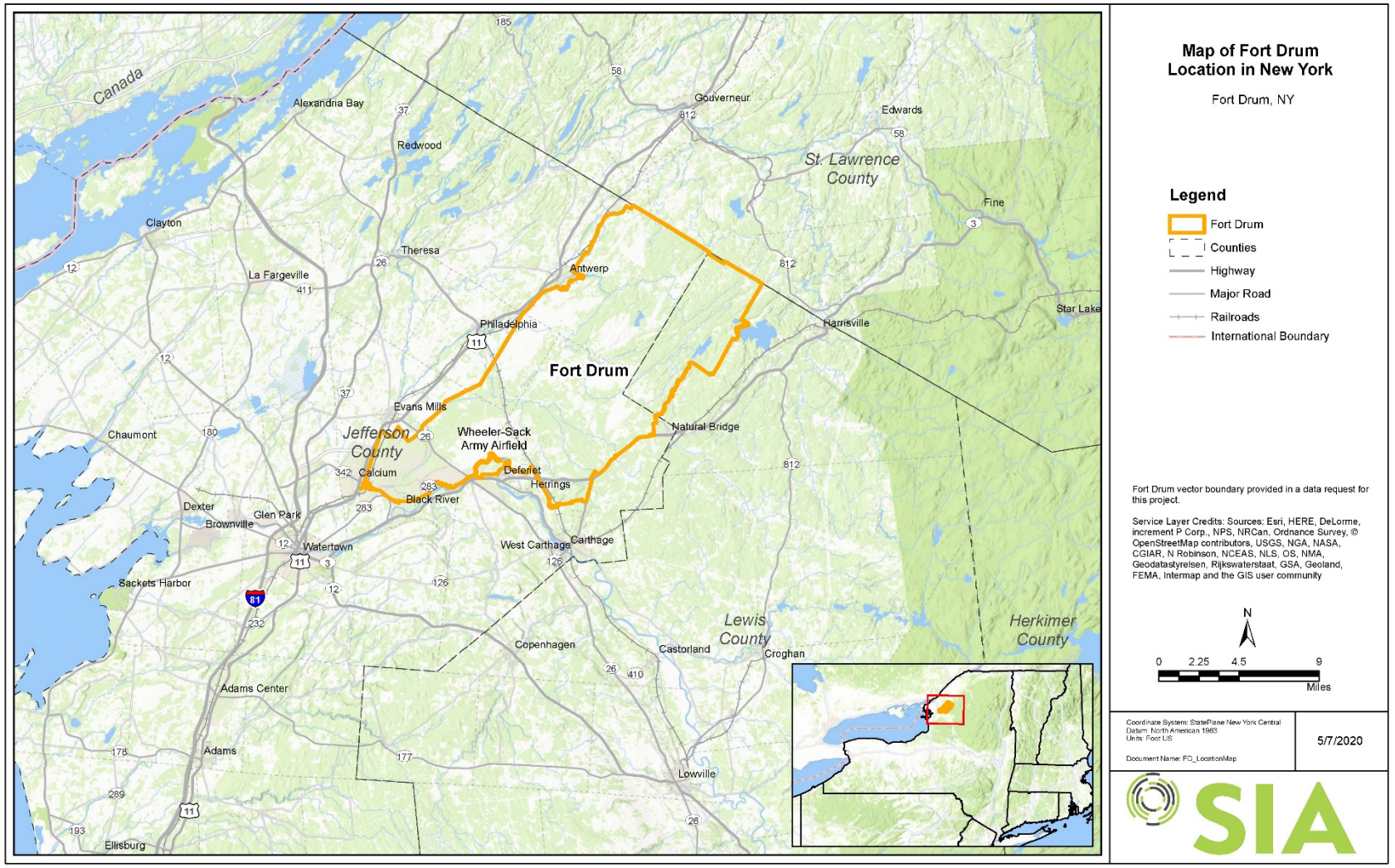

Figure 1-1: Fort Drum Location Map

The 10th CAB is a multi-functional Brigade-sized unit in the Army that fields military helicopters, offering a combination of attack/reconnaissance helicopters (AH-64 Apache), medium-lift helicopters (UH-60 Black Hawk), heavy-lift helicopters (CH-47 Chinook), and medical evacuation (MEDEVAC) capability. The 10th CAB's numerous operations and overseas contingencies include combating the war on terrorism. The mission of the 10th CAB is to "maintain an aviation Brigade, trained and ready to deploy anywhere in the world to conduct combat, combat support and combat service support." Some examples of the missions and operations include Hurricane Andrew Relief in south Florida, Operations Restore Hope and Continue Hope in Somalia, Operation Uphold Democracy in Haiti, North Atlantic Treaty Organization (NATO)-led Stabilization Force and Kosovo Force missions in Bosnia and Kosovo, and most recently, Operation Iraqi Freedom in Iraq and Operation Enduring Freedom in Afghanistan (U.S. Army Garrison Fort Drum, 2019b).

The 10th SBDE is a sustainment brigade of the Army and provides logistical support to the 10th Mountain Division. The 10th SBDE mission is to be ready to rapidly deploy to conduct full spectrum combat service support and combat support within a joint area of operations to enable supported commanders to fight and win (U.S. Army Garrison Fort Drum, 2019c). The 10th SBDE provides support in supply, maintenance, medical and transportation operations to combat units while being able to also step away from "support" to fight and win alongside their division.

1.2 PURPOSE AND NEED

The purpose of the Proposed Action is to ensure that the Army aviators of the 10th CAB and support units of the 10th SBDE at Fort Drum are provided with practical and realistic flight proficiency and support services training.

The Proposed Action is needed to meet mission requirements and maintain combat readiness and to provide additional and enhanced realistic training to 10th CAB and 10th SBDE. Additionally, the Proposed Action is needed to enhance the commanders' effectiveness and improve the Soldier's survivability on the modern-day battlefield. The units at Fort Drum need to train in realistic, large-scale, collective training events that mimic the manner in which they would fight in a real-life scenario. These training events include ground and air resources of assigned and visiting units (mechanized, infantry, support, and combat aviation assets).

Training activities need to be designed to further develop and sustain proficiency in mission essential tasks, air and ground integration training, and collective (group) training at Fort Drum and within the LFA as defined in Fort Drum Regulation 95-1. Collective training is the training of a group of Soldiers (crews, teams, squads, and platoons) to do tasks required of a group as a whole (U.S. Army, 1998) .Areas used for LFA training are located in the following nine counties: Essex, Hamilton, Herkimer, Jefferson, Lewis, Oneida, Onondaga, Oswego, and St. Lawrence (Figure 1-2). It is important to note that the potential nine-county area of effect excludes all Sovereign Nation Indian lands.

The increased training would enhance the 10th CAB and 10th SBDE capability to be ready to fight across multiple domains and contested areas, to gain advantage over their enemies and achieve national security objectives. The areas in and around Fort Drum are excellent locations for such training. LFA training exercises provide an increased proficiency in low and slow flying techniques that would provide the aviation forces with a tactical advantage in the event they are called to action against an advanced adversary. Flying low at decreased speeds and using the terrain to its advantage allows the Army to fly undetected through enemy air defenses and territory. During the war on terror over the last two decades, helicopters have typically flown at high altitudes to avoid small arms fire. Today, emerging threats and potential enemies may possess the same advanced air defense systems as the U.S. military. Honing their abilities at home provides more success abroad, where seconds translate to the lives of Soldiers. The increase in training would also allow the 10th SBDE to be ready to rapidly deploy to conduct full spectrum combat service support and combat support under a variety of environmental conditions.

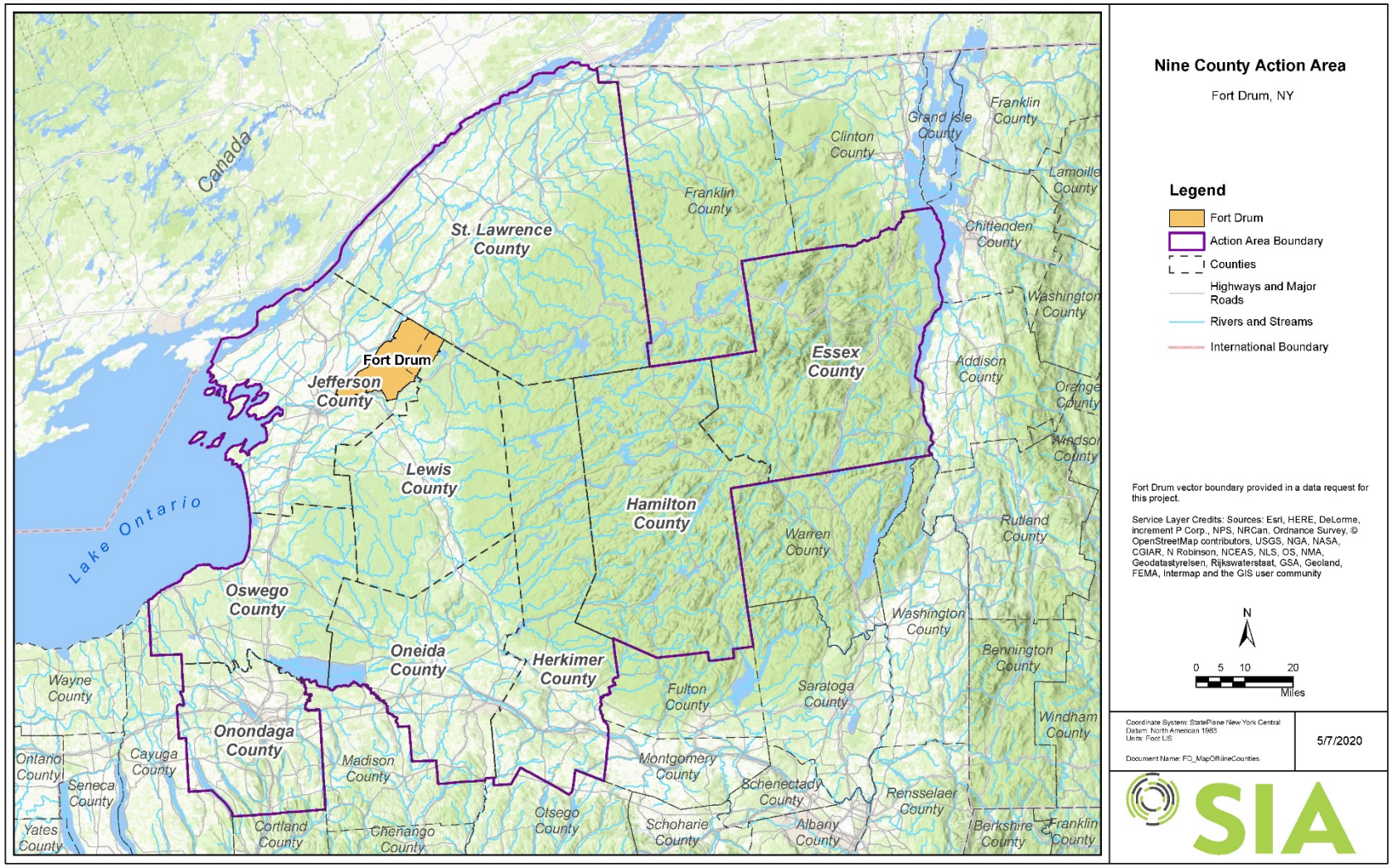

Figure 1-2: Nine-County Action Area

It is imperative that the Army invest the time, planning, and resources required now to ensure that expanding training requirements of the multi-domain battlefield are available to the warfighter of the future. Planning only for current requirements means they are already too late. Replicating realistic environments that mimic potential threats is essential to preserving the lives of Soldiers; the successful completion of any mission is the highest priority.

1.3 BACKGROUND FOR THE PROPOSED ACTION

Fort Drum has been a major training center for the Army for over 100 years. Fort Drum uses its diverse terrain to develop three areas: maneuver areas, range and impact areas (for physical skills, weapons, and aircraft training), and built-up areas (Cantonment Area). Approximately 74,716 acres are used for training and maneuver, while the range and impact areas account for approximately 22,699 acres (Army Public Health Center, 2016). The remaining approximately 11,318 acres consist of the main Cantonment Area and Wheeler-Sack Army Airfield (WSAAF).

Maneuver areas consist of approximately 62,798 acres and are divided into 18 training areas that are further divided into 70 sub-training areas. Of the 18 maneuver training areas, four are classified for heavy maneuvers and the remaining 14 are classified for light maneuvers. Maneuver training exercises are conducted at all unit levels to ensure a combat-ready fighting force from individual troop qualifications to large-scale training exercises at the Brigade level. Brigade-level exercises occur usually twice a year involving up to 5,800 personnel throughout the entire training area.

There are 40 ranges designed for weapons training: 15 artillery firing points (two hardened), 15 observation firing points, 40 small caliber weapons firing ranges, over 70 training areas, and one impact area. In addition to the ranges listed above, the following are also available: a First U.S Army Convoy Live Fire, two Live Fire Shoot Houses, several Military Operations Urban Terrain, Combined Arms Collective Training Facility, and a Home Station Trainer. Individual troop qualifications as well as larger scale training exercises (Brigade Battle Simulation Exercises, Company/Team/Platoon Situational Training Exercises, and National Guard Bureau Annual Training) are scheduled year-round (Army Public Health Center, 2016). Fort Drum is also the largest training facility in the region for the Army Reserve, Army National Guard, Air National Guard (ANG), U.S. Air Force Reserve, and U.S. Marine Corps Reserve to fulfill their individual and annual training needs and mobilization (U.S. Army Garrison Fort Drum, 2018).

The aviation units on Fort Drum train at all echelons from individual through battalion/squadron to ensure a combat-ready fighting force. The training tasks accomplished in the training areas include all tactical maneuvers, performed in accordance with each aircraft's aircrew training manual and the unit's standard operating procedures (AR 95-1 and AR 95-2). These maneuvers include nap-of-the-earth (NOE) (flying very close to the ground while following the contours of land features), equipment and personnel drops, and low-level flight. Fixed-wing aircraft of the U.S. Air Force (USAF) and ANG also conduct training missions in Fort Drum airspace and use Range 48 (air-to-ground range) on the Installation for weapon gunnery/delivery practice.

WSAAF is a 1,930-acre area at the southeastern end of the Installation. WSAAF has three fixed-wing runways: Runway 3/21, Runway 8/26, and Runway 15/33. In addition, there are two launch and recovery airfields located in Training Area (TA) 5A for use by Unmanned Aerial Systems. There are 14 aviation training areas, two drop zones (Chute and Panther), Range 48, and Belvedere Tactical Landing Strip. The drop zones are used for personnel and equipment.

The primary mission of the 10th CAB is to support the mission commander's aviation needs in the operational theater, and, when at base, train on critical tasks to enhance readiness. Training for 10th CAB consists of the following:

- Individual/Crew Qualification Ranges
- Aerial Gunnery and Integrated Aviation/Ground Maneuver Qualification Ranges

- Live-fire Training
- Maneuver and Flight Operations Training
- Collective Training and Air-Ground Integration Training
- Flight Modes
- Low-level flight, Contour flight, NOE flight
- Movement Techniques
- Traveling, Traveling Overwatch, Bounding Overwatch
- Specialized Terrain Flight
- Equipment/Aircraft Maintenance flights and Additional Training Techniques

Ground support services at Fort Drum are provided by both the 10th CAB and 10th SBDE. These units provide mission support capabilities for maneuver Brigades, support Brigades, and other units operating in its assigned area of support. Training with ground units to integrate air and ground operations is also a key component of both 10th CAB and 10th SBDE readiness. In training with ground units on complex maneuver and live-fire tasks, aviators and leaders enhance their effectiveness in understanding the requirements and expectations for ground unit support. Training together, units can enhance each other's readiness and reach optimal effectiveness as a combined arms team.

1.4 TRAINING EXERCISES

At Fort Drum, medium- and large-arms training is conducted on a daily basis with a multitude of weapons including artillery, mortars, aerial gunnery, rockets, grenade launchers, and explosive charges. Utilization of simulators (pyrotechnic and non-pyrotechnic) provides Soldiers with the most realistic training experience possible while prioritizing Soldier safety. Training activities include but are not limited to: establishing campsites (bivouac), support areas, and command points [Tactical Operations Center (TOC)]; digging individual (foxhole), crew-serve (two-man), and vehicle fighting positions; digging bunkers; digging trenches and constructing berms; hand-digging small grey water soakage pits (for food service washing); establishing shower facilities (containment required); firing weapons; throwing grenades; breaking trails; and water purification. Mechanized infantry use tread and wheeled vehicles on and off the road. Additional training activities include but are not limited to: armored gunnery, artillery, air assault, mortar fire, air pyrotechnics, grenade launching, handling of claymore, anti-personnel, and anti-tank mines, use of trinitrotoluene (TNT), and dynamite. Support construction in the ranges may include, but are not limited to, road and bridge building, multipurpose buildings, sheds, small buildings, storage facilities, bleachers, tent pads, and covered mess areas (U.S. Army Garrison Fort Drum, 2010).

During a typical year, the 10th CAB flies an average of 250 flights from WSAAF each week. This number fluctuates monthly based on weather, cross-country missions, and real-world deployments. Seventy percent of flights from the 10th CAB remain within the restricted and Cantonment Area for basic progression and proficiency flights. Ten percent of flights fly directly between airports. The remaining 20 percent focus on map navigation, route planning, and terrain flight throughout the LFA of upstate New York. Less than one percent of all flights land at locations other than airports for the purpose of supporting local events (such as the support to the Trooper Davis Memorial) or tactical training (high altitude training at Whiteface Mountain). Flights that go directly between airports remain above 2,000 feet under instrument flight rules, and above 1,000 feet outside of the clouds. Of the flights concentrating on map navigation, aircraft generally remain at or above 500 feet above areas above ground level (AGL). For terrain flight, aircraft fly at or below 200 feet. These terrain flight missions require detailed route analysis by the crews to avoid obstacles and are generally restricted to the range. The only exception would be any CAB-developed terrain flight corridors.

Large-scale exercises that the 10th CAB and 10th SBDE perform annually occur both on and off the Installation. Exercise duration can be up to 14 days and typically occurs one to two times a year (depending on deployment). The number of personnel varies depending on the mission and number of locations planned per mission. Recent exercises involved two off-post TOC and sustainment positions in the Adirondacks. Sustainment sites can involve tents (sleeping, meeting, maintenance, feeding), generators, stoves, fuel cans, fuel dispensing trucks, food kitchen, storage containers (CONEX), and supply trucks (water, food, supplies, fuel). During major exercises, approximately 90 percent of all flying out of Fort Drum is devoted to the exercise in lieu of other flight training.

Aviation-centered "Decisive Action" based exercises that simulate a potential near-peer threat within difficult terrain focus on empowering leaders to react to a simulated force with capabilities similar to the Army's, such as air defense artillery, radars, and ground capabilities and will strain logistics and support operations by using an extended multi-domain battlefield. The 10th CAB self-deploys throughout the areas surrounding Fort Drum. Once notified, units deploy from Fort Drum and occupy locations in Fort Drum's training areas. Tactical assembly areas rely on themselves for self-sustainment in a denied environment. Aviators develop their ability to fly aircraft at reduced speeds and below 500 feet AGL in order to evade radar detection and air defense threats. Night operations occur using night-vision goggles and on-board systems to train in the cover of darkness to ensure minimal visibility. Leaders employ rapid decision making to adapt by constantly moving their aircraft, equipment and vehicles in a fluid environment. Equipment is moved by conducting long-range convoy operations to find suitable locations to establish tactical assembly areas. Past exercises have included six AH-64 Apache helicopters, 15 UH-60 Black Hawk helicopters, 750 Soldiers, 160-vehicle convoy spanning a 200-mile area, three (3) Air Defense Artillery replicators (MAST emitters, Sentinel radar, and SA-8 replicators), shoulder-mounted rocket replicators with fireworks to denote firing, Global Positioning System and Communications jamming (on Fort Drum only; low power, no effects outside of ranges), a simulated chemical attack that called for use of advanced protective equipment (masks, suits, etc.), and a Forward Arming and Refueling Point (FARP: a tactical area where aircraft can land, refuel, arm, and/or moor as the battlefield moves forward).

1.5 AIRSPACE BACKGROUND

The airspace around Fort Drum has been used for training due to its rural nature and the variety of the topography over which aircrews can perform training exercises. The Federal Aviation Administration (FAA) has designated much of the area as Special Use Airspace (SUA) so that private, commercial, and military pilots are alerted to the fact that military flight activity may be in the area. There are two types of SUA in the Fort Drum area: Military Operations Areas[1] (MOAs) and Restricted Areas[2] (see 14 CFR Part 1). The SUAs around Fort Drum are depicted in Figure 1-3.

[1] Military Operations Area: Airspace established outside of Class A airspace to separate or segregate certain nonhazardous military activities from Instrument Flight Rules (IFR) traffic and to identify for Visual Flight Rules (VFR) traffic where these activities are conducted. (https://www.govinfo.gov/content/pkg/CFR-1999-title14-vol1/pdf/CFR-1999-title14-vol1.pdf).

[2] Restricted Area: A restricted area is airspace designated under 14 CFR Part 73 within which the flight of aircraft, while not wholly prohibited, is subject to restriction. (https://www.govinfo.gov/content/pkg/CFR-1999-title14-vol2/pdf/CFR-1999-title14-vol2.pdf).

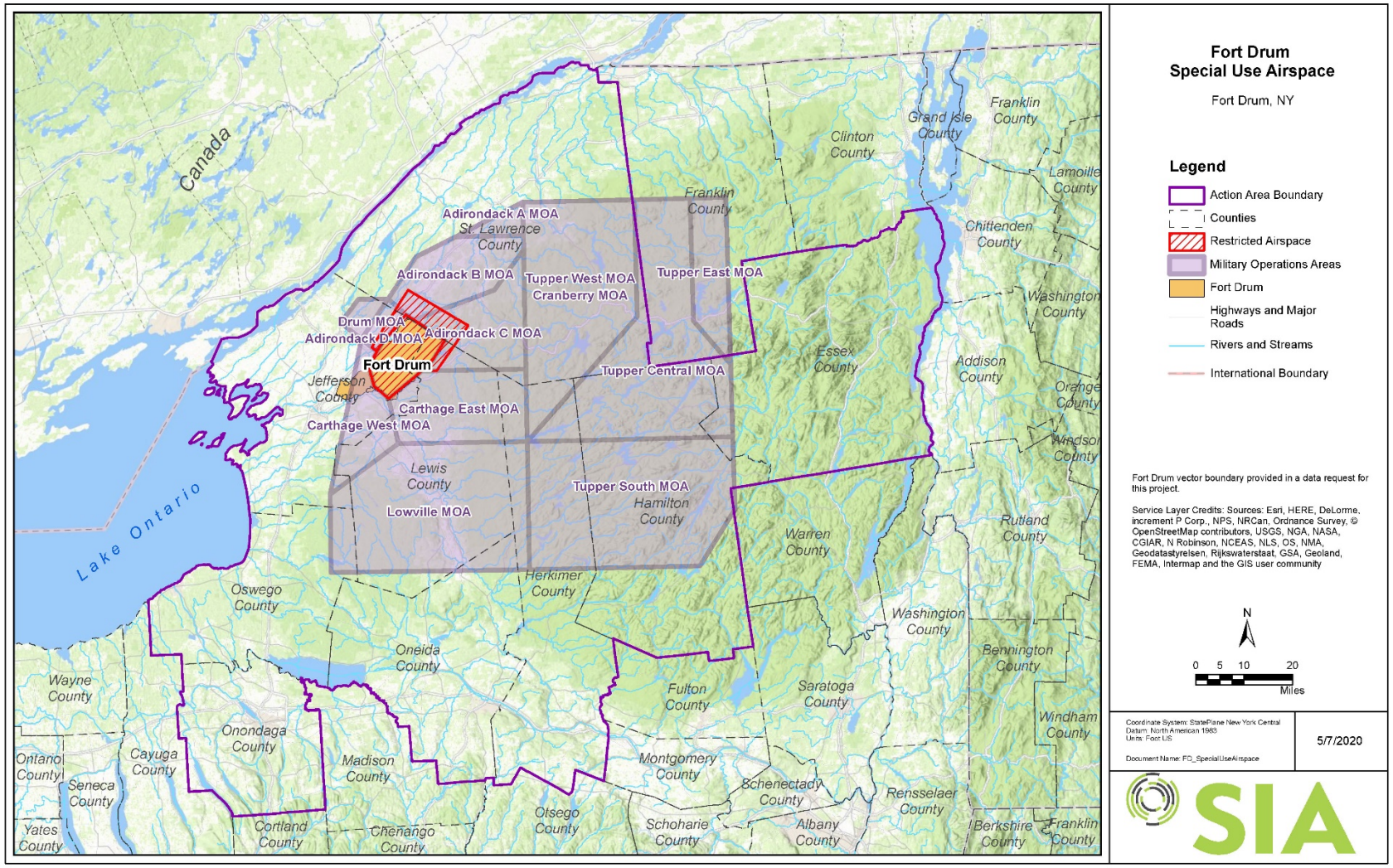

Figure 1-3: Special Use Airspace

These areas are three (3)-dimensional, having ceilings and floors within which the military flights may occur. There are also designated corridors that military aircrew use to enter and exit these special use areas.

In combat, aircrew must fly over combat zones at either very high altitudes to avoid ground artillery fire or they must fly at very low altitudes to avoid being seen on radar. Low altitude flying allows for the element of surprise on enemy forces. However, low altitude flying is extremely dangerous for pilots. They must avoid tall structures (buildings, wind turbines, and towers), mountains, electrical wires, and birds, bats and even insects to name a few of those hazards. Military Training Routes (MTRs) are designated areas in which military aircraft (typically fixed-wing aircraft) can train how to fly at low altitudes, avoiding some of these hazards. MTRs are also three (3)-dimensional, and pilots are restricted from flying below certain altitudes AGL. Fort Drum restricts flying below 1,000 AGL over cities and villages and typically 300-500 feet AGL in rural areas. Figure 1-4 depicts MTRs in the Fort Drum area, although 10th CAB does not normally use MTRs.

1.6 SCOPE OF ENVIRONMENTAL ANALYSIS AND DECISION TO BE MADE

This PEA identifies programmatic level environmental and socioeconomic impacts from increasing mission and training activities at Fort Drum and within the LFA of Fort Drum. Based on the Proposed Action and related training activities, the PEA analyzes the following Valued Environmental Components (VECs) that have a potential to be affected:

- Land Use
- Noise
- Airspace
- Water Resources
- Geology and Soils
- Biological Resources−Vegetation, Invasive Species, Wildlife, and Threatened and Endangered Species
- Cultural Resources
- Socioeconomics and Environmental Justice
- Transportation and Traffic
- Public Health and Safety

The decision to be made is whether or not to increase the mission and training activities. The decision options are:

1. Selecting the No Action Alternative, where 10th CAB's routine flight training and mission activities within the defined LFA and 10th SBDE training activities would stay the same;
2. Selecting one of the two Action Alternatives [Alternative 1 or 2] and preparing a Finding of No Significant Impacts (FNSI) if no significant impacts are expected; or
3. Preparing Notice of Intent (NOI) to prepare an Environmental Impact Statement (EIS) if the Action Alternatives would result in significant environmental impacts.

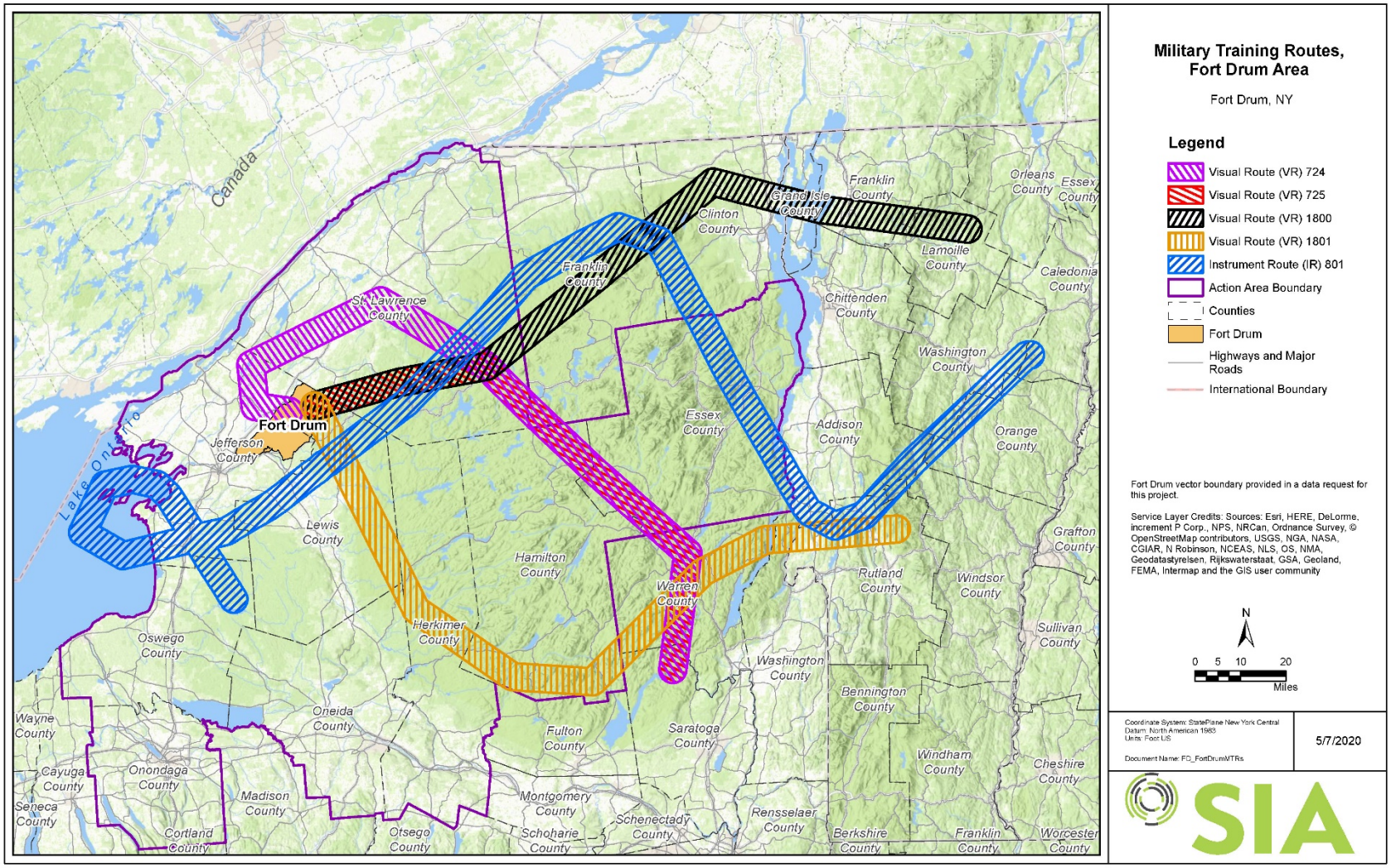

Figure 1-4: Military Training Routes

1.7 AGENCY AND INTERGOVERNMENTAL COORDINATION AND CONSULTATIONS

1.7.1 Agency Coordination/Consultations

Fort Drum distributed consultation letters and copies of the PEA and Draft FNSI to the Federal, state, and local agencies with jurisdiction that could be affected by the Proposed Action prior to the public review period. Appendix A of this PEA includes the list of agencies and copies of the letters. Fort Drum will consider and incorporate in its final decision, as appropriate, the responses received from agencies. Fort Drum will make the documents available for public review at: https://home.army.mil/drum/index.php/about/fort-drum-EA. Fort Drum will make copies of the document available upon request.

1.7.2 Government to Government Consultations

Executive Order 13175, Consultation and Coordination with Indian Tribal Governments (6 November 2000), 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. Therefore, Fort Drum will conduct government-to-government consultation regarding this PEA with the Federally Recognized Tribal Governments. To that end, prior to the public review period, Fort Drum distributed consultation letters and copies of the PEA and Draft FNSI to the Federally Recognized Tribal Governments. Appendix A of this PEA includes the list of the tribal governments and copies of the letters. Fort Drum will consider and incorporate in its final decision, as appropriate, the responses received from Federally Recognized Tribal Governments. Fort Drum will make the final documents available to the public at the same website as the public review PEA and will also make copies of the document available upon request.

1.7.3 Public Review Process

Public participation is essential to a successful NEPA analysis and consideration of the views, and informing all interested persons promotes open communication and enables better decision-making. Fort Drum is required to notify the interested public when the PEA is available and ensure that the public has access to the findings of the environmental analysis. The PEA and Draft FNSI will be made available for a 30-day public review and comment period.

In response to the coronavirus (COVID-19) pandemic in the United States and the Center for Disease Control's recommendations for social distancing and avoiding large public gatherings, Fort Drum will not hold a public information session for this action. PEA materials will be provided at https://home.army.mil/drum/index.php/about/fort-drum-EA.

For those who do not have ready access to a computer or the internet, the materials posted to the website will be made available upon request by contacting Ms. Cait Schadock, NEPA Coordinator, Directorate of Public Works, Fort Drum, by phone at (315) 772-6899, or by mail at 4896 Jones Street, Fort Drum, NY 13602-5097. Written comments can be mailed to the address above and/or emailed to: usarmy.drum.imcom.mbx.dpw-nepa@mail.mil. Public notices announcing the availability of the documents will be published prior to the 30-day public comment period.

Fort Drum will consider and incorporate in its final decision, as appropriate, public comments received during the public review period. Fort Drum will make the final documents available to the public at the same website as the public review PEA and will also make copies of the document available upon request.

1.7.4 Cooperating Agency Status

At this time, Fort Drum has not requested any agency to serve in the capacity of an official Cooperating Agency.

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2.0 DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES

In accordance with CEQ regulations (40 CFR 1502.14) and U.S. Army NEPA regulations (32 CFR Part 651), this PEA identifies and describes the Proposed Action and all reasonable alternatives, including the No Action Alternative. This PEA analyzes two Action Alternatives and the No Action Alternative.

2.1 PROPOSED ACTION

The Proposed Action is to support an increase in the air and land-based training activities conducted by the 10th CAB and the 10th SBDE, including in the LFA training areas located in the following nine counties: Essex, Hamilton, Herkimer, Jefferson, Lewis, Oneida, Onondaga, Oswego, and St. Lawrence (Figure 1-2). It is important to note that the potential nine-county area of effect excludes all Sovereign Nation Indian lands. The Alternatives analyzed are described in the following sections.

2.2 ALTERNATIVE 1

Alternative 1 would provide full mission support by increasing low level flight modes and movement techniques in the existing nine-county LFA outside the Fort Drum Army Installation Restricted Airspace area. The 10th CAB and 10th SBDE would conduct up to six high-intensity, multi-day training events per year to replicate multi-domain battle. Each training event could occur up to a 14-day period, plus a seven-day period to return the property to its condition prior to the exercise. All multi-domain training events would include integrating the ground and air resources of assigned and visiting units (mechanized, infantry, support, and combat aviation assets) in simulated battle scenarios. The number of personnel participating in a training event and the types and numbers of aircraft systems (AH-64, UH-60, HH-60, CH-47) would depend on the training event mission.

Events would serve to integrate air and/or ground operations and sustainment activities by:

- simulating real-world distances and threats, challenging logistical supply lines and mission command systems over distances beyond the geographic boundaries of Fort Drum and
- expanding logistical routes via air and ground to simulate a large-scale battlefield.

Temporary off-post locations in support of training scenarios, training aids (i.e., training emitters during division exercises for aviation detection), and temporary sustainment sites (e.g., providing food, water, sleep area, shower, fuel, communications) would be used during these training events. Sustainment sites would include tent structures for sleeping, meetings, meals, and maintenance of equipment. Other areas within the sustainment sites would include generators, fuel containers, fuel dispensing trucks, food kitchen, storage containers, and parking areas for supply trucks. All equipment containing petroleum, oils, and lubricants (POL) or hazardous materials would have secondary containment systems to prevent soil contamination.

The process for determining temporary off-post locations is criteria-based. Table 2-1 is a list of criteria, acceptable attributes of each criterion, and any rationale for the attributes. This PEA identifies the general areas that meet these criteria and would likely be feasible for use for Alternative 1. Once the specific feasible areas are identified, Fort Drum would coordinate with the appropriate owners for its use for Alternative 1 and conduct compliance documentation as appropriate, such as an Environmental Condition of Property Report to document the physical and environmental condition of the property resulting from the past storage, use, release, and disposal of hazardous substances and petroleum products; Record of Environmental Consideration (REC) for environmental review and compliance with NEPA requirements; Temporary Revocable Permits (TRPs) for the use of state lands and conservation easement lands; and Maneuver License, among others. Fort Drum's intent is to prioritize the use of public lands. The selection of the sites would be based on consultation or coordination with the appropriate regulatory agencies such as the United States Fish and Wildlife Service (USFWS), New York State Department of Environmental

Conservation (NYSDEC), New York State Historic Preservation Office (NY SHPO), and through permit conditions, to avoid or minimize impacts to natural, cultural, and physical resources and humans.

Table 2-1. Criteria for Selecting Possible Exercise Locations

Criterion	Attributes for Consideration	Rationale
General Location	Within nine-county LFA; 60 to 75 miles from Fort Drum	10th CAB aircraft approved for LFA; aircraft can be hangered at Fort Drum if less than 60 to 75 miles
Rural Areas Outside City Boundaries	Avoid populated areas, churches, schools, malls, highways, interstates	Reduce safety hazards, reduce noise annoyance, simulate real world conditions, avoid public disturbance
Location Size	Large event: 10 acres or greater; small event: 5 acres or less	Sufficient for sustainment operations, vehicle parking, aircraft ground operations
Vegetation Cover	Preferably grass, fields with few to no trees or shrubs	Reduce aircraft hazards; improved Line of Sight (LOS); reduced wildlife hazards
Surface Grade	Relatively level, <5 percent slope	Ease of sustainment set up; reduced erosion/ground disturbance
Soil Type	Well-drained and dry (no wetlands or floodplains); loam or clay soils without a lot of rocks; avoid prime farmland	Ease of sustainment set up; avoid impacts to wetlands/floodplains; prime farmland is protected under the Farmland Protection Policy Act (7 CFR 658)
Land Ownership	Public lands with signed Memorandum of Agreement or private land with a lease agreement; avoid protected lands, parks and recreation areas, if possible.	Must establish a use agreement with the landowner as to what actions can or cannot be performed by the Army on the property owners of allowable actions.
Flight Hazards	Avoid tall structures: towers, buildings, wind turbines, electrical poles/towers	Reduce flight safety risks; avoid populated areas
Airspace	Avoid restricted areas; accessible by helicopter using MTRs, MOAs or LFA	Approved FAA flight routes
Accessibility	Existing road or trail access	Less ground disturbance for surface vehicles
Cultural Resources	Avoid properties and sites listed on the National Register of Historic Properties; avoid Tribal land.	Avoid impacts to cultural resources
Wetlands	Avoid siting in National Wetland Inventory (NWI and State Jurisdictional Wetlands)	Avoid impacts to wetlands
Threatened or Endangered species	Avoid known occurrence locations/sites through consultation and coordination with the USFWS and NYSDEC, respectively	Avoid Threatened or Endangered species impacts

Daily operations would include aircraft flights to and from the training event location and may include destinations to Fort Drum, the range, or WSAAF. The number of aircraft, number of sorties, and time of day would be determined by the training event mission. Aircraft flight altitudes, routes, and speeds would be dependent on the training mission, but all flights would comply with Army Regulations AR 95-1 and AR 95-2 and appropriate environmental requirements to avoid/minimize adverse biological resource impacts. The size of the sustainment site would be dependent on the training mission, number of personnel, and length of the exercise. Training events would be similar to exercises performed in previous years.

Alternative 1would not include the use of live-fire ammunition, explosives or demolitions, or un-manned air operations (except as allowed by the FAA).

2.3 ALTERNATIVE 2

Alternative 2 is the same as Alternative 1 except training exercises would be limited to two (2) high-intensity, up to 14-day training event per year to replicate multi-domain battle. The same criteria proposed in Alternative 1 would be used to identify possible training sites for Alternative 2 (Table 2-1).

Alternative 2 would not include the use of live-fire ammunition, explosives or demolitions, or un-manned air operations (except as allowed by the FAA).

2.4 ALTERNATIVE 3 (NO ACTION ALTERNATIVE)

Under Alternative 3, there would be no changes to the amount of current training exercises at Fort Drum. The 10th CAB's routine flight training and mission activities within the defined LFA and the 10th SBDE training activities would stay the same. Training rates (number and frequency of sorties within a given time period) would remain essentially unchanged. Current, limited off-post training exercises using temporary off-post locations to support training scenarios, training aids, and temporary sustainment sites during large-scale training exercises would continue. This Alternative does not fully satisfy the purpose and need for the Proposed Action.

2.5 SUMMARY OF ENVIRONMENTAL CONSEQUENCES

Table 2-2 presents the summary of the environmental consequences of the Proposed Action and Alternatives. Section 3 contains a more detailed discussion of the affected environment and environmental consequences and discusses appropriate measures to avoid, minimize, or mitigate impacts that would result from the implementation of the Proposed Action.

Table 2-2. Summary of Environmental Impacts

Resource	Alternative 1	Alternative 2	Alternative 3 (No Action Alternative)
Land Use	Because training is temporary, any impacts to land use would be short-term in nature. Schools, churches, and populated areas would be avoided. It is recommended if parks and recreation areas are used, they are avoided during peak times (hunting, fishing, and boating seasons). Coordination with owners would occur prior to the start of training exercises. Impacts to land use would be adverse, short-term and minor as no permanent changes to designated land uses would be made. Tiered NEPA analysis would determine the impact once sites have been selected.	Because training is temporary, any impacts to land use would be short-term in nature. Schools, churches, and populated areas would be avoided. It is recommended if parks and recreation areas are used, they are avoided during peak times (hunting, fishing, and boating seasons). Coordination with owner would occur prior to the start of training exercises. Impacts to land use would be adverse, short-term and minor as no permanent changes to designated land uses would be made. Tiered NEPA analysis would determine the impact once sites have been selected.	There would be no changes to existing training duration and amounts. Impacts would be adverse, short-term, and minor.
Noise	Training exercises are short-term. Helicopter overflights associated with the training exercises would be infrequent and of a short duration. Aviators are instructed to avoid flyovers of residential areas, known wildlife refuges, and livestock. For areas where aviators takeoff, land, and hover, and during engine run-ups, receivers of noise may experience additional disturbances. The number and amount of disturbances will also be dependent on the number of aircraft involved in the training exercises. Therefore, noise impacts on human annoyance and domestic animals would be adverse, short-term, and range from negligible to minor. Noise impacts on wildlife would be adverse, short-term, and range from negligible to moderate.	Training exercises are short-term. Helicopter overflights associated with the training exercises would be infrequent (two thirds less than Alternative 1) and of a short duration. Aviators are instructed to avoid flyovers of residential areas, known wildlife refuges, and livestock. Therefore, noise impacts on human annoyance and domestic animals would be adverse, short-term, and range from negligible to minor. Noise impacts on wildlife would be adverse, short-term, and range from negligible to moderate.	Aircraft would continue to operate as in the past. Therefore, noise from aircraft operations would be adverse, short-term, and range from negligible to minor.

Resource	Alternative 1	Alternative 2	Alternative 3 (No Action Alternative)
Airspace	10th CAB helicopters would continue to use the airspace as they currently do; no changes are proposed to the current airspace; therefore, there would be no impacts to airspace in the Action Area.	10th CAB helicopters would continue to use the airspace as they currently do; no changes are proposed to the current airspace; therefore, there would be no impacts to airspace in the Action Area.	Aircraft would continue to operate in the existing airspace as in the past. Aircraft operations would have no impact to airspace in the Action Area.
Geology and Soils	There would be no direct effects to geology and soils because training locations would be chosen based on criteria designed to minimize impact. Minor short-term impacts to surface topography would occur due to aircraft and heavy vehicles onsite. If prime farmland areas are used, coordination with owner would occur prior to the start of training exercises. Impacts would be adverse, short-term, and minor. Tiered NEPA analysis would determine the impact once sites have been selected. Appropriate measures would be taken to minimize impacts and restore the site to its original condition following the exercise.	There would be no direct effects to geology and soils because training locations would be chosen based on criteria designed to minimize impact. Minor short-term impacts to surface topography could occur due to aircraft and heavy vehicles onsite. If prime farmland areas are used, coordination with owner would occur prior to the start of training exercises. Impacts would be adverse, short-term, and minor. Tiered NEPA analysis would determine the impact once sites have been selected. Appropriate measures would be taken to minimize impacts and restore the site to its original condition following the exercise.	Under the No Action Alternative, there would be no new adverse impacts to geology and soils compared to existing conditions. Minor short-term impacts to surface topography could occur, and appropriate measures would continue to be taken to minimize impacts and restore the site to its original condition following the exercise.
Biological Resources	Training activities would result in adverse, short- and long-term, negligible to moderate impacts to biological resources. Impacts could include removal of vegetation from clearing, crushing, or trampling; spreading of invasive species from soil disturbances; and disturbances to wildlife, including threatened or endangered species, and habitats from noise and visual disturbances during training exercises. There could also be long-term impacts from habitat alteration, mortality of individual animals, or destruction of nests and eggs of ground-nesting birds. Implementing appropriate conservation measures and terms and	Potential adverse impacts to biological resources would be the same in nature as those described under Alternative 1 but reduced in frequency because off-base training exercises would occur less frequently. Implementing appropriate conservation measures, terms and conditions and following permit conditions would ensure that adverse impacts are avoided, minimized, or mitigated as necessary. Impacts would be adverse, short- and long-term, and negligible to moderate. Final conservation measures would be developed in consultation with USFWS and NYSDEC at the time of site selection	Under the No Action Alternative, there would be no new adverse impacts to biological resources compared to existing conditions. Impacts would be adverse, short- and long-term, and negligible to moderate.

Resource	Alternative 1	Alternative 2	Alternative 3 (No Action Alternative)
	conditions and following permit conditions would ensure that adverse impacts are avoided, minimized, or mitigated as necessary. Final conservation measures would be developed in consultation with USFWS and NYSDEC at the time of site selection.		
Water Resources	There would be no direct impacts to surface waters, floodplains, wetlands, and water supplies because training would not occur in areas near these resources. Activities would not increase the demand for groundwater and would not directly impact any surface waters. Adverse, minor, short-term impacts to surface waters and water resources would occur. Appropriate stormwater management design and Best Management Practice (BMP) implementation on site would minimize impacts.	There would be no direct impacts to surface waters, floodplains, wetlands, and water supplies because training would not occur in areas near these resources. Activities would not increase the demand for groundwater and would not directly impact any surface waters. Adverse, minor, short-term impacts to surface waters and water resources would occur. Appropriate stormwater management design and BMP implementation on site would minimize impacts.	There would be no changes to existing training duration and amounts. Impacts would be adverse, short-term, and minor.
Cultural Resources	Known historic resources would be avoided. However, training exercises have the potential to impact unknown archaeological resources. BMPs would be followed to ensure impacts to cultural resources remain minor. Impacts to cultural resources would be adverse, short- or long-term and minor to moderate.	Alternative 2 would have a minor impact on known and potentially unknown cultural resources on Fort Drum and nine-county Action Area. The BMPs would be followed to ensure impacts to cultural resources remain minor. Impacts to cultural resources would be adverse, short or long-term and minor to moderate.	Under the No Action Alternative, impacts to cultural resources would remain unchanged from the current conditions. Impacts to cultural resources would be adverse, short- or long-term and minor to moderate.
Socioeconomic, Environmental Justice	Any temporary construction needed to accommodate these training exercises would be performed by the Soldiers as part of the training. If the sites selected for the training area is private, the owner would be compensated for the lease. Therefore, there could be negligible beneficial economic impacts. Overall,	Impacts would be similar to but less than Alternative 1. Overall, impacts would be beneficial, short-term, and negligible.	Under the No Action Alternative, the social and economic conditions of the area would remain unchanged from the current conditions. Impacts would be beneficial, short-term, and negligible.

Resource	Alternative 1	Alternative 2	Alternative 3 (No Action Alternative)
	impacts would be beneficial, short-term, and negligible.		
Transportation and Traffic	Adverse, short-term, and minor to moderate impacts would occur to traffic operations and bicycle safety. Fort Drum would employ potential mitigation measures to avoid or reduce transportation impacts.	Impacts would be similar to but less than Alternative 1. Fort Drum would employ potential mitigation measures to avoid or reduce transportation impacts	There would be no change in the potential for adverse impacts compared to existing conditions. Adverse, short-term, and minor to moderate impacts would occur to traffic operations and bicycle safety.
Public Health and Safety	Fort Drum would follow its safety protocols and plans to minimize the potential for accidents and coordinate with the appropriate emergency services contacts within the affected county or counties. Noise impacts on human annoyance would be adverse, short-term and negligible to minor and there would be no impacts to Airspace. Fort Drum would employ mitigation measures to avoid impacts to traffic and transportation.	Fort Drum would follow same safety protocols and plans and coordination as with Alternative 1. Impacts would be similar to but less than Alternative 1.	There would be no change compared to existing conditions. Impacts would be adverse, short- or long-term, and negligible to minor.

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3.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

This section of the PEA describes the natural and human environments that exist within the Fort Drum and in the potential Action Area and at a programmatic level, the potential impacts of the Action Alternatives on those environments. In accordance with NEPA and the CEQ regulations implementing NEPA, the analysis of environmental conditions only addresses those areas and environmental resources with the potential to be affected by any of the Alternatives.

Potential impacts are described in terms of type (beneficial or adverse); duration (short- or long-term); and intensity (negligible, minor, moderate, or major). Explanations of these terms are as follows:

- Type: The impact type refers to whether it is adverse (negative) or beneficial (positive). Adverse impacts would potentially harm resources, while beneficial impacts would improve resource conditions. Within the analysis, impacts are assumed to be adverse unless identified as beneficial.
- Duration: Impacts resulting from construction are considered short-term and would occur during construction or site improvements. Long-term impacts would persist during the operation of properties and facilities.
- Intensity: The intensity of an impact describes the magnitude of change that the impact generates. The intensity thresholds are as follows:
    - Negligible: There would be no impact, or the impact would not result in a noticeable change in the resource.
    - Minor (not significant): The impact would be slight, but detectable, resulting in a small but measurable change in the resource.
    - Moderate (not significant): The impact would be readily apparent and/or easily detectable but would not substantially alter the resource or exceed regulatory thresholds.
    - Major (significant): The impact would be widespread and would substantially alter the resource or exceed regulatory thresholds. A major, adverse impact would be considered significant under NEPA.

In addition to the factors detailed above, impacts may be characterized as direct, indirect, or cumulative. A direct impact is caused by an action and occurs at the same time and place. An indirect impact is caused by an action, but occurs later in time, or farther removed in distance. A cumulative impact occurs when the Proposed Action is considered together with other past, ongoing, or planned actions.

The VECs that would potentially be affected by any of the Alternatives are discussed in the following subsections. Similarly, the following resources would not be impacted by the Proposed Action and are not addressed in this PEA:

- Air Quality – The nine counties are in attainment for all National Ambient Air Quality Standards, Additionally, the training activities would be short-term and therefore, air quality is not anticipated to be impacted.
- Utilities – The training activities would be self-sustaining and therefore, no utilities would be affected.

3.1 LAND USE

Land use can be defined as the human use of land resources for various purposes including economic production, natural resources protection, or institutional uses. Land uses are frequently regulated by management plans, policies, ordinances, and regulations that determine the types of uses that are allowable

or protect specially designated or environmentally sensitive uses. Potential issues typically stem from encroachment of one land use or activity on another, or an incompatibility between adjacent land uses that leads to encroachment. This section presents information on the current land use conditions at Fort Drum and the surrounding nine counties that would be used for Training Exercises.

3.1.1 Affected Environment

3.1.1.1 Fort Drum

Fort Drum is located primarily in northeast Jefferson County, with a small portion in northwest Lewis County. The 108,733 acres that comprise Fort Drum are divided into three main areas of use: the Cantonment Area, WSAAF, and the training area. As shown in Figure 3-1 below, from the Continental United States Interceptor Site Draft EIS, most of Fort Drum is reserved for training (Missile Defense Agency, 2016).

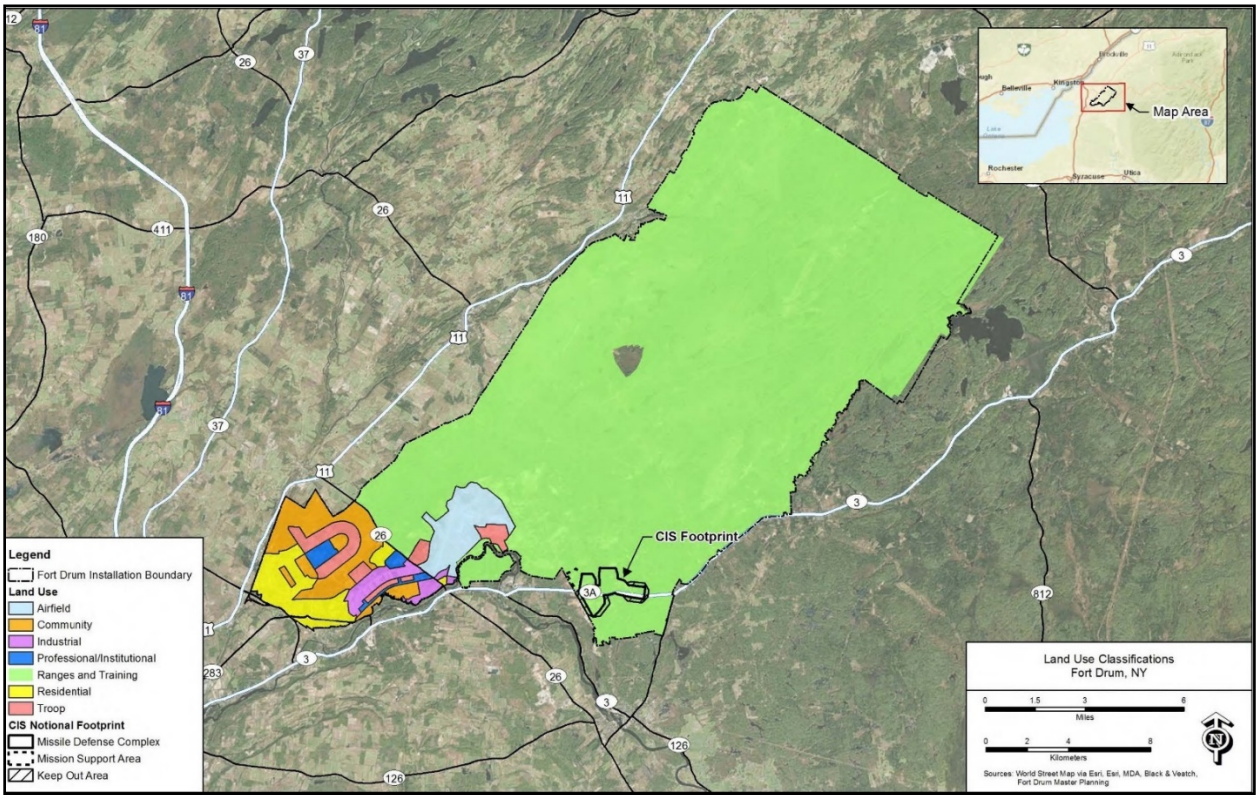

Figure 3-1: Cantonment Area Fort Drum

Cantonment Area

Except for WSAAF, most of the development on Fort Drum is contained in the Cantonment Area, which is located in the southwestern portion of the base. This area contains the housing and lodging units and support facilities, including the Garrison headquarters, administrative buildings, vehicle maintenance facilities, barracks, classrooms and educational amenities, and recreational facilities.

Wheeler-Sack Army Airfield

WSAAF contains 1,930 acres of land immediately northeast of the Cantonment Area. The airfield, aviation ranges, and surrounding airspace are used by the Army, Air Force, Air National Guard, Marine Corps, and Navy for various training missions. This airfield currently has three fixed-wing runways, several locations for rotary-wing aircraft, and a 1,200-Soldier passenger terminal. There is also a launch and recovery runway used by Tactical Unmanned Aerial Vehicles.

Training Area

The training area is comprised of 78,077 acres northeast of the Cantonment Area and WSAAF. The training area is dedicated to three primary functions: ranges for weapons training; maneuver areas to train on varying terrain and landscapes; and built-up areas to train in an urban environment. In addition, there is a First U.S. Army Convoy Live Fire, Live Fire Shoothouse, several Military Operations Urban Terrain, Combined Arms Collective Training Facility, and a Home Station Trainer (Matrix Design Group, 2018).

Fort Drum Army Compatible Use Buffer

The Army Compatible Use Buffer (ACUB) Program permits Army Installations to work with other organization partners (e.g., land trusts) to acquire land or development rights to establish buffer zones that can help protect habitats, sensitive areas, and military training areas without acquiring any new land for Army ownership. As of January 2019, there have been 26 properties ranging in size from 46 – 1265 ac (19 – 512 ha) for a total of 7,739 acres (3,132 ha) protected by the Fort Drum ACUB Program since its inception in 2008 (Rainbolt, 2020).

The majority of parcels enrolled in the ACUB program are on the western boundary of the installation where noise from training and aircraft overflights (as part of the administrative route for rotary-winged aircraft) occur. Protecting WSAAF airfield's accident potential zones and clear zones is the highest priority for Fort Drum's ACUB Program. The second highest priority for Fort Drum's ACUB Program is protecting the land closest to the Installation's western border to minimize and limit incompatible residential development and protect training operations.

Joint Land Use Study

Fort Drum prepared a Joint Land Use Study (JLUS) which is a cooperative land use planning effort conducted as a joint venture between Fort Drum, surrounding cities and counties, state and federal agencies, and other affected stakeholders. The Fort Drum JLUS was completed in early 2018. The Fort Drum JLUS advocates a proactive approach to encourage increased communication about decisions relating to land use regulation, conservation and natural resource management issues affecting both the community and the military.

3.1.1.2 Land Use in the Nine-County Area

Land uses outside Fort Drum range from forested open space and agriculture, to residential and urban population centers, such as the City of Watertown and villages of Antwerp, Carthage, Evans Mills, and Philadelphia (Matrix Design Group, 2018). Although there are few federal lands near Fort Drum, state lands are numerous including state forests, forest preserves, wildlife management areas, and state parks. The majority of protected land is large forested tracts located in Adirondack Park which is only five miles from Training Area 19 in the northeastern part of Fort Drum. State forest lands also border some areas of Fort Drum. The nearest state wildlife area is Perch River Wildlife Management Area approximately five miles to the northwest of the Cantonment Area of Fort Drum. This area is known for many recreational uses including sport fishing, boating, and winter recreation, which has made tourism a substantial part of the regional economy. This includes the Thousand Islands region along the St. Lawrence River approximately 20 mi to the north of Fort Drum, Lake Ontario approximately 16 miles to the west, the Black River which runs past Fort Drum, and Adirondack Park to the east.

Each section below describes Land Use in each of the nine-county Action Area.

Jefferson County

Jefferson County is located at the Junction of Lake Ontario and the St. Lawrence River and is bordered by Canada and St. Lawrence County to the North. The majority of Fort Drum is located in Jefferson County. The County also includes nearby islands in the St. Lawrence River, including Carleton, Grindstone, and Wellesley Islands. Jefferson County contains acres of state and county forests and several acres of wildlife management areas and parks. Land Use in Jefferson County is mainly a mix of agricultural, residential, and forest/conservation/public parks with a growing tourism industry supported by the outdoor recreational amenities located within the county (Jefferson County Department of Planning, 2018). Watertown, located southwest of Fort Drum, is the closest community to Fort Drum and serves as the commercial and financial center of most of the county. Jefferson County also has several airports and heliports.

Lewis County

A portion of Fort Drum is located in the western side of Lewis County. The eastern part of the county is in the Adirondack Park. Lewis County has many dairy farms in the area, along with being a big producer of maple syrup. The western and eastern sides of the county are made up of conservation land and parks.

Over 50 percent of the land in Lewis County is designated as Wild/Forest (Bergman Associates, 2008) . Agricultural is the second largest land use throughout the county, utilizing nearly 20 percent of the land and is mainly located in the middle of the county (Bergman Associates, 2008). The Maple Ridge Wind Farm is also located within Lewis County, about 15 miles from Fort Drum's border. This industrial wind energy development contains 195 turbines and each turbine stands roughly 350 feet tall.

Oswego County

South of Jefferson County is Oswego County. Most of Oswego County is located on the eastern shore of Lake Ontario and is known for recreational fishing. Oswego County is home to two nuclear power plants, Nine Mile Point Nuclear Station and Fitzpatrick Nuclear Generating Station. There are two harbors in the county, Oswego Harbor at the mouth of the Oswego River and Port Ontario on the Salmon River.

The 23-mile Oswego River Canal is part of the New York State (NYS) Canal System and the historic Erie Canalway National Heritage Corridor. Oswego County is mainly residential (approximately 40 percent) with about 20 percent conservation land (City of Oswego, 2014). Ten percent is used for agricultural and there are several vacant areas in the county, including forested areas in the northern and southern parts of the county.

Onondaga County

While Onondaga County is one of the smallest of the nine counties, it has the largest population, being home to the City of Syracuse and several universities and colleges. There are several lakes and canals in Onondaga County. The federally recognized Onondaga Nation has a 9.3 square miles reservation within the county, on which they self-govern. Land use in Syracuse is mainly residential, commercial, industrial and special use. To the west and south of Syracuse are natural resource areas, including farms, forests, and countryside (Syracuse Onondaga County Planning Agency, 2020). There are several protected open spaces in the county.

Oneida County

Oneida County is bordered by Oneida Lake on the northwestern corner and Adirondack Park on the northeast. Oneida County is home to many manufacturing plants. The Turning Stone Casino Resort is an enterprise of the Oneida Indian Nation of New York, and the largest private employer in Oneida County. Agriculture remains a driver of the county's economy with approximately 27 percent of land use for agriculture. As of 2016, several areas of the county are farmed parcels, especially in the southern portion of the county. There are several state lands in the northern part of the county. Rome and Utica are the two

most populated cities in Oneida County. Land use in Rome and Utica is mainly residential, commercial, and industrial (Oneida County, 2019).

Herkimer County

The upper half of Herkimer County is Adirondack Park. The Mohawk River flows across the south part of the county. To the north of the Town of Herkimer are the Herkimer mines, known for their famous Herkimer diamond. Most of Herkimer County is forest preserve, wilderness areas, campgrounds and conservation easements (New York State Department of Environmental Conservation, 2020).

St. Lawrence County

St. Lawrence County is the largest county in NYS and is a rural mix of farms, forests and small towns. The St. Lawrence River borders the northwest side of the county. The County is comprised of 45 towns and villages and is home to several colleges (St. Lawrence County, 2020). The largest employment sectors are education, health, and social services. The southeastern third of the county is within the Adirondack region, which is a mix of private and public lands, with several hamlets, paper and wood product industries, farms (mainly dairy) and vacation homes. The County has thousands of acres of state land, including wilderness and park areas that are open to public recreational use.

St. Lawrence County contains approximately 623,500 acres of the six-million-acre Adirondack Park located in the southeast section. There are also Easement Lands and County Reforestation Land owned by the County. Easement Lands are negotiated with the underlying landowner and may or may not provide for public access on a year-round basis. Additionally, easements may include development rights. Reforestation Land is managed for timber production. Supporting the tourism and outdoor recreational economy is the abundance of lakes and state parks (St. Lawrence County Planning Office, 2010).

Hamilton County

Hamilton County lies entirely within the Adirondack Park and is the least populated county in New York. Because Hamilton County is located in the Adirondack Park, any development in the county is limited by the NYS Constitution, which protects the park land. Most of the park land is publicly owned. Hamilton County offers forested mountains, 77 major lakes, and countless plunging streams. The county has nine towns and one incorporated village. Tourism is the most important industry and the whole area is a favorite spot for vacationers and recreationalists.

Essex County

Essex County is in the northeastern part of NYS. The eastern boundary of Essex County is Lake Champlain. Lake Placid, nestled in the Adirondacks, is part of Essex County. The County offers many seasonal and year-round recreational and cultural activities. The County contains just one agricultural district, which spans 65,911 acres and contains 196 farms. The entirety of Essex County is within the bounds of the Adirondack Park. Essex County is home to several high-tech, bio-medical, and light industrial companies. Essex County is approximately 75 percent trees/wetlands and non-agricultural fields. Twenty-five percent of the county is used for agriculture (mainly alfalfa) and about five percent is developed for residential and commercial use (Essex County, 2019).

Regional Land Use Summary

The land use adjacent to the boundary of Fort Drum is generally agricultural with small subsets of rural and residential areas. Commercial and industrial areas lie mainly within town boundaries. Agricultural land use is prominent in the regional area. The percentage of land classified as agricultural has steadily decreased in the past 40 years as commercial and residential areas have expanded. A natural resources-based regional economy has been the predominant source of industry in the area, with specific industries such as dairy farming, field crops, food processing, and papermaking.

Around Fort Drum, forested land dominates to the east; to the north and west agricultural lands dominate; and in the south agricultural lands extend in two strips, one along Lake Ontario and the other along the Black River valley (see Figure 3-2 below). There are numerous state lands that surround Fort Drum, including state forests, forest preserves, and wildlife management areas. Adirondack Park located approximately five miles east of the Fort Drum boundary contains six million acres of federally protected forests on public and private lands. The nearest state wildlife management area is Perch River Wildlife Management Area, approximately five miles northwest of the Cantonment Area of Fort Drum. Land use policies in the surrounding counties are under the jurisdiction of those counties and dictate how land would be used in the counties.

3.1.2 Environmental Consequences

Potential impacts of the Alternatives on land use are evaluated below at a programmatic level. Following final site selection and identification of specific training exercise logistics, site-specific analyses would be necessary to determine impacts on specific resources.

Based on the description of the Alternatives in Section 2, the following analysis incorporates the following assumptions: (1) avoid cities and villages, churches, schools, malls, highways, interstates, use rural areas outside city boundaries; (2) a distance of ½ mile from avoided areas is recommended; (3) training would occur on public lands with a signed Memorandum of Agreement or private land with a lease agreement; (4) areas used for training would preferably be grass fields with few to no trees and shrubs; (5) avoid parks as much as possible and/or protected lands; (6) avoid areas with tall structures, towers, buildings, wind turbines and electrical poles/towers; and (7) site must be accessible to roads and/or trails.

3.1.2.1 Alternative 1

Under this Alternative, multi-day training exercises would occur up to six times a year at Fort Drum and areas of the nine counties that meet the above criteria. Training on Fort Drum would continue on land designated for military training and WSAAF. Temporary off-post sites would be located in areas that would not change their designated land use. Since training is temporary; any impacts to land use would also be short-term in nature. Cities and villages, school, churches, and populated areas would be avoided.

All testing and training events would be evaluated and scheduled through appropriate channels prior to the start of training or testing exercise to reduce/eliminate conflicts with land use. Proposed testing and training would not alter or conflict with designated land use categories. Access may be temporarily restricted in the vicinity but upon completion, those areas would be returned to their previous state and uses. Sites on NYS land would be used in agreement by a signed TRP. Sites located off federal property and owned by private individuals would require obtaining appropriate real estate agreements or right of entry permits on behalf of the Army. No training would occur on non-federal property until the required real estate agreement or right of entry permit is obtained.

Examples of potential measures to mitigate impacts related to land use include:

- work with affected business and/or landowners to appropriately redress operation-related damage to landowner's property (including access restrictions);
- phase a project to be consistent with planned development in the area;
- relocate training activities away from non-compatible land uses (e.g., landfills, wildlife refuges, wetland mitigation); and
- return site back to original use. As these projects do not change the existing land use classifications, the impacts are anticipated to be less than significant.

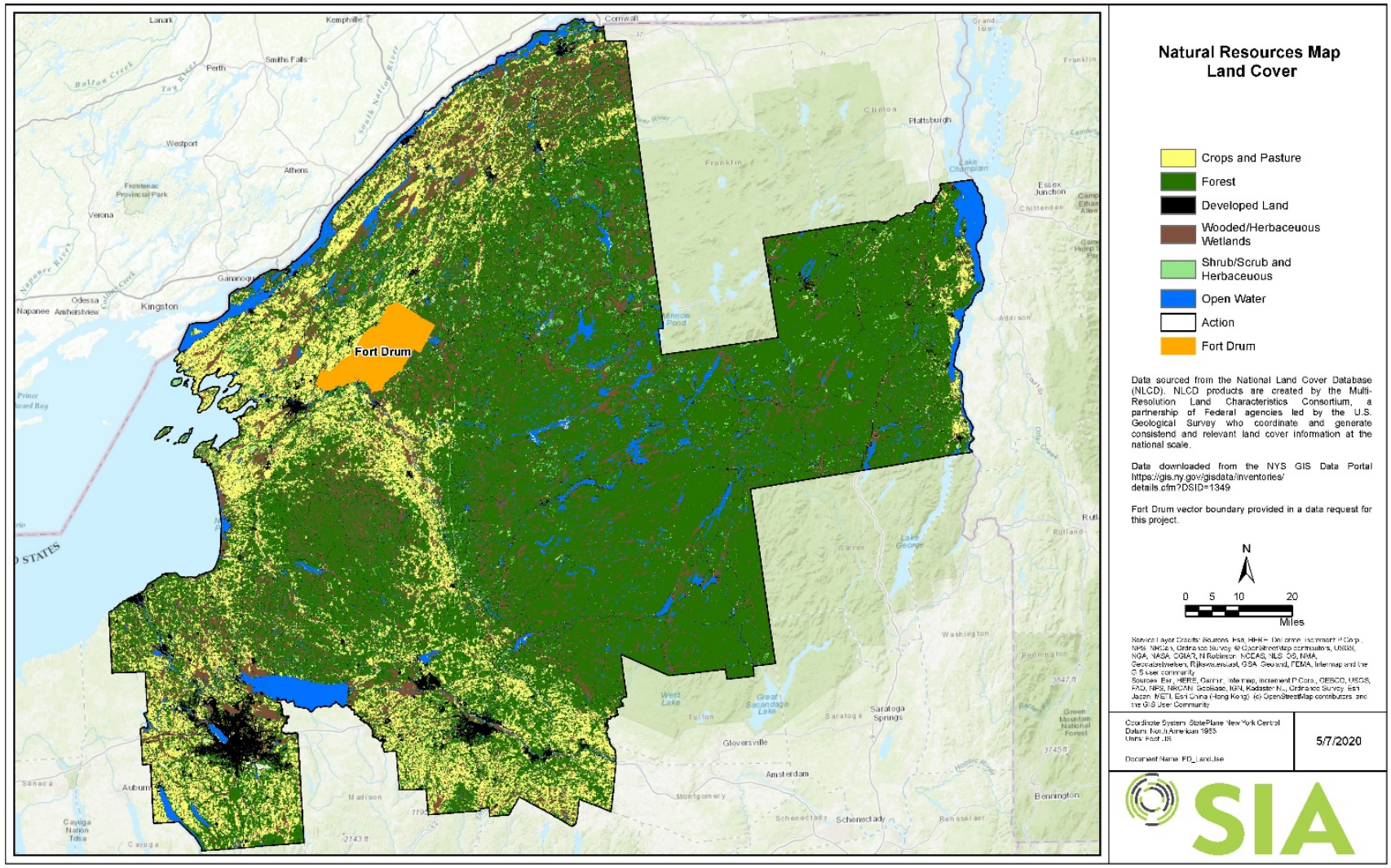

Figure 3-2: Land Cover

Additionally, Fort Drum would continue to implement the measures outlined in the 2018 JLUS Implementation Plan for all on-going on-base activities. For sites off-base, Fort Drum would establish an agreement with the landowner as to what actions can or cannot be performed by the Army on the property. Once training plans are prepared, additional analysis of future land use changes would be required prior to implementation. Impacts to land use would be adverse, short-term/temporary, and minor to moderate as no permanent changes to designated land uses would be made. Once sites are selected, the tiered NEPA analysis will evaluate and determine the land use impacts and restrictions that might be required. It is recommended if parks and recreation areas are used, they avoid being used during peak times (hunting, fishing, and boating seasons). Consultation with landowners and appropriate agencies will also be conducted to determine level of impact during the tiered NEPA analysis.

3.1.2.2 Alternative 2

Under this Alternative, training exercises would include up to two high-level training exercises up to two times a year on- and off-post. On Fort Drum, training would be limited to the designated training areas. Off-post locations would be coordinated with the landowners as specified under Alternative 1. The same criteria proposed in Alternative 1 would be used to identify possible training sites for Alternative 2. Because training is temporary, any impacts to land use would also be short-term in nature. Impacts to land use would be adverse, short-term and minor as no permanent changes to designated land uses would be made. Once sites are selected, the tiered NEPA analysis will evaluate and determine the land use impacts and restrictions that might be required. It is recommended if parks and recreation areas are used, they avoid being used during peak times (hunting, fishing, boating seasons). Consultation with landowners and appropriate agencies would also be conducted to determine level of impact during the tiered NEPA analysis.

3.1.2.3 Alternative 3 (No Action Alternative)

Under the No Action Alternative, Fort Drum would continue to operate as they have been and no changes to the amount and duration of training exercises would occur. There would be no change to the existing or future land use categories and there would be no affects to land use. Impacts would be adverse, short-term, and minor.

3.2 NOISE

3.2.1 Affected Environment

Sound is a physical phenomenon consisting of minute vibrations that travel through a medium such as air or water. Audible sounds are those vibrations sensed by the human ear. At the ear, sound vibrates the eardrum, which transmits the vibration via a network of bones to the cochlea. The cochlea then converts the vibration into a neurological impulse that the brain interprets as sound. Our experience of sound depends on both the pattern of vibrations from the sound source and the way our complex hearing mechanism interprets these vibrations.

An airborne sound source (e.g., an aircraft) induces vibrations in the air that spread outward from the sound source as alternating bands of dense (compression) and sparse (expansion) air particles. This results in a variation of pressure above and below the base atmospheric pressure. The distance between successive compressions or successive expansions is the wavelength of the sound, and the number of compressions or expansions passing a fixed location per unit of time is the frequency of the sound. High-frequency sound is shorter in wavelength and lower-frequency sound is longer in wavelength. “Sound pressure” is the average amplitude of the variations of the pressure above and below atmospheric pressure.

Noise is commonly described as unwanted sound, which can be based either on objective effects (e.g., hearing loss, sleep disturbance, damage to structures) or subjective judgments (e.g., community annoyance). Sound is usually represented on a logarithmic scale with a unit called the decibel (dB). Sound on the decibel scale is referred to as sound level. The threshold of human hearing is approximately zero (0)

dB, and the threshold of discomfort begins at approximately 120 dB while the threshold for pain beginning at about 130 dB.

Because noise is measured logarithmically, two identical noise sources at the same point do not double the noise level emitted from that point. As an example, a helicopter flying over a point may emit a noise level of 80 weighted decibels (dBA), but a second helicopter flying alongside the first would only add about three (3) dBA to the overall resulting noise level.

People with good hearing in a controlled environment can often detect single-decibel changes in sound level. However, when comparing sounds in our everyday experience, we are less sensitive to differences in sound intensities. From a practical standpoint, a three (3)-dB difference is the smallest change generally noticeable to the average listener. The average person perceives a 10 dB sound level difference as a doubling (or halving) of a sound's loudness. This relationship holds true for both loud and quieter sounds across the speech frequencies.

Sound frequency is the rate of vibrations for a sound and is measured in Hertz (Hz), whereby one Hz is one vibration per second. The normal ear of a young person can detect sounds ranging in frequency from about 20 Hz to about 20,000 Hz, but this decreases with age. However, the human ear cannot hear all sounds equally in this wide range of frequencies. It is most sensitive to frequencies in the range of 1,000 Hz to 5,000 Hz. People and animals have different hearing sensitivities to sound frequencies. For instance, a dog whistle produces a tone at a frequency above the range of human hearing, but within the range of the dog's hearing. Structures respond to much lower frequencies (e.g., 1 to 30 Hz) than do people. Therefore, low-frequency sounds that people cannot hear can still induce vibrations in buildings.

The perception of loudness is not consistent across frequencies. As stated earlier, people, in general, are most sensitive to sounds in the 1,000 Hz to 5,000 Hz range. People are less sensitive to lower and higher frequencies outside this range. These lessened sensitivities are most pronounced at lower sound pressure levels.

Unlike humans or other animals, quality sound level meters are equally sensitive to sounds across the full range of hearing. To approximate the human perception of common environmental sounds, the acoustical community designed a range of frequency-based adjustments (i.e. weighting) to be applied to measured sound levels. Today, two of these weighting systems remain in common usage, the A-weighting and C-weighting. A-weighting is generally used to describe intermittent sounds associated with moving sound sources such as aircraft or vehicles. A-weighted decibels are identified in the abbreviation dBA. C-weighting is commonly used to describe impulsive sounds. These are sounds that have a very short duration, low frequency, and high intensity. Impulsive sounds are typically associated with large caliber weapons, explosions, and sonic booms and identified in decibels as dBC. Helicopters have both an intermittent and an impulsive component to the sounds they generate. Other weightings have been created for use in assessing the impacts of sound on various animals, but for various reasons many scientists use A-weighting in their analyses.

People rarely base their judgments about the suitability of an acoustic environment on a single sound. Rather, multiple sources of sound accumulate to produce the overall experience of a "quiet" or "noisy" environment. The receiver imparts a value judgment onto an otherwise neutral physical phenomenon (i.e., sound). In 1974, the U.S. Environmental Protection Agency (USEPA) put forth a procedure to assess the cumulative, 24-hour exposure to noise for citizens of the United States. This procedure resides in the USEPA document, "Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety," commonly referred to as "the levels document" (U.S. Environmental Protection Agency, 1974).

In order to assist in describing, comparing and evaluating sources of noise and the noise environment of the Action Area, a few noise metrics will be briefly explained here. The discussion begins with metrics that characterize single events, such as an aircraft or helicopter overflight. It then progresses through inclusion

of not only the sound pressure level, but the duration of the event (how long it is present). The discussion will then proceed to metrics that apply to multiple events and to all events that occur during an average day (24 hours) or year.

Figure 3-3 depicts the time history for an intermittent noise event, such as an aircraft flyover or car passing by. The sound level increases as a car or aircraft approaches, then falls and blends into the background as the aircraft or car recedes into the distance. Using this example, the height of the curve would be described as the Maximum Sound Level or L_{max}. It is often convenient to describe a particular noise event by its maximum A-weighted sound pressure level (L_{Amax}). The sound level rises as the noise source nears the receiver and decreases as the noise source moves away.

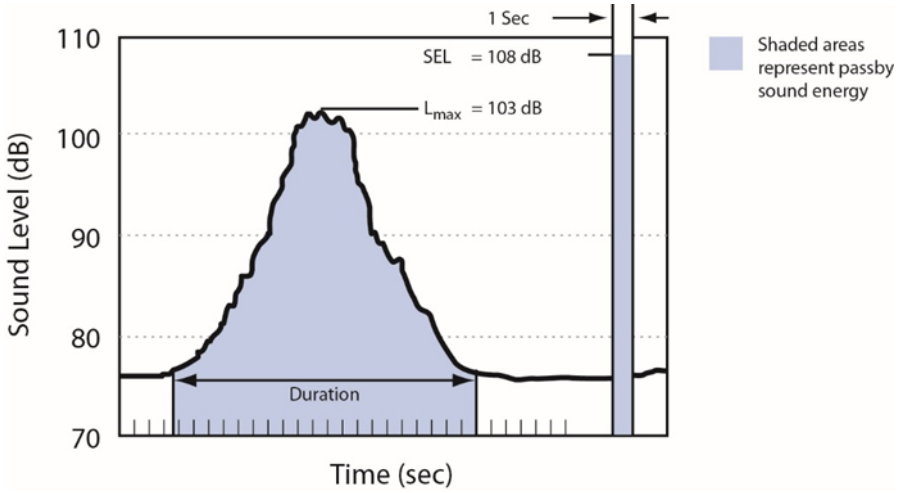

Figure 3-3: Variation in Sound Level over Time and Maximum Sound Level.

Human annoyance of noise increases with both the level and the duration of the noise event. Thus, a long-duration, low-level event can be as annoying as a high-level, shorter event. The sound exposure level (SEL) captures both variables in a single number. The SEL (as illustrated in Figure 3-4) is the total acoustic energy in an acoustical event from beginning to end (typically computed from 10 to 20 dB from the event peak) normalized to one second (Harris, Miller, Miller, and Hanson (HMMH) Inc., 2017)).

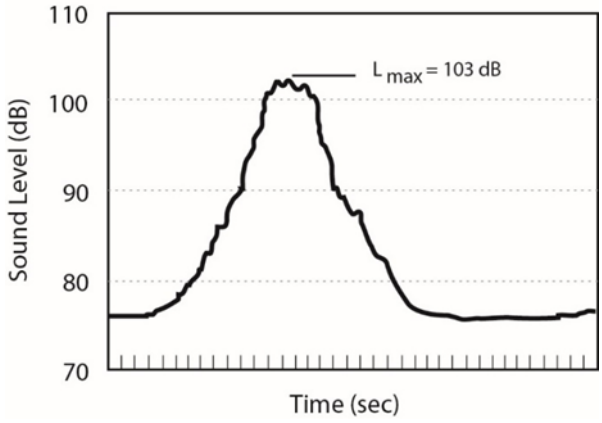

Figure 3-4: Sound Exposure Level of a Noise Event.

Annoyance also increases with the number of times an observer experiences an intrusive sound during a given period. However, (Rylander, R. S. and M. Bjorkman, 1988)stated that there is a saturation point upon

which additional noise events do not influence increased human annoyance. The Equivalent Sound Level (L_{eq}) captures the number of intrusions by measuring the average acoustic energy over a period of time. The period can be any length, but it usually is a meaningful block of time, such as an eight-hour L_{eq} for the office or a one-hour L_{eq} for a classroom lecture. The L_{eq} is defined as the level of continuous sound over a given period that would deliver the same amount of energy as the actual time-varying sound exposure.

Noise occurring at night generally produce a greater annoyance than do the same levels occurring during the day due to task interference and sleep disturbance. It is generally agreed that people perceive A-weighted intrusive noise at night as being 10 dBA louder than the same level of intrusive noise during the day. This perception is largely because background environmental sound levels at night in most areas are also approximately 10 dBA lower than those during the day.

The US EPA recommends a special kind of 24-hour L_{eq} known as the Day-Night Average Sound Level (DNL or sometimes referred to as L_{dn}). Traditionally, DNLs are presented as A-weighted metrics. As is implied in its name, the DNL represents the noise energy present in a daily period. The DNL calculation consists of two parts: a 15-hour daytime L_{eq} (7:00 am to 10:00 pm) and a 9-hour nighttime L_{eq} (10:00 pm to 7:00 am). When calculating the 24-hour DNL, one treats the nighttime L_{eq} as if it were 10 dBA higher to account for the additional intrusiveness of noise at night. However, acoustical professionals normally calculate the DNL through use of average daily operations data from a longer period, such as a year, to smooth out fluctuations in day-to-day operations. A DNL of 65 dBA is the level most commonly used for noise planning purposes and represents a compromise between community impact and the need for activities like construction.

Acceptable DNL noise levels have been established by the Army for aviation noise in noise zones near military airports (U.S. Army, 2007a). For noise impacts on land use, DNL noise levels are as follows:

- **Noise Zone I** – Less than 65 dBA is considered acceptable for normal uses, including residential, schools, hospitals.
- **Noise Zone II** – 65 dB to 75 dBA. This zone is considered unacceptable for most uses; however, annoyance from aircraft noise would be more severe for residential areas, schools, and hospitals, and barriers or special construction would be needed for reasonably acceptable indoor use.
- **Noise Zone III** – Greater than 75 dBA. This zone would be considered unacceptable for most uses, and barriers or special construction costs would be prohibitively expensive and would not totally eliminate the noise annoyance indoors.

As a general rule, noise generated by a stationary noise source, or "point source," will decrease by approximately 6 dBA over hard surfaces and 9 dBA over soft surfaces for each doubling of the distance. For example, if a noise source produces a noise level of 85 dBA at a reference distance of 50 feet over a hard surface, then the noise level would be 79 dBA at a distance of 100 feet from the noise source, 73 dBA at a distance of 200 feet, and so on. To estimate the attenuation of the noise over a given distance, the following relationship is utilized:

Equation 1: $dBA2 = dBA1 - 20 \log (d2/d1)$

Where:

dBA2 = dBA at distance 2 from source (predicted)
dBA1 = dBA at distance 1 from source (measured)
d2 = Distance to location 2 from the source
d1 = Distance to location 1 from the source
(Source: (California Department of Transportation, 1998)

For helicopter noise, the effects are highly variable depending on the speed of the helicopter, the altitude above the ground, climatic conditions, and the weight of the helicopter. Impacts on civilians are usually measured by the percentage of the population that is annoyed by a single flyover (U.S. Army, 2007b). A flyover consists of the passing of an aircraft overhead or to the side of a point on the ground measured in distance of the aircraft from that point.

3.2.2 Environmental Consequences

This section will address the noise effects from helicopters and military ground vehicles and their impacts on civilian populations, wildlife, and domestic animals.

3.2.2.1 Helicopter Noise

All aviation activities occurring on Fort Drum and the local flying area are conducted in a manner that minimizes the noise impacts on neighbors. Cities and villages are avoided as much as possible. When pilots have to fly overpopulated areas, they maintain at least 500 feet AGL (U.S. Army Garrison Fort Drum, 2019d). In addition, FD 95-1 instructs aircrews to avoid flying lower than 1,000 feet AGL, if possible, over noise sensitive areas (see also, Figure 3-6 in Section 3.3 *Airspace*).

Scandinavian studies (Rylander, 1974) found that a good predictor of annoyance at airfields with 50 to 200 operations per day is the maximum level of the three (3) loudest events. While annoyance levels may be lower along less-frequented flight routes and corridors, the Rylander study serves as an indicator for annoyance potential from intermittent overflights.

Maximum noise levels for the rotary-wing aircraft are listed in Table 3.1. The maximum levels from Table 3-1 are compared with the levels listed in Table 3-2 to determine the percent of the population that would consider itself highly annoyed from overflight. These levels assume a ground track distance of zero (source directly overhead of the receiver).

Table 3-1. Maximum A-Weighted Sound Levels for Rotary-Wing Aircraft

Slant Distance (Feet)	Maximum Sound Level by Aircraft Type (dBA)		
	AH-64	CH-47	UH-60
200	92	92	88
500	83	84	80
1,000	77	78	73
1,500	73	74	69
2,000	70	71	66

Table 3-2. Percentage of Population Highly Annoyed from Aircraft Noise

Maximum, dBA	Highly Annoyed
90	35%
85	28%
80	20%
75	13%
70	5%

Taking the Rylander correlation one step further, the SelCalc Program (U. S. Air Force, 2005)was used to calculate the distance in ground track from zero (aircraft directly overhead) to where the maximum A-weighted noise level would decay to 70 dBA or below (threshold for annoyance). This takes into account not only those directly under a flight path, but those to the side of a passing aircraft, where noise levels may remain high enough to cause annoyance up to one-half mile away (Table 3-3). Based on these data and assuming Rylander's hypothesis is accurate, the percent of highly annoyed individuals in an area where overflights is infrequent is listed in Table 3.4 according to aircraft altitude and aircraft type.

Table 3-3. Maximum Noise Levels of Helicopters

Aircraft	Maximum noise level at 500 feet AGL (dBA)	Maximum noise level at 2,000 feet AGL (dBA)
UH-60/HH-60	80	66
AH-64	83	70
CH-47	84	71

Table 3-4. Overflight Annoyance Potential[1]

Source (altitude in feet AGL)	Ground Track Distance[2]	L_{max} (dBA)[3]	Percent Highly Annoyed[4]
AH-64 (500' AGL)	0'	83	25%
	1320' (1/4 mile)	72	8%
	1760' (1/3 mile)	69	4%
	2640' (1/2 mile)	65	<1%
AH-64 (1000' AGL)	0'	77	16%
	1320' (1/4 mile)	71	7%
	1760' (1/3 mile)	69	4%
	2640' (1/2 mile)	65	<1%
CH-47 (500' AGL)	0'	84	26%
	1320' (1/4 mile)	73	10%
	1760' (1/3 mile)	71	7%
	2640' (1/2 mile)	66	<1%
CH-47 (1000' AGL)	0'	77	16%
	1320' (1/4 mile)	72	8%
	1760' (1/3 mile)	70	5%
	2640' (1/2 mile)	66	<1%
UH-60 (500' AGL)	0'	80	20%
	1320' (1/4 mile)	69	4%
	1760' (1/3 mile)	66	<1%
UH-60 (1000' AGL)	0'	73	10%
	1320' (1/4 mile)	68	2%
	1760' (1/3 mile)	65	<1%

[1] Percent annoyance shown based upon 50 to 200 overflights per day (Rylander, 1974)
[2] Distance between receiver and the point on Earth at which the aircraft is directly overhead
[3] Obtained from SELCalc Program (U.S. Air Force, 2005)
[4] Calculated percentage based on regression using the known values in Table 3.2

3.2.2.2 Military Wheeled-Vehicle Noise

The 10th Mountain Division has a wide array of wheeled military vehicles used in operations and support functions. During training exercises, convoys of these vehicles are deployed to exercise locations for realistic training within the Action Area. Convoys may deploy 15 to 20 vehicles, many pulling trailers of various sizes and weights. These convoys would travel on public highways and roads at assigned speed limits or slower. Table 3-5 lists a few military vehicle noise levels at specified distances (USAPHC, 2020). Noise generated from these convoys are estimated to be approximately 10 dB higher than comparable commercial trucks. Table 3-6 shows a comparison of noise levels from private autos compared to multi-axle military trucks. A convoy traveling at 45 miles per hour may take 1-2 minutes to pass any stationary point along the route depending on the number of vehicles. Convoy noise would propagate from the road the same as all traffic noise. Roadsides that are heavily treed would attenuate the traffic noise depending on the type, thickness, and density of the vegetation.

Table 3-5. Tactical Vehicle Noise Levels (dBA) from Specified Distances

Military Vehicle Type	Maximum Sound Level (dBA) from 50 feet	Maximum Sound Level (dBA) from 100 feet
M113 Personnel Carrier	86.8	81.9
M88 Recovery Vehicle	96.8	91.5
M548 Ammo Carrier	85.0	79.0
ABLV Bridge Launcher	95.9	90.5

Table 3-6. Comparison of Maximum Pass-by Noise Estimates at a distance of 50 feet[1]

Vehicle Speed	Autos, pickups, and SUVs	2-axle military vehicles (HMMWV)	3-axle Military truck (MTV)	4-axle military Truck (HEMTT)	5-axle Military Truck (HET, PLS)
35	65.0	74.7	82.9	83.3	84.1
45	69.3	77.5	84.6	84.8	86.1
55	72.6	79.7	86	86	87.8

[1] All noise levels are Maximum Sound Levels in dBA

3.2.2.3 Alternative 1

This section assesses the effects of noise on humans, wildlife, and domestic animals as a result of helicopters and military wheeled vehicles convoying from Fort Drum to training exercise sites. The training exercises proposed and considered here would be up to 14 days in duration, six times each year.

Noise Effects on Humans

Helicopter operations at WSAAF would not increase due to Alternative 1 since training exercises are already being performed at Fort Drum and the surrounding nine counties. Therefore, the current Fort Drum Installation Compatible Use Zone Study (U.S. Army, Operational Noise Program, Public Health Center, 2016) would not change. All of the noise zones established in the study remain valid.

Helicopters operating outside the Fort Drum boundaries within the LFA at a minimum altitude of 500 feet AGL would impact the human environments on the ground with noise up to 84 dBA L_{max} (when flying directly overhead).

Figure 3-5 is a map of the Action Area. Pilots are requested to avoid flying over populated areas by at least 500 feet AGL, as depicted in the figure. These flights would be on an intermittent basis. While the noise would be clearly audible and maybe annoying at that level, the interruption of the normal sound environment would be temporary (i.e., approximately 10 to 20 seconds, and definitely less than one minute), and the normal quiet background noise environment would quickly return after the aircraft has passed. Based on Table 3-4, approximately 20 to 26 percent of the impacted population would be highly annoyed by those noise levels; however, 10th CAB flights would try to avoid populated areas per the "fly neighborly" requirements, and persons living within the LFA would not normally be overflown by helicopters. Fort Drum 95-1 (U.S. Army Garrison Fort Drum, 2019d) instructs aviators to "fly neighborly" within the LFA, which means avoiding overflying of livestock, residences, and other man-made structures in order to minimize potential noise impacts on the civilian community. Importantly, no substantial change would occur to training activities that have been conducted for the last 20 years. Most of the LFA would not have any changes to the noise environment experienced since that time.

At an altitude of 1,000 feet AGL over noise-sensitive areas, a noise level of approximately 73 to 77 dBA, depending on the type of helicopter, would be only a minor, short-term effect, and 10 to 16 percent of the affected population would be annoyed by those sound levels.

Since the helicopter activity is dispersed over a vast region, the low number of aircraft operations utilizing the airspace would not generate A-weighted day-night average level (ADNL) noise contours of 65 dBA or greater. In order to reach a 65 dBA DNL 208 separate AH-64 helicopters would have to fly over the same location on separate occasions during the same day. For these reasons, noise impacts as a result of implementing Alternative 1 would be adverse, minor, and short-term.

Based on the levels of noise generated from helicopters operating during the training exercises, no human health effects or hearing impairment are expected. Therefore, no examination of these types of effects are warranted.

Vehicle noise propagating from 10th CAB and 10th SBDE convoys using public roadways may be as high as 10 to 20 dBA higher than commercial trucks. People living near the roadway may experience an increase in vehicular traffic noise when a 15 to 20 vehicle convoy passes by, but the additional noise would only last one to two minutes. Due to the infrequent occurrence and the temporary exposure, impacts from Alternative 1 would be adverse, short-term, and minor.

Noise Effects on Wildlife

There are a significant number of studies and observations of helicopter noise and visual effects on wildlife over the last 40 years. Larkin et al. (1996), Bowles (1995), Bowles et al. (1990), and Gladwin et al. (1988) provide excellent reviews of these studies and the numerous species, environments, and noise exposures observed. In general, similar to exposures to humans by helicopters being used in the proposed training exercises, overflights would be infrequent. Individuals representing any of the wildlife species in the Action Area maybe overflown by a helicopter flying 200 to 1,000 feet AGL and associated Maximum Sound Levels of 79 to 94 L_{max} dBA for 10 to 20 seconds, depending on the speed of the aircraft. These levels could produce startle effects for individual animals, especially at the higher sound levels. There is no way of predicting if an animal has experienced a helicopter flying overhead. Naïve animals are more likely to respond to sudden, unfamiliar noises by fleeing. Since the duration of exposures would be short, most animals would return to normal behavior within a short time period. Larkin et al. (1996) and Bowles et al. (1990) address the observations in most animal studies where animals exposed to a small number of noise events habituate to the noise and do not continue responding if exposed to multiple flyover events.

Based on the infrequent exposures to helicopter overflights, the noise levels produced, and the speed of the aircraft, the impacts of aircraft noise on wildlife would be adverse, short term, and minor. For areas selected as the training sites, aviators may takeoff, land, and hover, and perform engine run-ups. Local wildlife may experience additional noise, visual stimuli, and wind disturbances. The number and amount of disturbances

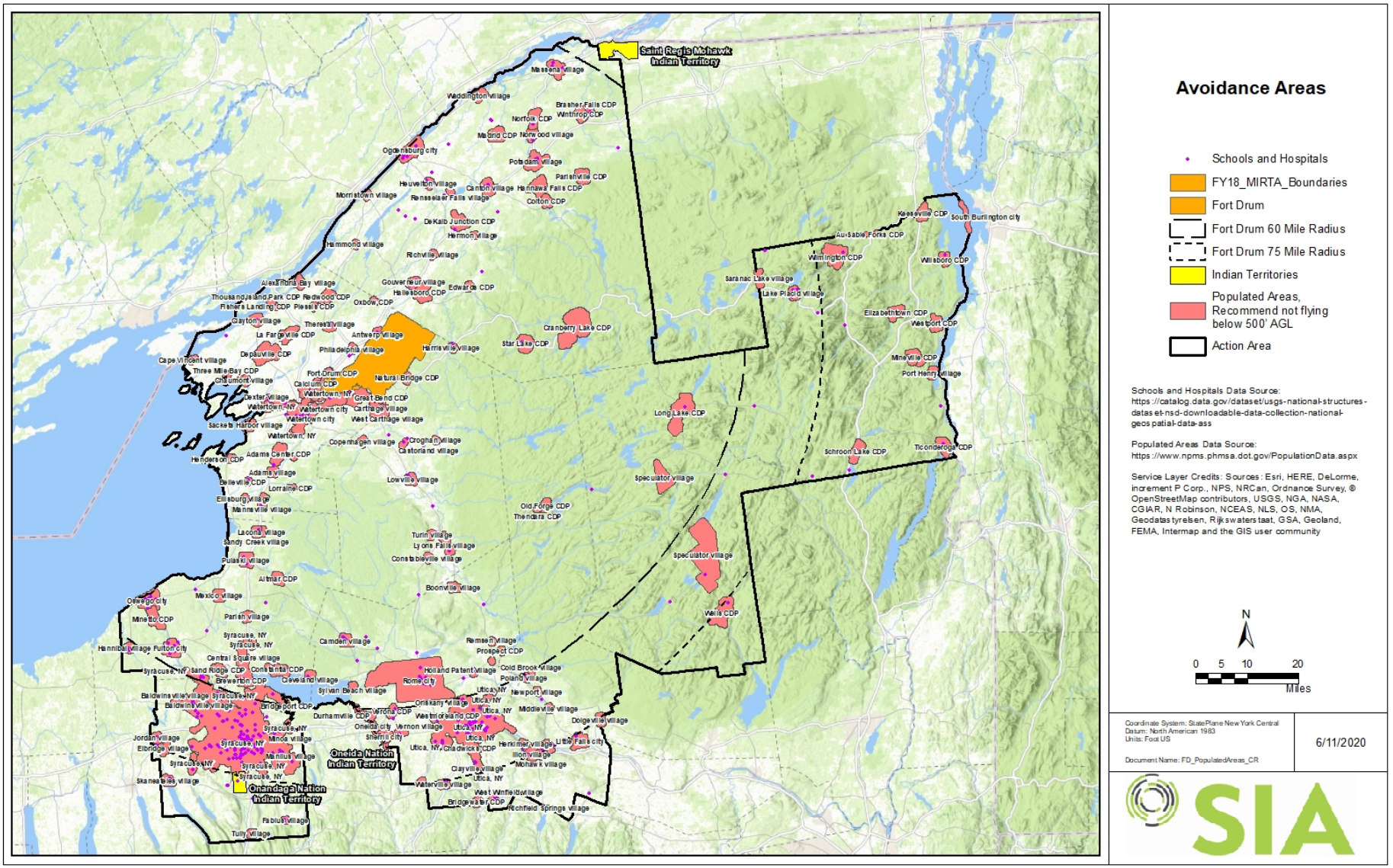

Figure 3-5: Avoidance Areas in the Action Area

will also be dependent on the number of aircraft involved in the training exercises. For these local areas, impacts due to aircraft noise would be adverse, short term, and range from minor to moderate.

Noise Effects on Domestic Animals

Bowles et al. (1990) synthesized the literature on aircraft noise effects on domestic animals due to a plethora of studies existing at that time. Bowles et al. concluded that many of the "controlled" studies were flawed or anecdotal. They did manage to build a dose-response model to predict effects as a result of aircraft noise on domestic animals. These studies also showed that habituation played a significant role in whether individual animals would respond to an aircraft overflight event. FD 95-1 instructs aircrews to avoid flying over livestock and residences, if at all possible. Due to the infrequent occurrence and the temporary exposure, impacts from Alternative 1 would be less than significant

3.2.2.4 Alternative 2

Implementation of Alternative 2 would produce less aircraft and roadway noise than Alternative 1. For this Alternative, only two training exercises per year would be performed in the Action Area. Disturbance from helicopters and Army convoys would be 60 percent less than Alternative 1. As in Alternative 1, aviators try to avoid overflying residences and farms, which decreases the chances of noise effects on humans and domestic animals. Due to the fact that impacts from Alternative 1 would be adverse, short term, and range from minor to moderate, impacts from Alternative 2 would range from less than significant to moderate on wildlife, and minor for human annoyance and domestic animals.

3.2.2.5 Alternative 3 (No Action Alternative)

Under the No Action Alternative, no large Brigade-size training exercises would be performed away from Fort Drum Range and WSAAF and in the Action Area. However, 10th CAB and SBDE training would still be performed. Aircraft would continue to use the Fort Drum Range, the various local MOAs and MTRs, and the LFA. There would be no additional impacts to human annoyance, wildlife, or domestic animals. Therefore, since aircraft would continue to operate in the Action Area, impacts would be adverse, short term, and range from negligible to minor.

3.3 AIRSPACE

3.3.1 Affected Environment

3.3.1.1 Classes of Airspace

All airspace in the United States has defined designations assigned by the FAA and adopted from international norms to govern flights of all aircraft, especially around airports. In and around the Fort Drum LFA, these airspace designations are as follows (Figure 3-6) (Federal Aviation Administration, 1991):

Class A: Generally, that airspace from 18,000 feet to 60,000 feet mean sea level (MSL). All operations must be conducted under IFR. Class A airspace covers the entire Action Area.

Class B: Generally, that airspace from the surface up to 10,000 feet MSL surrounding the busiest airports with heavy traffic operations. This airspace is individually tailored to the specific airport in several layers. Air Traffic Control (ATC) clearance is required for all aircraft. Operations may be conducted under IFR, Special Visual Flight Rule (SVFR), or VFR clear of clouds.

Class C: Generally, that airspace from the surface to 4,000 feet above the airport elevation surrounding those airports that have an operational control tower and radar control. Class C airspace is individually tailored in layers, but usually extends out to 10 nautical miles from 1,200 feet to 4,000 feet above the airport elevation. Entering Class C airspace requires radio contact with the controlling ATC authority, and an ATC clearance is ultimately required for landing. Operations may be conducted under IFR, SVFR, or VFR.

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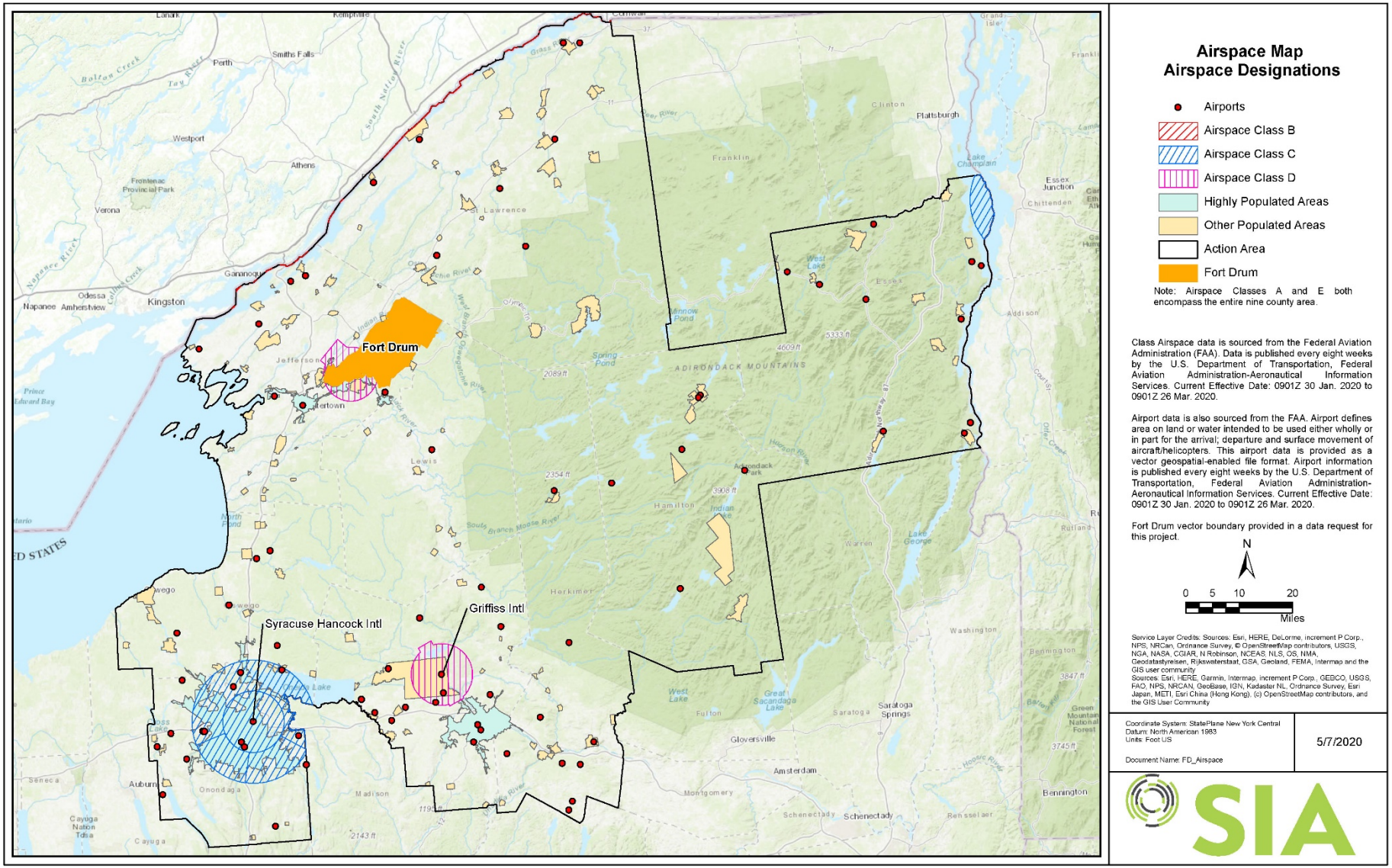


Figure 3-6: Airspace Designations and Noise Sensitive Areas

Class D: Generally, that airspace from the surface to 2,500 feet above the airport elevation surrounding those airports that have an operational control tower. Aircraft entering the airspace must establish and maintain radio contact with the airport ATC. Operations may be conducted under IFR, SVFR, or VFR, but aircraft separation services are only provided between IFR and SVFR operations.

Class E: Generally, this is controlled airspace that is not Class A, B, C, or D. Subdivisions within Class E are for transitional purposes, extensions to the other controlled airspace classes, or other uses. Operations may be conducted under IFR, SVFR, or VFR. Flights under VFR are not subject to ATC clearance. Class E airspace covers the entire Action Area.

Class G: This is airspace that has not been designated as Class A, B, C, D, or E, and operations may be conducted under IFR or VFR. It is designated from surface to where it meets another airspace designation, usually Class E. ATC aircraft separation service is not provided, although traffic information may be given as far as is practical with respect to other flights

3.3.1.2 Flight Hazards

Wire and Obstruction Hazards

The 10th CAB tasks aviation units to perform wire and obstruction hazard surveys semi-annually. Results are posted to the Fort Drum Special Wire Hazard Map maintained in the Airfield Operations Flight Planning Area. Aircrews are instructed to report unmarked wire hazards or obstructions to 10th CAB and Airfield Operations, who, in turn, would initiate a Notice to Airmen action (U.S. Army Garrison Fort Drum, 2019d).

Bird/Wildlife Aircraft Strike Hazards

Birds and other wildlife pose hazards to aircraft. WSAAF has a Wildlife Hazard Management Plan (U.S. Army Garrison Fort Drum, 2019e) to address bird, bat and other wildlife hazards on the airfield. The Management Plan informs airfield management staff on various wildlife hazards on the installation and how to use various techniques to reduce the hazards for aviators. In addition, within the surrounding LFA, there are wildlife areas, large bodies of water, and other known areas frequented by migrating birds that are especially hazardous to aircrews. There are several tools and notices available for aviators to inform them of any known significant hazards in the areas they plan to fly over. Bird strikes occur in higher numbers in the spring and fall during migration. The number of birds migrating is highest from dusk to dawn, posing increased risks for aircrews flying at night.

3.3.2 Environmental Consequences

3.3.2.1 Alternative 1

Implementation of Alternative 1 would not include any request to the FAA for additions and modifications to existing airspace designations. The restricted airspace already available can easily accommodate the number of additional takeoffs, landings, and flight training hours that would result from 10th CAB training exercises. Thus, the increase in maneuver training associated with the CAB would not create obstructions to air navigation, affect flight operations at Fort Drum or any other airfield, require the FAA to modify existing controlled SUAs, or create new SUAs. The existing restricted airspace and MOAs would allow flight operations to occur safely throughout the maneuver training areas without potential interference from nonparticipating or incompatible aircraft. Therefore, no impacts to airspace are expected by implementing Alternative 1.

3.3.2.2 Alternative 2

Implementation of Alternative 2 would be similar to Alternative 1 regarding the accommodation of aircraft of additional takeoffs, landings, and flight training hours resulting from 10th CAB training exercises. For the same reasons, no impacts to airspace are expected by implementing Alternative 2.

3.3.2.3 Alternative 3 (No Action Alternative)

Under the No Action Alternative, Fort Drum would retain their aviation force structure at its current levels, configurations, and locations. There would be no change to airspace at Fort Drum or the surrounding nine-county area, as CAB training exercises would not be implemented under the No Action Alternative. Therefore, implementing the No Action Alternative would have no impact on airspace in the Action Area.

3.4 GEOLOGY AND SOILS

3.4.1 Affected Environment

Based on the information shown in Table 2-1, the chosen sites would be relatively level (<5 percent slope), well-draining and dry, and loam or clay soils with minor rocks. The criteria were chosen to limit susceptibility to potential flooding, landslides, and erosion.

Geology and soil types differ greatly within the nine-county Action Area. Geological and soil characteristics would influence the suitability of a site for the Proposed Action. U.S. Geological Survey soil surveys of the United States describe soil characteristics such as drainage ability and are shown in Figure 3-7. Locations with less than five percent slope are shown in Figure 3-8. There are areas of prime farmland within the Action Area (Figure 3-9). These areas are protected under the Farmland Protection Policy Act (7 CFR 658).

3.4.2 Environmental Consequences

Potential impacts on geology and soils are evaluated at a programmatic level. Following final site selection and identification of specific training exercise actions, site-specific analyses would be necessary to determine impacts on a specific chosen site.

Past training exercises have shown a potential for minor short-term impacts to topography from aircraft and heavy vehicles. Some degree of soil compaction can be expected from aircraft and vehicles landing and traveling at chosen sites. This soil compaction can lead to changes in runoff, erosion, and potentially affect forest regeneration if topography is not restored to original site conditions after completion of the exercise.

If prime farmland areas are used, coordination with the owner would occur prior to the start of training exercises.

3.4.2.1 Alternative 1

Alternative 1 would have little to no impact on the geology and soils of a site that has been chosen within the developed criteria. A relatively level site would have potential for adverse, short-term, and minor impacts to surface topography due to aircraft and heavy vehicles onsite. Tiered NEPA analysis would determine the impact once sites have been selected. Appropriate precautionary measures, such as erosion control matting, would be taken to minimize impacts. The site would be restored to original conditions following completion of the exercise.

3.4.2.2 Alternative 2

Under Alternative 2, adverse impacts to geology and soils would be the same in nature as those described under Alternative 1 with a reduced frequency as off-base training exercises would occur less frequently. Tiered NEPA analysis would determine the impact once sites have been selected. The site would be restored to original conditions following completion of the exercise.

3.4.2.3 Alternative 3 (No Action Alternative)

Under the Alternative 3 (No Action Alternative), there would be no new adverse impacts to geology and soils compared to existing conditions. Ongoing potential adverse impacts would be the same in nature as those as described under Alternative 1. Adverse, short-term, and minor impacts to surface topography could occur due to aircraft and heavy vehicles onsite, and appropriate measures would continue to be taken to minimize impacts on site and restore the site to its original condition following the exercise.

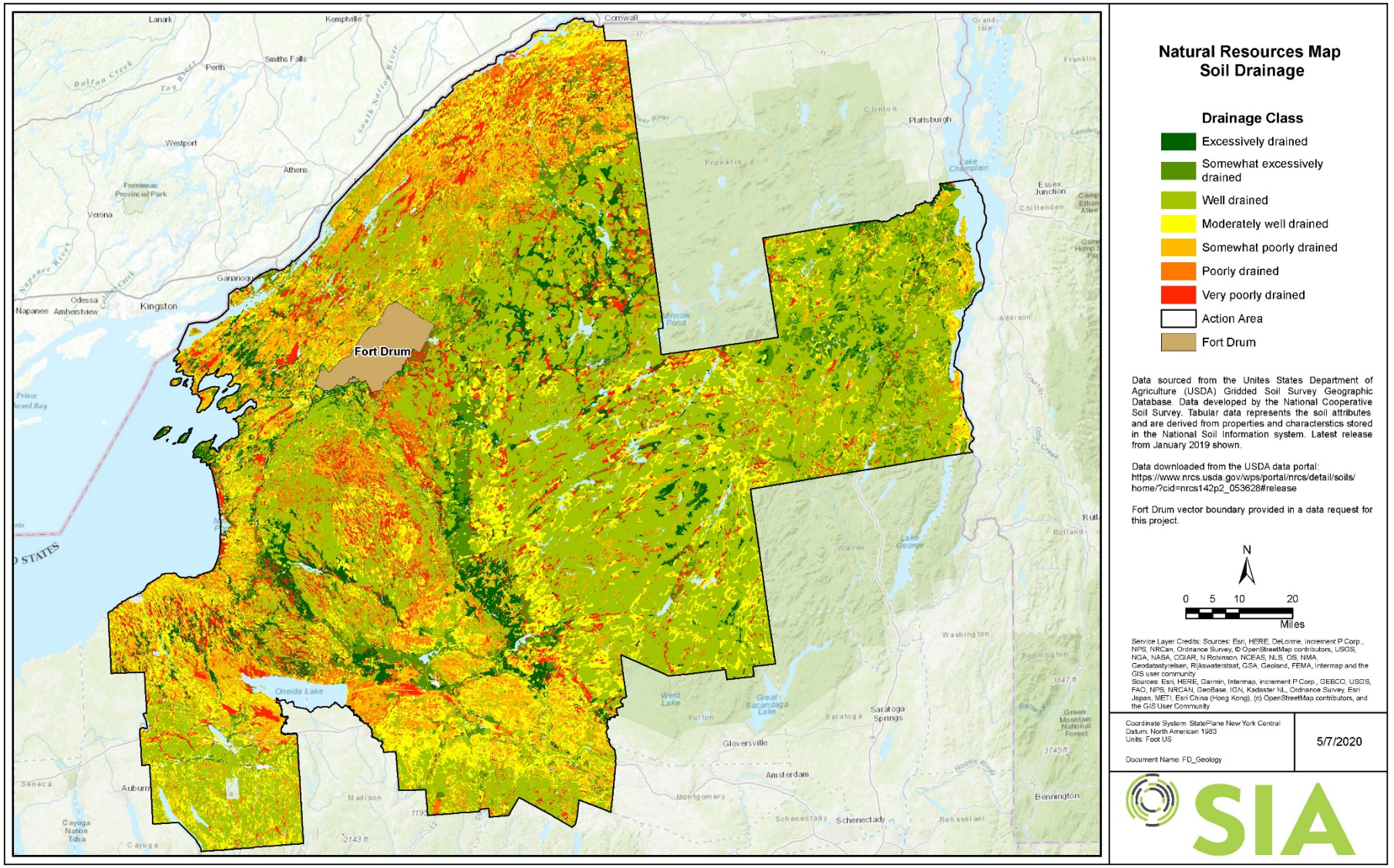


Figure 3-7: Soil Drainage

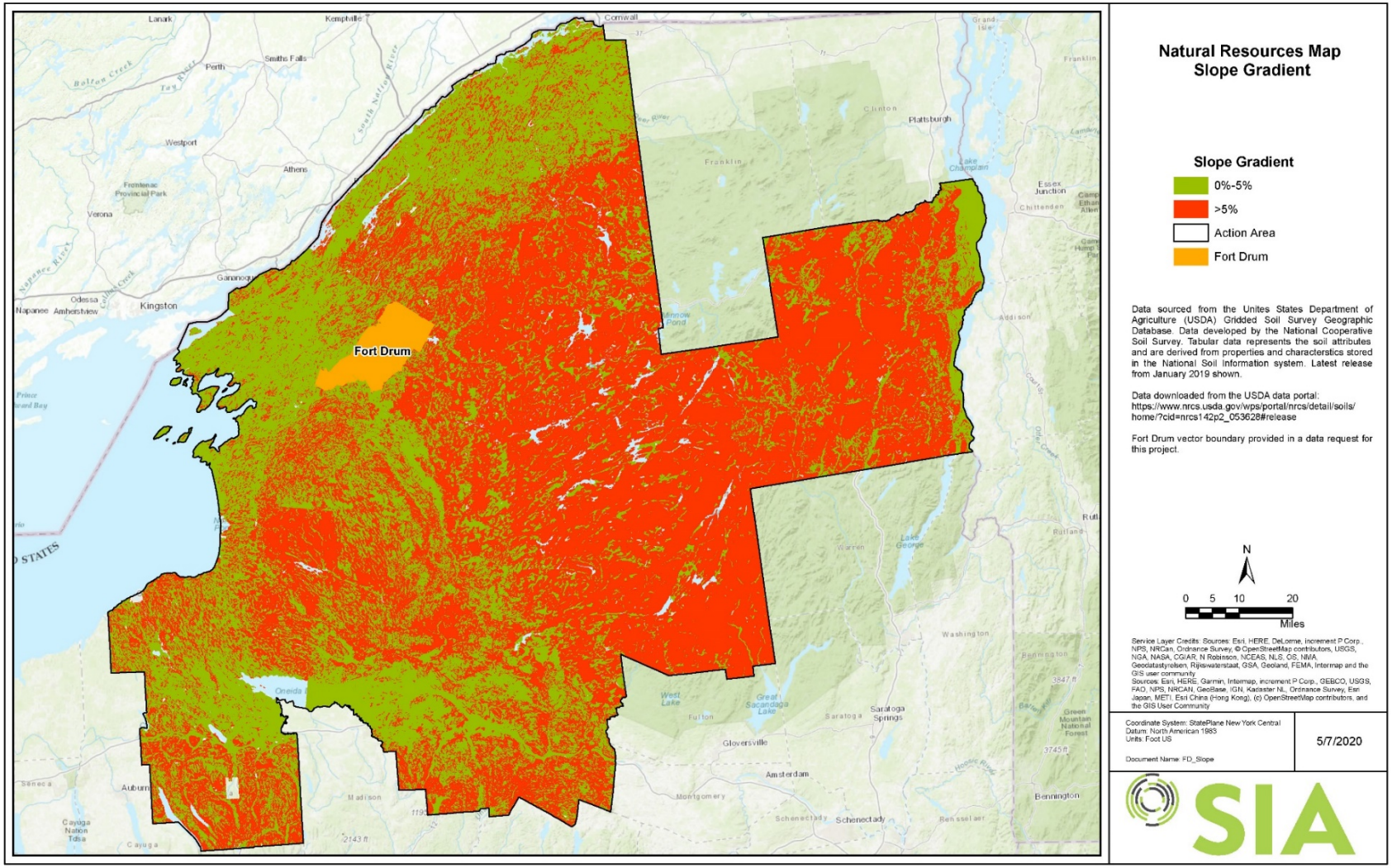


Figure 3-8: Slope Gradient Less than or Greater than Five Percent

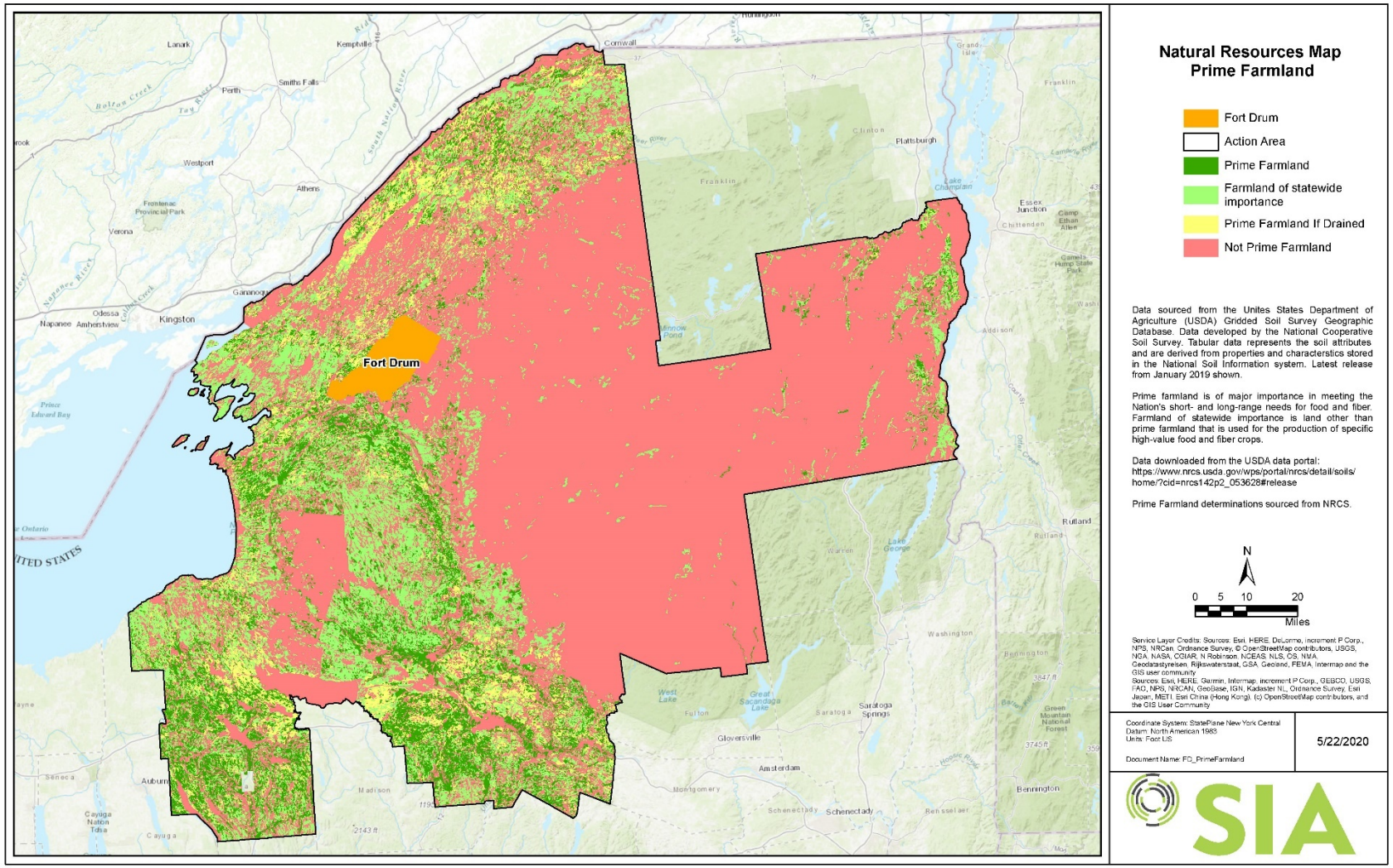


Figure 3-9: Prime Farmland

3.5 BIOLOGICAL RESOURCES

3.5.1 Affected Environment

3.5.1.1 Vegetation

The nine-county Action Area spans from the eastern shore of Lake Ontario to the western shore of Lake Champlain, encompassing a broad diversity of habitat types and vegetation communities. The Action Area comprises five distinct ecozones: Great Lakes Plains, St. Lawrence Valley, Lake Champlain, Tug Hill Plateau, and Adirondacks. Each ecozone contains various subzones characterized by distinct ecological communities (Edinger, 2014). Dominant natural vegetation communities in lowland portions of the action area (Great Lakes Plains, St. Lawrence Valley, and Lake Champlain ecozones) include grasslands, shrub thickets, deciduous forest, and mixed deciduous and evergreen forest (U.S. Army Garrison Fort Drum, 2018) (Edinger, 2014). Much of the land across these ecozones has been cleared for crops and pasture (Bryce, 2010). Dominant vegetation communities in highland portions of the Action Area (Tug Hill Plateau and Adirondacks ecozones) include spruce-northern hardwood and northeastern spruce-fir forest (Bryce, 2010) (Edinger, 2014).

More than 1,000 plant species have been identified on Fort Drum, many of which the New York Natural Heritage Program designates as rare (U.S. Army Garrison Fort Drum, 2018). Many more plant species, including rare species, are present outside the boundaries of Fort Drum but within the Action Area (Edinger, 2014). Table 3-7 shows the dominant species associated with each major community type in the Action Area.

Table 3-7. Dominant Vegetation associated with Major Community Types in the Action Area

Community Type	Dominant Vegetation Species
Grasslands	little bluestem (*Schizachyrium scoparium*), common hairgrass (*Deschampsia flexulosa*), timothy (*Phleum pratense*), orchard grass (*Dactylis glomerata*), Kentucky bluegrass (*Poa pratensis*), Blue Ridge sedge (*Carex lucorum*), parachute sedge (*C. rugosperma*), stiff-leaf aster (*Aster linariifolius*), goldenrods (*Solidago* spp.), and vetch (*Vicia cracca*)
Shrub thicket	dogwoods (*Cornus* spp.), cherry (*Prunus* spp.), and meadowsweet (*Spiraea alba*)
Deciduous forest	red maple (*Acer rubrum*), sugar maple (*Acer saccharum*), striped maple (*A. pennsylvanicum*), yellow birch (*Betula allegheniensis*), gray birch (*B. populifolia*), American beech (*Fagus grandifolia*), northern white cedar (*Thuja occidentalis*), and eastern hemlock (*Tsuga canadensis*)
Mixed deciduous and evergreen forest	eastern white pine (*Pinus strobus*), eastern hemlock, quaking aspen (*Populus tremuloides*), big-tooth aspen (*P. grandifolia*), red maple, sugar maple, American beech, black cherry (*Prunus serotina*), and gray birch
Spruce-northern hardwood forest	red spruce (*Picea rubens*), sugar maple, red maple, striped maple, mountain maple (*A. spicatum*), American beech, yellow birch, and balsam fir (*Abies balsamea*)
Northeastern spruce-fir forest	red spruce, balsam fir, mountain paper birch (*Betula cordifolia*), yellow birch, mountain ash (Sorbus americana, S. decora), mountain maple, striped maple, and pin cherry (*Prunus pensylvanica*)

Sources: (Bryce, 2010) (Edinger, 2014) (U.S. Army Garrison Fort Drum, 2018)

The Action Area also contains an abundance of rare and significant plant communities including, but not limited to, alvar grasslands, successional northern sandplain grasslands, successional northern hardwoods, beech-maple mesic forest, maple-basswood rich mesic forest, calcareous talus slope woodlands, boreal heath barrens, shale cliff and talus communities, and Great Lakes dunes (New York State Department of Environmental Conservation, 2019a). The Adirondack mountains, which make up most or all of Herkimer, Hamilton, and Essex counties, contain rare, unique, and largely undisturbed habitats including alpine and summit communities (Edinger, 2014). Although the Action Area also contains wetland complexes and aquatic and riparian habitats that include rare and significant communities, these communities are not described in detail because exercises would be sited to avoid these areas. Based on the criteria for selecting possible exercise locations in the Action Area (Table 2-1), grasslands and open fields, such as those found in the Great Lakes Plains, St. Lawrence Valley, and Lake Champlain ecozones, would provide the most suitable locations for exercises.

3.5.1.2 Invasive Species

Invasive species can harm natural communities and systems by outcompeting native species; reducing biological diversity; altering community structure; and, in some cases, changing ecosystems. Certain species can also create challenges to military training, including, but not limited to, creating walls of dense vegetation impeding mounted and dismounted maneuvers, increasing the potential for erosion, and even causing skin irritation and other physical reactions for individuals (U.S. Army Garrison Fort Drum, 2018). Because training activities would be limited to upland areas, only terrestrial species are discussed. However, numerous wetland and aquatic invasive plant species also occur in parts of the Action Area.

Twelve invasive plant species have been documented on Fort Drum, and many more occur in other parts of the Action Area. The most common and widespread invasive species on Fort Drum include spotted knapweed (*Centaurea* ssp.), leafy spurge (*Euphorbia esula*), common buckthorn (*Rhamnus cathartica* and *R. frangula*), and wild parsnip (*Pastinaca sativa*). Black and pale swallow-wort (*Cynanchum louiseae* and *C. rossicum*), Oriental bittersweet (*Celastrus orbiculatus*), and Japanese knotweed (*Reynoutria japonica*) are plants that currently exist on Fort Drum that have the greatest potential to impact training lands. Other invasive species that occur on Fort Drum include garlic mustard (*Alliaria petiolate*), purple or Himalayan balsam (*Impatiens glandulifera*), honeysuckles (*Lonicera* spp.), black locust (*Robinia pseudoacacia*), and false spirea (*Sorbaria sorbifolia*) (U.S. Army Garrison Fort Drum, 2018).

Fort Drum's Invasive Species Management Plan describes the distribution of invasive species on Fort Drum and identifies management options and treatment locations. Fort Drum is also a cooperating member of the St. Lawrence-Eastern Lake Ontario Partnership for Regional Invasive Species Management (SLELO-PRISM), which works to address the threat of invasive species throughout Jefferson, St. Lawrence, Lewis, Oswego, and Oneida counties (St. Lawrence-Eastern Lake Ontario Partnership for Regional Invasive Species Management, 2019).

Many of the invasive species that occur at Fort Drum also occur elsewhere in the Action Area. Other invasive species in the Action Area include giant hogweed (*Heracleum mantegazzianum*), Japanese stiltgrass (*Microstegium vimineum*), mugwort (*Artemesia vulgaris*), multiflora rose (*Rosa multiflora*), and Norway maple (*Acer platanoides*) (New York Invasive Species Information, 2019).

3.5.1.3 Wildlife

To date, 49 mammals, 252 birds, 45 fish, 12 reptiles, and 18 amphibian species have been documented on Fort Drum. Invertebrate species likely number in the thousands, although a full inventory has not been completed (U.S. Army Garrison Fort Drum, 2018). Many more species occur elsewhere in the Action Area because of its large geographic spread and diversity of habitat and community type. Because training activities would be limited to upland, only terrestrial wildlife species are discussed here.

Common mammals in the Action Area include raccoon (*Procyon lotor*), black bear (*Ursus americanus*), moose (*Alces alces*), white-tailed deer (*Odocoileus virginianus*), red fox (*Vulpes vulpes*), gray fox (*Urocyon*

cinereoargenteus), coyote (*Canis latrans*), porcupine (*Erethizon dorsatum*), striped skunk (*Mephitis mephitis*), eastern cottontail rabbit (*Sylvilagus floridanus*), gray squirrel (*Sciurus carolinensis*), eastern chipmunk (*Tamias striatus*), and various species of mice and shrews (U.S. Army Garrison Fort Drum, 2018).

Common reptiles and amphibians in upland habitats within the Action Area include eastern rat snake (*Pantherophis alleghaniensis*), milksnake (*Lampropeltis triangulum*), and common gartersnake (*Thamnophis sirtalis*) (U.S. Army Garrison Fort Drum, 2018). Common amphibians include American toad (*Bufo americanus*), gray treefrog (*Hyla versicolor*), and spring peeper (*Pseudacris crucifer*) (U.S. Army Garrison Fort Drum, 2018).

Except for insects, birds exhibit the greatest species diversity among wildlife in the Action Area. The Action Area's diverse landscapes and communities provide nesting, foraging, and stopover habitat for resident and migratory species. The Action Area is located within the Atlantic Flyway, a major corridor for migratory species that travel annually between their nesting and wintering habitats (Audubon New York, 2019). Birds in the Action Area include ducks, geese, and waterfowl; grouse and turkeys; herons and cranes; gulls and terns; plovers and sandpipers; pigeons and doves; cuckoos; raptors; owls; woodpeckers; hummingbirds; and passerines (U.S. Army Garrison Fort Drum, 2018).

3.5.1.4 Threatened and Endangered Species

The Action Area contains six species that are federally listed under the Endangered Species Act as endangered or threatened (Table 3-8). Two of these species, northern long-eared bat and Indiana bat, have been documented on Fort Drum (U.S. Army Garrison Fort Drum, 2018). Many of the federally listed species in the Action Area occur only in very specific habitats within a small geographic range.

In addition to the six species shown in Table 3-8, the Action Area contains 320 species (59 animals and 261 plants) listed as endangered, threatened, or species of special concern at the state level in New York (New York State Department of Environmental Conservation, 2019b). Appendix B contains a complete list of state-listed species in the Action Area. Although it is not possible to identify the locations of all federally and state-listed species across the entire Action Area, Figure 3-10 provides an overview of locations where the highest numbers of listed species are likely to occur based on compiled modeling data developed by the New York Natural Heritage Program.

Bald eagle (*Haliaeetus leucocephalus*) and golden eagle (*Aquila chrysaetos*) are not listed under the Endangered Species Act but receive federal protection under the Bald and Golden Eagle Protection Act. Both species also receive protection at the state level, as noted in Appendix B. Similarly, many species of birds that occur in the Action Area receive federal protection under the Migratory Bird Treaty Act.

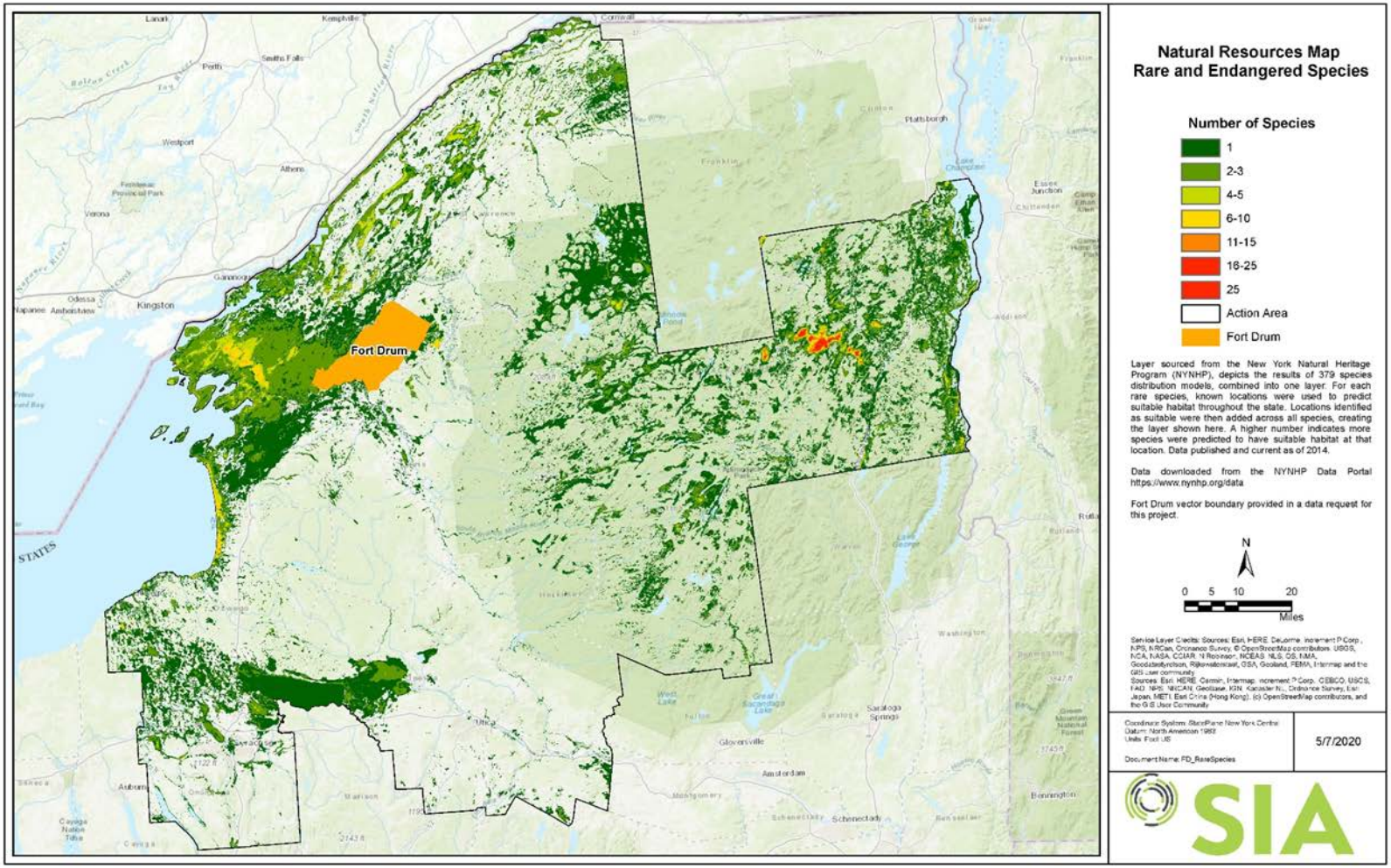


Figure 3-10:[3] General Overview of Suitable Habitat for Threatened and Endangered Species in the Action Area

[3] Figure 3-10 provides an overview of locations where the highest numbers of listed species are likely to occur based on compiled modeling data developed by the New York Natural Heritage Program. Specific locations of listed species and habitats would be identified in consultation with USFWS and NYSDEC when sites have been selected.

Table 3-8. Federally Listed Species in the Action Area

Species	Status	Occurrence in the Action Area
Northern long-eared bat (*Myotis septentrionalis*)	Threatened	Documented on Fort Drum, roosting and foraging habitat is found throughout the Installation (U.S. Army Garrison Fort Drum, 2018). No known hibernacula are on the Installation but likely are present elsewhere in the Action Area. Species occur throughout the Eastern Ontario plains and Lake Champlain Valley and in portions of the St. Lawrence Valley. Small populations may exist in the eastern Adirondacks.
Indiana bat (*Myotis sodalis*)	Endangered	Documented on Fort Drum, roosting and foraging habitat is in and around the Cantonment Area, and males use southern portion of training areas (U.S. Army Garrison Fort Drum, 2018). No known hibernacula are located on the Installation but likely present elsewhere in the Action Area. Species occurs in the western portion of the Action Area, mainly within in the Eastern Ontario plains and in the extreme eastern portion of the Action Area in the Champlain Valley.
Piping plover (*Charadrius melodus*)	Endangered	Flocks within the Great Lakes breeding population nest along the eastern shore of Lake Ontario beginning in mid-May, where they remain for three to four months. Distribution is limited to shoreline and island sandy beaches with sparse vegetation and the presence of small stones. Critical habitat has been designated along 17 miles of shoreline in Jefferson and Oswego counties in the Action Area (66 FR 22938). This species does not occur anywhere else in the Action Area.
Bog turtle (*Clemmys muhlenbergii*)	Threatened	Small populations occur in wetland habitats in Oswego County. This species is rare and does not occur anywhere else in the Action Area. Bog turtles are active from April to October and hibernate during the winter (62 FR 59605).
Eastern Massasauga rattlesnake (*Sistrurus catenatus*)	Threatened	This species occurs in grassland, shrub thicket, and wetland habitats. Distribution in the Action Area is limited to Onondaga County. Individuals hibernate during the winter and are active during spring, summer, and fall (80 FR 58688).
American Hart's-tongue fern (*Asplenium scolopendrium* var. *americanum*)	Threatened	Distribution in the Action Area is limited to four locations Onondaga County. This rare species is associated with calcareous soils and has been extirpated from much of its historical range (U.S. Fish and Wildlife Service, 2012).

3.5.2 Environmental Consequences

Potential impacts of the Alternatives on biological resources are evaluated in the following section at a programmatic level. Following final site selection and identification of specific training exercise logistics, site-specific analyses would be necessary to determine impacts on specific resources. Based on the description of the Alternatives above (Chapter 2), the following analysis incorporates several assumptions. The analysis assumes that: (1) no tree clearing would be necessary for off-base training exercises; (2) no herbicides or pesticides would be used, with the exception of personal insect repellent applied directly to clothing and gear; (3) off-base ground training exercises would be sited to avoid wetlands and rare and significant plant communities; and (4) Fort Drum would continue to implement its Guidelines to Minimize Environmental Impacts from Management Actions, as outlined in its most recent Integrated Natural Resources Management Plan (U.S. Army Garrison Fort Drum, 2018) for all ongoing on-base activities.

3.5.2.1 Alternative 1

Vegetation

Increased frequency of off-base training exercises would result in adverse impacts to vegetation compared to existing conditions. Specific species or communities that would be impacted would depend on the specific location of training exercises. Impacts to vegetation would occur primarily from ground operations. Impacts would include crushing or trampling of vegetation from off-road vehicles and equipment and establishing and using temporary sustainment sites during training exercises. Some vegetation clearing may also be required for establishment of temporary sustainment sites or other ground support activities. Potential fuel spills or spills of other chemicals could also result in adverse impacts to vegetation. However, secondary containment systems on all equipment containing POL or hazardous materials would minimize the likelihood of spills.

Adverse impacts to vegetation would be similar those under existing conditions but would occur on a more frequent basis. Most impacts would be localized and temporary and would not significantly alter vegetation communities in the Action Area. However, vegetation clearing could result in long-term impacts because it could take years for the area to return to its former successional state. Overall, Alternative 1 would result in adverse, short- and long-term, minor to moderate impacts. Implementing appropriate conservation measures would ensure that impacts are minimized or mitigated. Conservation measures could include:

- avoid siting ground exercises near wetlands or rare and significant plant communities and avoid sites that contain federally or state protected plant species;
- siting ground exercises in previously disturbed areas wherever possible; and
- restoring disturbed soils with a native seed mix if necessary.

Invasive Species

Alternative 1 could result in adverse impacts to invasive species if ground exercises disturb soils, which could allow invasive species to colonize new areas. There would be greater potential for soil disturbances and potential spread of invasive species under Alternative 1 compared to existing conditions because training exercises would be conducted more frequently. Restoring disturbed soils with a native seed mix would minimize this impact by reducing the potential for invasive species to colonize new areas. However, impacts could persist over the long term if invasive species successfully colonize new areas and are allowed to spread over time. Overall, Alternative 1 is not expected to significantly increase the range or distribution of invasive species in the Action Area. Therefore, impacts would be adverse, short- or long-term, and negligible to minor.

Wildlife

Training exercises would result in adverse impacts to wildlife in the Action Area. Specific species or communities that would be impacted would depend on the specific location of training exercises. Noise and visual disturbances from aircraft, vehicles, and simulated combat would displace birds, mammals, and other wildlife in the vicinity of training exercises. Most individuals would likely relocate to other nearby habitats for the duration of the training exercises and return later, provided habitat is left adequately intact. However, these disturbances could disrupt feeding, mating, and nesting behaviors, and may cause nest abandonment. For additional discussion of noise impacts on wildlife, see Section 3.2, *Noise*. Additionally, ground operations, including the use of off-road vehicles and equipment, could result in mortality of individuals of less mobile species such as reptiles, amphibians, and insects and destruction of nests and eggs of ground-dwelling birds. Fort Drum currently monitors populations of various bird species both on and off base. Fort Drum would continue to monitor select species and actively seek opportunities to avoid or minimize impacts that could occur as a result of training exercises.

Potential impacts to vegetation, including invasive species, as described above could indirectly impact wildlife by altering habitats. Fuel spills or spills of other chemicals could also result in adverse impacts to wildlife and wildlife habitat. However, as noted above, secondary containment systems on all equipment containing POL or hazardous materials would minimize the likelihood of spills.

Adverse impacts to wildlife would be similar to those under existing conditions because ongoing training exercises are part of the existing conditions in the Action Area. However, under Alternative 1 impacts would occur more frequently commensurate with increased frequency of training exercises. Most impacts would be localized and temporary and would not significantly alter wildlife populations or ecological dynamics in the Action Area. If habitats are destroyed or substantially altered by vegetation clearing, there could be long-term adverse impacts because it could take years for the habitat to return to its former successional state. Mortality of wildlife and loss of bird nests and eggs could also have long-term impacts on individuals but would not likely result in noticeable impacts at the population level. Birds would likely be the most heavily impacted taxa because of their sensitivity to noise and visual disturbances and because the Action Area is located within the Atlantic Flyway. Overall, Alternative 1 would result in adverse, short- and long-term, minor to moderate impacts on wildlife. Implementing appropriate conservation measures would ensure that impacts are minimized or mitigated. In addition to the conservation measures listed above for vegetation, conservation measures to minimize impacts on wildlife could include:

- avoid siting ground exercises near wetlands or rare and significant plant communities, and avoid sites that contain federally or state protected wildlife species;
- avoid conducting training exercises during peak bird migration periods (typically April–May and September–October); and
- if necessary, conduct large-scale vegetation management activities before April 15 or after August 1 to minimize take of migratory birds.

Threatened and Endangered Species

Under Alternative 1, all efforts would be made to avoid known occurrences of state and federally listed species. If this could not be accomplished, or if there is limited site information about localized species occurrences, adverse impacts may result. Species that could be impacted would depend on the specific location of training exercises. Table 3-9 shows potential effects on federally listed species and conservation measures that could be implemented to avoid or minimize adverse impacts. Final conservation measures would be developed in consultation with USFWS and NYSDEC at the time of site selection. Similarly, Appendix B, Table B-1, shows the counties in which state-listed species occur and could be impacted if training sites are located within those counties.

Many of the listed species in the Action Area occur in only in specific habitats or within a limited geographic range (Table 3-8; Appendix B, Table B-1) and could likely be avoided. If training sites are selected in areas where federally listed species may occur, Endangered Species Act section 7 consultation must be initiated with USFWS prior to any training exercises. Similarly, if state-listed species are likely to be present, coordination with NYSDEC would be necessary prior to any training exercises. Consultation with the appropriate federal and state agencies prior to conducting off-base training exercises would ensure that appropriate measures are taken to avoid or minimize adverse impacts to an insignificant or discountable level, as defined under the Endangered Species Act. Discountable effects are adverse effects that are plausible, but extremely unlikely to occur. Insignificant effects are plausible adverse effects that are that are undetectable, not measurable, or so minor that they cannot be meaningfully evaluated. Therefore, significant adverse impacts to threatened and endangered species are not expected under Alternative 1.

Table 3-9. Potential Impacts to Federally Listed Species and Species-specific Conservation Measures

Species	Potential Impacts	Species-specific Conservation Measures[4]
Northern long-eared bat	Temporary disruption of feeding, mating, and roosting behaviors from noise and visual disturbances during air and ground training exercises	• Avoid conducting training exercises within 0.25 mile of a known hibernacula or within 150 feet of known, occupied maternity roost trees during the pup season (June 1 to July 31) • Avoid clearing suitable spring staging and fall swarming habitat within a 5-mile radius of known or assumed northern long-eared bat hibernacula during the staging and swarming seasons (April 1 to May 15 and August 15 to November 14, respectively) • Do not use military smoke and obscurants within forested suitable northern long-eared bat habitat during the pup season (June 1 to July 31) and/or the active season (April 1 to October 31)
Indiana bat	Temporary disruption of feeding, mating, and roosting behaviors from noise and visual disturbances during air and ground training exercises	• Species-specific conservation measures for northern long-eared bat also apply to Indiana bat
Piping plover	Temporary disruption of feeding, mating, and nesting behaviors from noise and visual disturbances during air and ground training exercises	• Avoid conducting training exercises within designated critical habitat • Avoid conducting training exercises within the vicinity of the Lake Ontario shoreline in Jefferson and Oswego counties during nesting season (mid-May to mid-September)
Bog turtle	Trampling or crushing during ground training exercises	• Avoid siting ground exercises in proximity to wetlands

[4] Table 3-9 provides examples of species-specific conservation measures that could be implemented to avoid or minimize adverse impacts to federally listed species. Actual measures would be determined through consultation with USFWS.

Species	Potential Impacts	Species-specific Conservation Measures[4]
		• If avoidance of wetlands is not possible, avoid wetlands in Oswego County during the bog turtle active season (April to October)
Eastern Massasauga rattlesnake	Trampling or crushing during ground training exercises; disruption of feeding or mating behaviors from noise and visual disturbances during ground training exercises	• Avoid siting ground exercises in proximity to wetlands • Avoid siting ground exercises in grassland and shrub thicket habitats in Onondaga County during the snake's active season (spring, summer, and fall)
American Hart's-tongue fern	Trampling or crushing during ground training exercises	• Avoid siting ground exercises at specific locations in Onondaga County where populations of this species are known to occur

Training exercises under Alternative 1 could also result in adverse impacts to bald eagles and golden eagles. Noise, particularly from aircraft, could disturb nesting or foraging eagles. Additionally, there would be potential for eagle mortality form collisions with aircraft. Collisions would be most likely to occur during daylight hours when aircraft are flying at or below 1,000 feet (305 meters) of altitude (Washburn, Begier, & Wright, 2015). However, Fort Drum would continue to work in collaboration with state and federal agencies to ensure that aviators avoid known eagle nesting sites wherever possible. Avoiding nesting sites would minimize the risk of adverse impacts on bald and golden eagles.

Overall, potential adverse impacts on threatened and endangered species would be similar to those under existing conditions but could occur on a more frequent basis. Fort Drum would continue to make efforts to avoid known occurrences of state and federally listed species. If this could not be accomplished, or if there is limited site information about localized species occurrences, Alternative 1 would result in adverse, short- and long-term, negligible to minor impacts to threatened and endangered species. In addition to the conservation measures listed above for vegetation and wildlife, conservation measures to minimize impacts on threatened and endangered species could include:

- conduct a site-specific desktop species inventory prior to final site selection to avoid locations where listed species where possible; and
- if listed species may be present in training sites, consult with USFWS and/or NYSDEC for further guidance on avoiding adverse impacts.

3.5.2.2 Alternative 2

Under Alternative 2, adverse impacts to vegetation, invasive species, wildlife, or threatened and endangered species would be the same as those described under Alternative 1 but reduced in frequency because off-base training exercises would occur less frequently. Alternative 2 would not result in significant adverse impacts if appropriate conservation measures are implemented, as described under Alternative 1. Impacts to biological resources would be adverse, short- and long-term, and negligible to moderate.

3.5.2.3 Alternative 3 (No Action Alternative)

Under the No Action Alternative, there would be no new adverse impacts to vegetation, invasive species, wildlife, or threatened and endangered species compared to existing conditions. Ongoing potential adverse impacts would be the same in nature as those as described under Alternative 1. The No Action Alternative would not result in significant adverse impacts if appropriate conservation measures are implemented, as described under Alternative 1. Impacts to biological resources would be adverse, short- and long-term, and negligible to moderate.

3.6 WATER RESOURCES

Water resources include groundwater, surface water, floodplains, water quality, wetlands, and coastal resources.

3.6.1 Affected Environment

Fort Drum is located in the St. Lawrence River watershed, within the Indian Creek watershed. Surface water from Fort Drum primarily discharges into the Indian River, which in turn eventually flows into the Oswegatchie River and then on to the St. Lawrence River. A small portion of land at the southern end of Fort Drum drains into the Black River basin. Waters in the Black River flow westward towards Lake Ontario. A considerable portion of Fort Drum is relatively flat and poorly drained resulting in approximately 20 percent of Fort Drum characterized as "wet" with wetlands, streams, and other waterbodies (U.S. Army Garrison Fort Drum, 2018). There are eleven primary lakes and ponds totaling more than 400 acres of surface area on Fort Drum (U.S. Army, 2011). There are also two rivers and eight primary streams, as well as minor streams and tributaries that are widespread throughout Fort Drum. In general, most rivers and streams on Fort Drum are meandering, low gradient, and heavily influenced by beaver activity. No National Wild and Scenic Rivers are located within or near Fort Drum.

Outside Fort Drum, the nine counties are known for having lakes, rivers, streams and ponds. These water bodies are used for fishing, recreation and animal habitat.

3.6.1.1 Surface Water Quality

Fort Drum's major streams have been surveyed, and water quality is generally good. Water quality in the nine-county area is dominated by atmospheric deposition of pollutants that originate largely outside the basin. Major water quality concerns in the area are acid rain, which limits the fish community and aquatic life; atmospheric deposition of mercury, which restricts fish consumption; agricultural activities and associated runoff, which contribute nutrients and sediments to waters; and hazardous wastes and legacy industrial impacts.

3.6.1.2 Groundwater

There are two primary aquifers at Fort Drum (an upper water table aquifer [Pleistocene Pine Plains Aquifer] and a lower artesian aquifer [Potsdam Sandstone bedrock aquifer]). The aquifers overlay each other and are located north of the Cantonment Area near Wheeler-Sack Army Airfield and around Training Area 4 (Missile Defense Agency, 2016). The first aquifer (upper aquifer) is the Pleistocene Pine Plains Aquifer which has saturated thicknesses of up to 85 feet. The second aquifer (lower aquifer) is the Potsdam Sandstone bedrock aquifer which is up to 210 feet thick with top depths ranging from 130 to 180 feet below ground surface. A thick unit of silty clay may restrict groundwater flow between the Pine Plains aquifer and the underlying Potsdam Sandstone bedrock aquifer in most areas. This layer is absent in the southwestern part of Fort Drum, so shallow groundwater may move down in this area and recharge the bedrock aquifer. Both aquifers are recharged by rain and snowmelt. The deep groundwater divide is located below the Wheeler-Sack Army Airfield. Groundwater from the two aquifers supplies a well field consisting of 11 wells generally located north of the Cantonment Area near Wheeler-Sack Army Airfield within Training Area 4. Fort Drum obtains its drinking (potable) water from a combination of sources including both surface water from the Black River and from groundwater wells at Fort Drum near the Cantonment Area. The drinking water from both of these sources are provided in about equal quantities for use and treated prior to use.

3.6.1.3 Floodplains

Most of Fort Drum is located in flood hazard Zone X, which includes those areas deemed to be outside of the 0.2 percent annual chance floodplain (500-year floodplain). Parts of Fort Drum that are located within the 100-year floodplain are areas that border the lakes, rivers, and streams (Federal Emergency

Management Agency, 1992/2014). Though all water bodies on Fort Drum have floodplains, the only one with a Federal Emergency Management Agency (FEMA) defined 100-year floodplain is the Black River.

Off Fort Drum, the land is a mix of 100-year floodplain (near bodies of water), 500-year floodplain and areas outside the 500-year floodplain (See Figures 3-11 and 3-12 below). Flooding is not a major concern in these areas and typically happens on the banks of waterways. Ideally, development should be limited within the floodplains to facilitate natural hydrological function.

3.6.1.4 Coastal Zone

The NYS Coastal Management Program has established statewide boundaries in accordance with the requirements of the Coastal Zone Management Act of 1972, as amended, and its subsequently issued rules and regulations. The waterward boundary extends three miles into open ocean, to shared state lines in Long Island Sound and the New York Bight and to the International boundary in the Great Lakes, Niagara, and St. Lawrence Rivers. Generally, the inland boundary is approximately 1,000 feet from the shoreline following well-defined features such as roads, railroads, or shorelines. Where necessary this boundary extends inland to include major state-owned lands and facilities and electric power generation facilities which abut on the shoreline, major coastal recreational areas, significant agricultural lands, significant coastal habitats, scenic viewsheds of state or national significance, major historic or coastal dependent industrial areas, and the 100-year floodplain. In urbanized and other developed locations along the coast, the landward boundary is approximately 500 feet from the shoreline or less than 500 feet at locations where a major roadway or railway line runs parallel to the shoreline. The seaward boundary of NYS's coastal area includes all coastal waters within its territorial jurisdiction.

Fort Drum is outside the New York defined Coastal Zone and therefore would not result in direct or indirect impacts to coastal resources. The Inland boundary of the coastal zone is approximately 1000 feet from the shoreline. The closest Coastal Zone that would is governed by NYS is Watertown which is approximately 14 miles from Fort Drum. Other areas of the coastal zone include land that borders the St. Lawrence River and Lake Ontario (New York State Planning and Developement, 2020). For any work that would occur within the Coastal Zone, a consistency determination approval would be required by the State of New York.

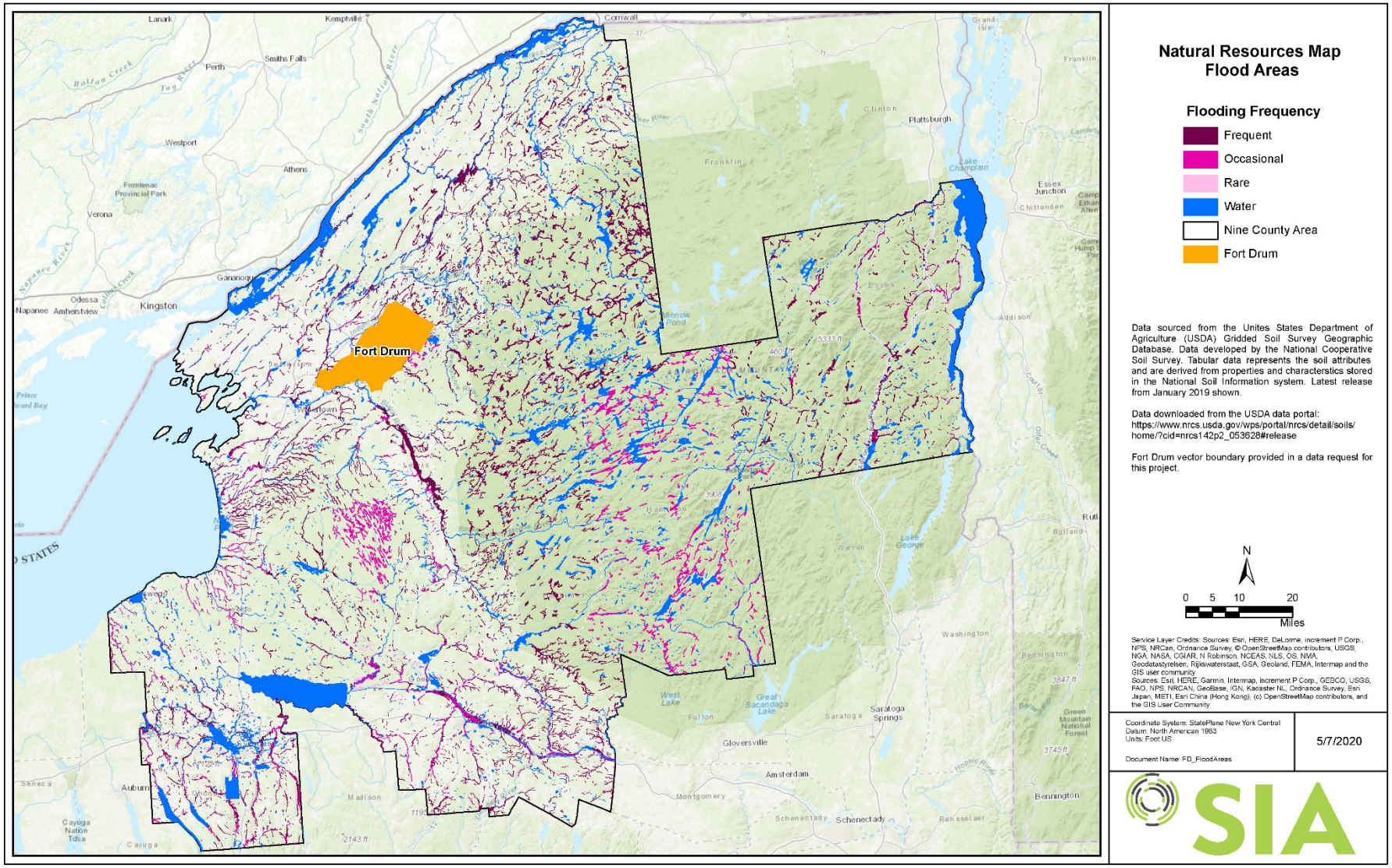


Figure 3-11: Soil Flooding Frequency

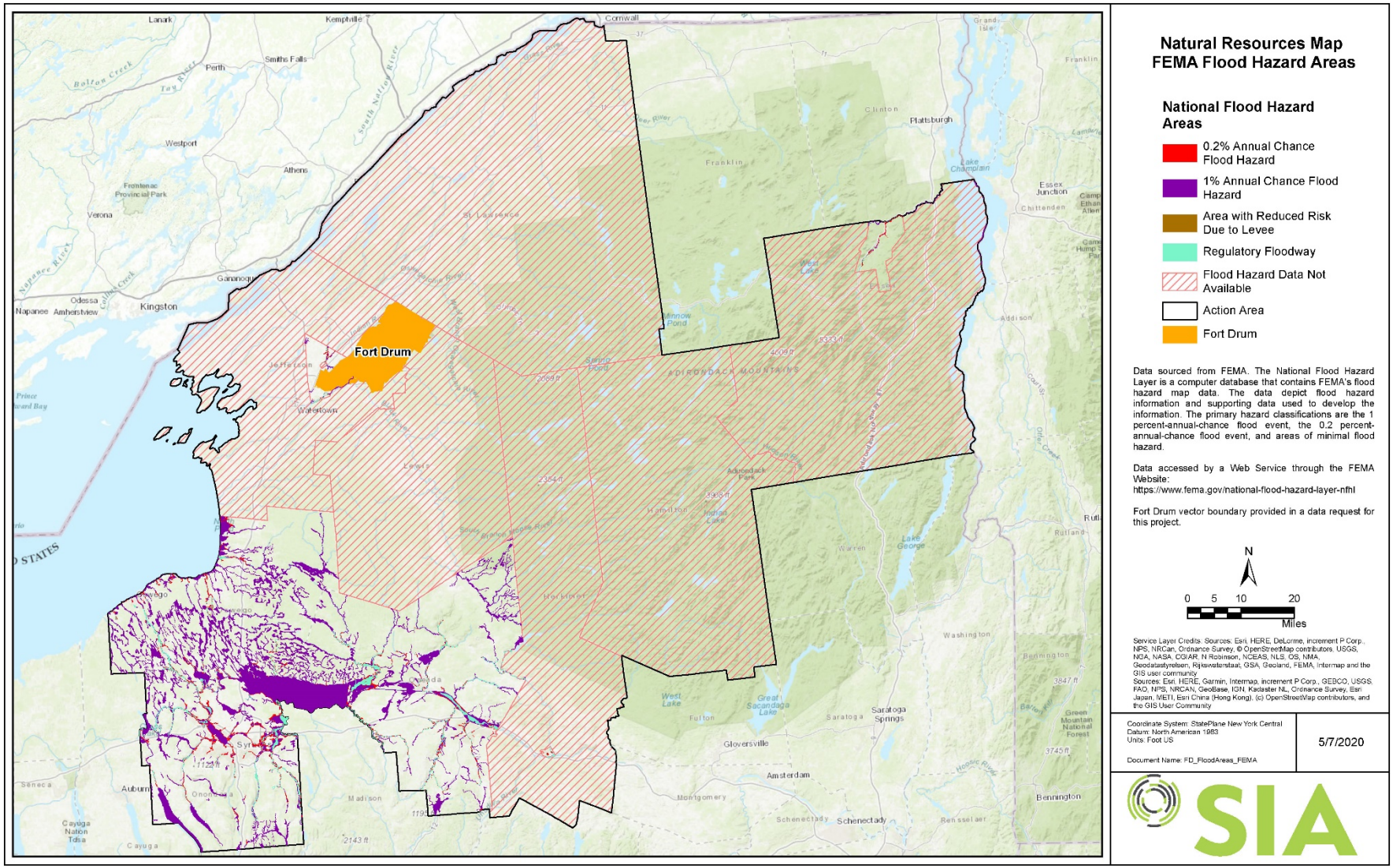


Figure 3-12: FEMA Flood Hazard Areas

3.6.1.5 Wetlands

Approximately 20 percent of the surface area on Fort Drum are wetlands (U.S. Army Garrison Fort Drum, 2018). This includes NYSDEC classified wetlands and their 100-foot protected buffers which are protected under the NYS Article 24 permit process. One of the largest wetland complexes on Fort Drum is Warren Swamp in Training Area 7. Other large wetland complexes exist in Training Area 17 around Matoon Creek and throughout Training Area 19. The most common type of wetland on Fort Drum is palustrine wetlands (including marshes, swamps, bogs and fens) which are dominated by trees, shrubs, or persistent herbaceous and woody emergent vegetation. Other types of wetlands on Fort Drum include riverine and lacustrine wetlands. Many of the wetland areas on Fort Drum are beaver ponds which provide high quality habitats for many species of wildlife. Due to changing hydrology brought on by natural successional and snowmelt/surface drainage patterns and substantial beaver activity, wetland boundaries have been noted to change frequently.

Fort Drum has also constructed a wetland mitigation bank which consists of over 70 acres of constructed wetlands including protection and preservation of surrounding uplands and wetlands. The bank's wetland sites were constructed to provide mitigation in advance for impacts resulting from subsequent construction projects. Executive Order 11990, along with the Clean Water Act (CWA), requires that there is no net loss of wetlands on federal lands.

There are several areas of wetlands throughout the nine-county area. Figure 3-13 displays the locations of the delineated wetlands on the nine-county area. Wetland types include forested wetlands, freshwater marshes, riparian areas, scrub-shrub wetlands, and wet meadows. Most of the wetlands are Forested/Shrub wetlands with some freshwater emergent wetlands. They are mainly located in the Adirondack Park to the East and near the coastal areas. Wetland boundaries change frequently due to changing hydrology brought on by natural succession and beaver activity (which increases wetlands).

The Clean Water Act (1977), Section 404, requires that a permit be obtained for any activity that may affect "waters of the United States, including wetlands". The U.S. Army Corps of Engineers has the primary responsibility for administering the Section 404 permitting process. Permits are obtained based on individual projects with consideration of wetland types and areas, and jurisdictional status.

3.6.2 Environmental Consequences

3.6.2.1 Alternative 1

Surface Water and Groundwater Impacts

Impacts to surface water could include changing the drainage pattern of surface water at Fort Drum and in the nine-county area. Land disturbance activities such as clearing, grading, and excavation would have an impact on surface water runoff patterns and surface water velocity. Surface water migration and velocity could alter the flow patterns and rates at which streams and lakes are recharged, leading to an increase in a water body's capacity. This impact could also potentially impact aquatic and terrestrial flora and fauna by soil erosion and sedimentation. Disturbance of land areas during land clearing and grubbing, temporary laydown areas, and construction of temporary facilities would impact surface water quality, aquatic flora and fauna, and terrestrial flora and fauna due to soil erosion and sedimentation. High sediment loads can also reduce water flow capacity and affect aquatic organisms.

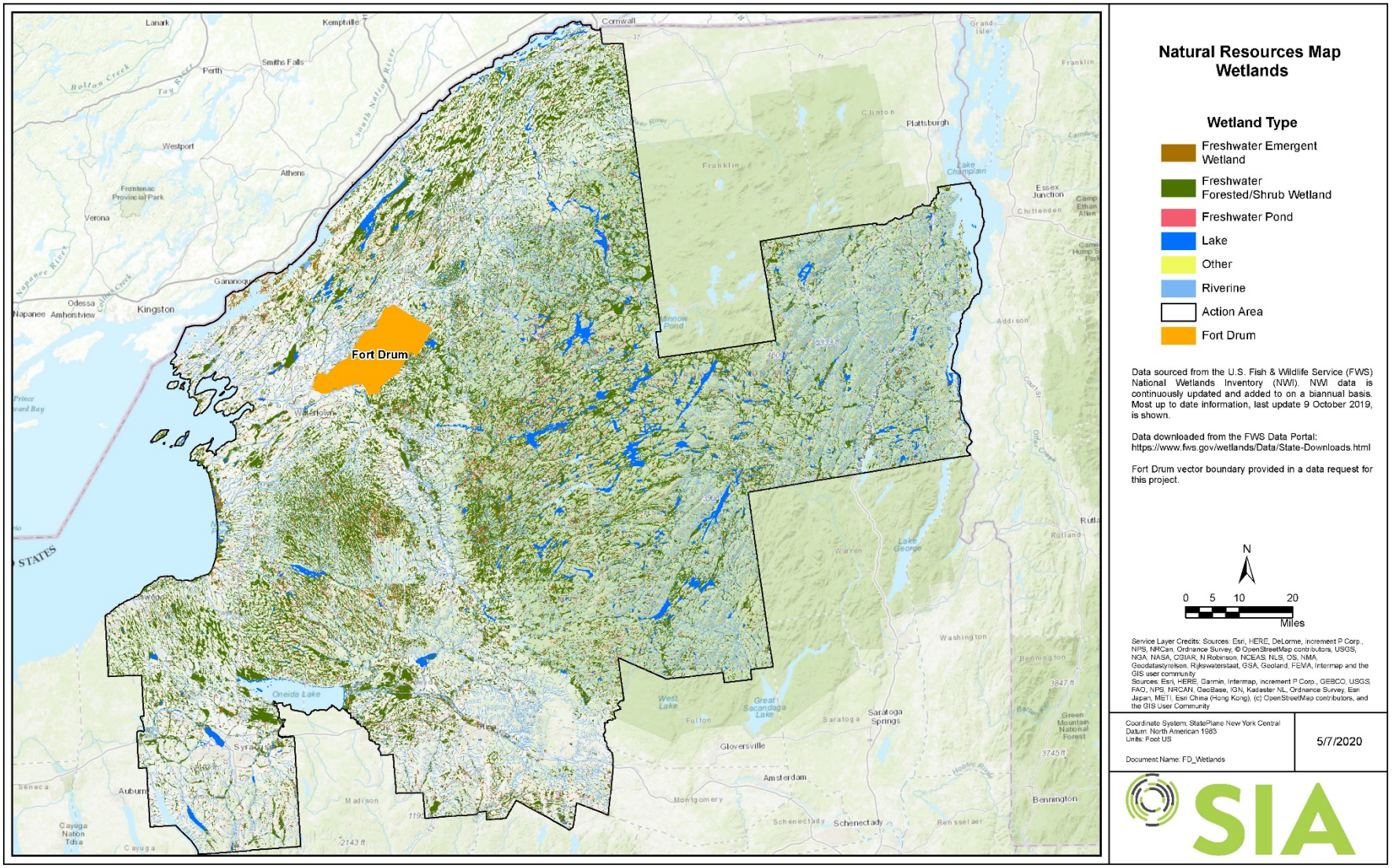


Figure 3-13: National Wetlands Inventory Map

Potential impacts to surface water from groundwater/surface water interface could potentially impact surface water quality, which in turn could impact aquatic flora and fauna and terrestrial fauna in terms of food sources and/or habitat. However, this potential impact would be minor because any impact to groundwater would be temporary. Project operations could result in the inadvertent release of minor amounts of pollutants to surface water or groundwater from equipment coolant; diesel fuel from the power backup generators; oil leaks from equipment and vehicles; chemical releases from cleaning agents, paints, solvents, etc.; and other sources. To address potential releases of fuel, oil, or chemicals during operations, a Spill Prevention, Control, and Countermeasure (SPCC) Plan would be developed and implemented prior to start of operations. The SPCC plan would address use of chemical and petroleum spill prevention, control and cleanup facilities, equipment, and procedures would reduce the potential for chemical or petroleum releases**. C**onsequently, any adverse impacts to surface water or groundwater resources resulting from pollutant releases would be temporary and minor.

Floodplain

With most of Fort Drum and the nine-county area zoned outside the 100- and 500-year floodplains, impacts to floodplains would be minor. Since training is temporary and no permanent structures would be built, there would be no changes to the flood zone and no changes to the natural hydrological function. However, we recognize the importance of limiting development within all of Fort Drum's floodplains to facilitate natural hydrological function. There would be no impacts to the floodplain or beneficial values associated with the floodplain.

Coastal Resources

Alternative 1 would not result in direct impacts to coastal resources. However, potential indirect impacts to coastal resources could result from increased runoff to nearby receiving waters. By implementing BMPs, Alternative 1 would have a minor indirect adverse impact on coastal resources and surface waters. Alternative 1 would be consistent with federal, state, and local coastal zone policies, and would not otherwise affect coastal resources. If training would occur within the coastal zone, the Army shall submit a federal consistency application to the NY Department of State certifying that the project complies and is consistent with the .

Additionally, to minimize the potential for stormwater-related impacts to coastal resources, Alternative 1 would adhere to a Stormwater Pollution Prevention Plan (SWPPP). The SWPPP would be prepared in accordance with accepted engineering practices and be consistent with the State Pollutant Discharge Elimination System and NYSDEC requirements. BMPs would be incorporated into Alternative 1 design to minimize erosion and sedimentation. All erosion and sedimentation controls would be installed prior to land disturbing activities, to ensure the reduction of sedimentation and pollutants in receiving waters.

Wetlands

One of the criteria for selecting a site for training is to avoid wetlands. Since the training exercises would be avoiding wetlands, direct impacts to wetlands would be minor. Increases in training could potentially lead to increased sedimentation and decreased surface and groundwater quality which could, in turn, impact on the health of the wetlands in the training areas. As addressed earlier, the potential impact of soil erosion would be mitigated by employing BMPs and a SWPPP. It is also recommended to be at least 200 feet away from wetlands to ensure that the loss of wetlands is minor.

In accordance with the 10th Mountain Division and Fort Drum Regulation 350-4, training activities must be minimized in and around wetlands, streams, and other water bodies. The fording of streams, ponds, lakes, wetlands, etc. is prohibited, and sensitive wetlands and compensatory construction project areas are to be marked with Seibert Stakes and must be avoided. Due to this wetland avoidance regulation, the wetland impacts from maneuver training are anticipated to be minor.

Mitigation

Impacts would be minor due to the implementation of a sediment and erosion control plan and BMPs under a NYSDEC General Permit for the discharge of storm water. Dust-related turbidity impacts would be localized, short-term, and minor due to (1) the implementation of standard dust suppression procedures, and (2) the temporary nature of the training activities. Project construction could result in the inadvertent release of minor amounts of pollutants via oil leaks from equipment and vehicles; chemical releases from cleaning agents, paints, solvents, etc.; construction waste; and other sources. However, the implementation of standard pollution control measures through the construction SPCC Plan (specifically, the use of chemical and petroleum spill prevention; and control and cleanup facilities, equipment, and procedures) would reduce the potential for chemical or petroleum releases. Any adverse impacts to surface water quality, aquatic or terrestrial resources resulting from pollutant releases would be short-term and minor. Due to the implementation of management practices and BMPs, the training impacts on water resources is anticipated to be adverse, minor, and short-term.

Water Resource Impacts

Activities associated with Alternative 1 would not increase the demand for groundwater and would not directly impact any surface waters. Minor, short-term impacts to surface water drainage could occur during the training exercises. Appropriate stormwater management design and implementation on site would minimize these impacts. Prior to scheduling training areas for unit exercises, Fort Drum range and environmental personnel would continue to coordinate to avoid and minimize sensitive wetland area impacts when planning for training events. If it appears that water resource impacts are unavoidable, the appropriate level of permitting and mitigation would be obtained prior to the training event. There would be no impacts to surface waters, floodplains, wetlands, and water supplies because training would not occur in areas near these resources. Component projects that would include ground disturbance would be required to include and maintain construction stormwater BMPs.

3.6.2.2 Alternative 2

While Alternative 2 would see an increase in training, it would be a smaller increase than under Alternative 1. Wetlands, floodplains, and other water resources would be minor. BMPs would be implemented to ensure impacts are minor. Short-term impacts to surface water drainage could occur during the training exercise. As with Alternative 1, appropriate stormwater management design and implementation on site would minimize these impacts. There would be no impacts to surface waters, floodplains, wetlands, and water supplies because training would not occur in areas near these resources. In summary, impacts to surface waters and water resources for Alternative 2 would be adverse, minor, and short-term.

3.6.2.3 Alternative 3 (No Action Alternative)

The No Action Alternative would result in no additional impacts to water resources on Fort Drum or the nine-county area. Wetlands would be avoided. The No Action Alternative would not noticeably affect the baseline condition of water resources. Minor increase in sedimentation in local waterways could result from temporary construction activities for training. Fort Drum would utilize standard BMPs to limit the impacts to water resources. The No Action Alternative would not result in uncontrolled erosion/sedimentation and would adhere to all federal, state and local regulatory conditions. No adverse impacts to water resources or wetlands would be expected. Impacts would be adverse, short-term, and minor.

3.7 CULTURAL RESOURCES

Cultural resources are defined as prehistoric or historic districts, sites, buildings, structures, or objects considered important to a culture, subculture, or community for scientific, traditional, religious, or other purposes. They include archaeological resources, historic architectural or engineering resources, and other traditional resources. Section 106 of the National Historic Preservation Act (NHPA) requires federal agencies identify whether any historic properties that are listed or eligible for listing in the National Register

of Historic Places (NRHP) could be affected by their action. The Section 106 consultation is required between federal agencies and the NY SHPO.

3.7.1 Affected Environment

3.7.1.1 Integrated Cultural Resource Management Plan

An inventory of both archaeological and historic resources at Fort Drum are summarized in the Integrated Cultural Resource Management Plan (ICRMP). The ICRMP establishes compliance procedures to properly manage cultural and historical resources, establishing existing conditions and identifying the potential impacts of Fort Drum's mission on them. The ICRMP also establishes a coordination process between Fort Drum and the NY SHPO, the Advisory Council on Historic Preservation, the NPS, Native American tribes, and the interested public. The most recent Fort Drum ICRMP was completed in 2010.

Fort Drum

Fort Drum has completed archaeological inventory of approximately 87 percent of its surveyable territory, excluding the permanent impact areas and the previously developed portion of the Cantonment Area. The archaeological survey identified a total of 891 sites that began with earliest human occupation of the region approximately 13,500 years ago and continued through construction of World War II military training features in the 1940s (U.S. Army, 2013). Fort Drum currently tracks a total of 940 archaeological sites, one historic district with standing structures, and five archaeological districts; and supports management of 13 historic cemeteries (U.S. Army, 2013). Some of the 13 cemeteries are historically significant with burials dating back to the War of 1812 era according to Fort Drum historical records.

There are five designated historic buildings on Fort Drum, and all are in the LeRay Mansion Historic District which was placed in the NRHP in 1974. These buildings include the LeRay Mansion, the LeRay Mansion Farm Manager's House, the LeRay Mansion Servant's Quarters, a possible chapel or icehouse, and an office that currently serves as a garage. In addition to the LeRay Mansion Historic District and buildings, Fort Drum still has hundreds of World War II wood structures. Many of these structures have been rehabilitated and are used for a variety of offices, classrooms, workshops, and storage. Demolition of these structures has been approved by a programmatic agreement between the Department of Defense and the Advisory Council on Historic Preservation (U.S. Army Garrison Fort Drum, 2010). Archaeological sites range from transient paleo-Indian occupations to World War II firing points. Sites occur at a wide range of depths and throughout all the physiographic landforms. Information regarding all known archaeological sites and their attributes on Fort Drum are kept and maintained in a database that can be linked to an associated spatial database in the Geographic Information System.

Fort Drum currently has official consultation partnerships with the Oneida Indian Nation, the St. Regis Mohawk Tribe, and the Onondaga Nation. The tribes have indicated much of Fort Drum was part of their ancestral hunting and fishing lands. There are currently two sites on Fort Drum that have been identified as traditional cultural properties. They include a Haudenosaunee Village site and a feature of aligned stones known as the Calendar site. No objects have been identified as needing to be repatriated at this time (U. S. Army Garrison Fort Drum, 2010).

Nine-County Action Area

In the nine-county Action Area, there are several hundred historic buildings and resources. Most of the registered historic places are located in cities and villages, including Watertown, Syracuse, and Oswego (see Figure 3-14). Highland Park Historic District is a national historic district located at Saranac Lake, town of St. Armand, in Essex County. The district contains 21 contributing buildings and one contributing object. Next to Highland Park Historic District is Berkeley Square Historic District, a national historic district located in Saranac Lake, Franklin County. It consists of 22 contributing buildings. There are a few registered historic resources in Adirondack Park including fire observation stations and churches.

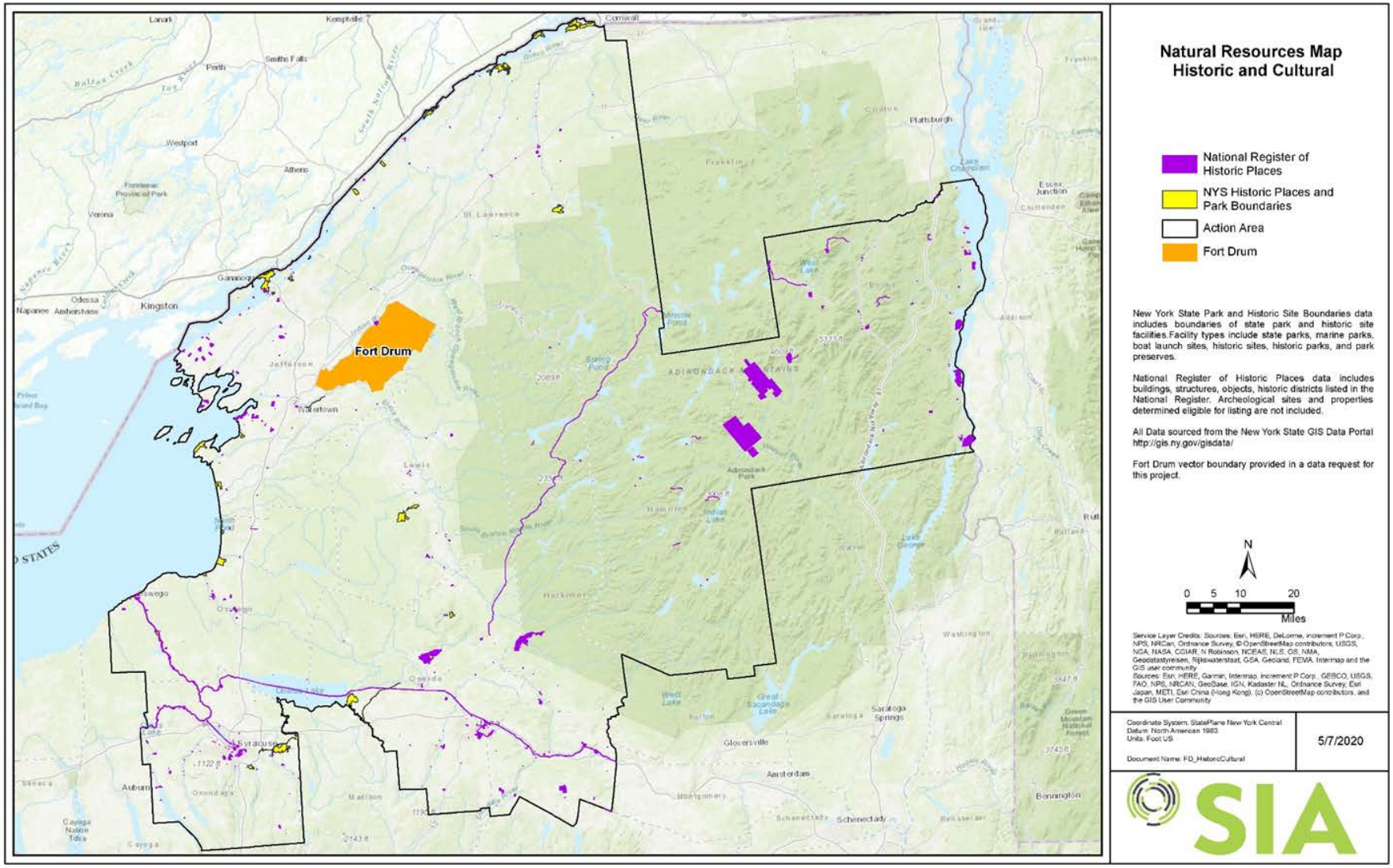


Figure 3-14: Historic and Cultural Areas

Native American Tribes in the Nine-County Action Area

Onondaga Reservation (Onondaga Indian Nation) is an Indian reservation in Onondaga County and lies just south of the City of Syracuse. The Oneida Indian Nation is a federally recognized tribe and is headquartered in Oneida County, where the tribe originated. The St. Regis Mohawk Tribe is located outside of the nine counties in Franklin County. Material culture identified by archaeologists as "St. Lawrence Iroquoian" has been recovered on Onondaga, Oneida, and Mohawk sites. Huron ceramics have also been excavated from villages of these three tribes. The LFA routes currently do not fly over the three Native American reservations so it would be rare for cultural activities to be interrupted by helicopter overflights. Initial consultation with the 3 tribes mentioned above was conducted concurrent with the review of the draft PEA. Once initial consultation is completed, results of that consultation would be included in Appendix A. Consultation with all potentially affected Native American tribes would also be conducted by Fort Drum prior to any training exercises. This would ensure that appropriate measures are taken to avoid or minimize adverse impacts.

3.7.2 Environmental Consequences

For cultural resources, a significant effect is defined as an impact that diminishes or destroys the integrity of an NRHP eligible property or site. This equates to an adverse effect under Section 106 of the NHPA.

3.7.2.1 Alternative 1

Potential impacts to cultural resources include training activities, installation activities that support training, and inadvertent or willful destruction. Fort Drum and the nine-county Action Area contain many culturally and historically important sites. Alternative 1 would not involve any physical disturbance of historic sites as they would be avoided during training exercises. Overflights by aircraft would avoid historic sites and sovereign lands as well. Archaeological resources would not be directly impacted as training would take place in areas where the ground has been disturbed and where no known cultural or archaeological resources exist. Additionally, BMPs are outlined below to prevent adverse impacts to cultural resources and they would be followed by the 10th CAB and 10th SBDE. The Fort Drum Cultural Resources Program will be submitting a letter to the NY SHPO requesting concurrence of the Army's determination of no historic properties adversely effected by Alternative 1.

The types of training conducted by additional units would not change, though some training areas might be used with more frequency or intensity compared with current baseline conditions. Fort Drum would continue to follow the procedures it has in place in order to protect cultural resources. The ICRMP requires site-specific surveys prior to disturbance and provides evaluation criteria, management guidelines, and preservation and treatment strategies to facilitate beneficial impacts on both archaeological and architectural resources. It would not be anticipated that historic buildings would need to be demolished or reconfigured to accommodate more Soldiers as a result of the implementation of Alternative 1. During Maneuver Training, known cultural resource sites would be avoided. However, maneuver training with wheeled and tracked vehicles could have a minor adverse impact on unknown cultural resources in the Training Area. Of the wide range of infantry training activities, digging foxholes, fighting positions, tank trenches, bunkers, and latrines; as well as berm construction pose the greatest risk to archaeological sites and buried cultural resources. Fortunately, during the history of military training at Fort Drum, the Soldiers have preferred to reuse the same positions and as a result, some areas are highly disturbed while others are relatively intact. Sometimes, training locations involve the concentration of vehicles and personnel at specific sites, often for extended periods. This could disturb archaeological sites, especially where digging occurs and vehicles are concentrated.

Minor to moderate impacts are anticipated as a result of the implementation of Alternative 1. Training activities would have a very low potential for adverse effects to historic buildings and/or archaeological resources. There would be no visual impacts to cultural resources within Fort Drum or the vicinity due to the temporary nature of the training. All training activities would avoid known cultural resource sites and

historic structures. If the undertaking has the potential to adversely affect any historic properties, consultation with the SHPO and the Native American Nations would occur. Fort Drum would continue to follow the procedures it has in place in order to protect cultural resources. Review of training locations by the Cultural Resource Manager and tiered NEPA analysis would ensure protection of known and potential cultural resources. Therefore, the impacts to Fort Drum's cultural resources are anticipated to be adverse, short- or long-term, and minor to moderate depending on what is found during training exercises. Implementing appropriate measures would ensure that impacts are minimized and less than significant.

The nine-county Action Area does include the Onondaga Reservation and Oneida Indian Nation. To date no traditional cultural properties have been reported, and it is unlikely that resources considered significant to Native Americans Nations or other traditional communities would be impacted. The LFA routes currently do not fly over the three Native American Nations so it would be rare for cultural activities to be interrupted by helicopter overflights. Fort Drum would continue to avoid these areas during low level flights. Consultation with SHPO and all potentially affected Native American Nations would be conducted by Fort Drum's Cultural Resources Program prior to any training exercises. Once consultation is completed, results of that consultation will be included in Appendix A. (This would ensure that appropriate measures are taken to avoid or minimize adverse impacts).

In the event of an inadvertent discovery of artifacts, human remains, or funerary items during training activities, all ground disturbing activities would stop, and the standard operating procedure (SOP) as outlined in the ICRMP would be followed in coordination with the New York SHPO. If cultural resources are uncovered during training, the Fort Drum Cultural Resources Manager would be notified, and a qualified archaeologist would assess the significance of the cultural remains. If human remains are encountered, the local coroner and law enforcement would be contacted. If the remains are of Native American origin, compliance with the Native American Graves and Repatriation Act regulations would be required, and implementation of Fort Drum's Inadvertent Discovery Agreement with the Oneida Indian Nation would begin along with courtesy contact with the Onondaga Nation and the St. Regis Mohawk Tribe.

3.7.2.2 Alternative 2

Alternative 2 could have a minor impact on known and unknown cultural resources on Fort Drum and the nine-county Action Area, but it would not violate any state or federal regulatory conditions. Although the increase in training exercises proposed under Alternative 2 is less than under Alternative 1, there would still be changes to the amount and duration of training exercises. Therefore, the impacts on cultural resources would be the same as for Alternative 1, which is adverse, short- or long-term, and minor to moderate. Implementing appropriate measures would ensure that impacts are minimized and less than significant.

Best Management Practices and Compliance Measures for Alternatives 1 and 2:

The following BMPs and compliance measures are included in the Fort Drum ICRMP and would limit the potential adverse impacts on the cultural resources on Fort Drum:

- avoid, wherever possible, known cultural resource sites;
- halt construction activities if an archaeological site is discovered during a construction activity,
- survey as appropriate and evaluate archaeological discoveries using the highest standards of scientific excellence in order to make determinations of potential eligibility for sites deemed worthy of protection and/or mitigation;
- conduct review per Section 106 of the NHPA in cooperation with the NYSHPO, the Advisory Council and Native American consultation partners, as appropriate;

- consult with Native American consultation partners in accordance with Section 106 of the NHPA, the American Indian Religious Freedom Act and the Native American Graves Protection and Repatriation Act;
- after consultation and completion of any necessary agreements, mitigate adverse effects to significant archaeological sites through protection methods and/or data recovery as required;
- curate artifacts and associated records in accordance with 36 CFR 79; and
- training plans that call for prescribed burning or mechanized clearing of shrub vegetation in order to spread out vehicular traffic would help protect any possible cultural material as well as preventing further erosion and soil disturbance.

3.7.2.3 Alternative 3 (No Action Alternative)

Impacts to cultural resources under the No Action Alternative would be minor. Activities with the potential to affect cultural resources are monitored and regulated when anticipated through a variety of preventative and minimization measures. Existing LF 95-1 flying rules would remain in effect, and there would be no impacts on Native American cultural resources.

The No Action Alternative would not noticeably affect any of the cultural resources known to exist on the Installation, nor would it violate any state or federal regulations. All known cultural resource sites would continue to be managed in accordance with BMPs outlined in the ICRMP. Newly discovered cultural resource sites would also be managed by the SOPs from the ICRMP. Under the No Action Alternative, impacts to cultural resources would remain unchanged from the current conditions. Impacts to cultural resources would be adverse, short- or long-term, and minor to moderate.

3.8 SOCIOECONOMIC AND ENVIRONMENTAL JUSTICE

This section describes the population and economic activity within the nine counties surrounding Fort Drum: Essex, Hamilton, Herkimer, Jefferson, Lewis, Oneida, Onondaga, Oswego, and St. Lawrence. The socioeconomic attributes of NYS are also provided for comparison. Socioeconomics addresses how the project would affect the social and economic conditions of the area positively or negatively, and environmental justice identifies potentially disproportionate impacts on minority and low-income populations.

3.8.1 Affected Environment

3.8.1.1 Population

As shown in Table 3-10, most of the nine counties in the Action Area have very low populations compared to the state because of their rural nature. New York's population is more than 29 million, and Hamilton County has a population of less than 5,000. Although NYS has experienced more than four percent average annual growth in population from the 2000 Census, the 2015-2017 ACS 5-year estimates that most of the counties within the Action Area have seen minor growth or decline in their population. Jefferson County, which houses Fort Drum, has an average growth rate that is similar to the state.

Table 3-10. Population and Growth

Geography	2000 Population	2017 Population*	Average Annual Growth/Decline Rate
State of New York	**18,976,457**	**19,798,228**	**4.3%**
Essex County, New York	38,851	38,233	-1.6%
Hamilton County, New York	5,379	4,646	-13.6%
Herkimer County, New York	64,427	62,943	-2.3%

Geography	2000 Population	2017 Population*	Average Annual Growth/Decline Rate
Jefferson County, New York	111,738	116,567	4.3%
Lewis County, New York	26,944	26,845	-0.4%
Oneida County, New York	235,469	232,324	-1.3%
Onondaga County, New York	458,336	467,669	2.0%
Oswego County, New York	122,377	119,833	-2.1%
St. Lawrence County, New York	111,931	110,817	-1.0%

*Based on ACS 5-year estimate (U.S. Census Bureau, 2017a)

3.8.1.2 Regional Economy

Based on a report from Fort Drum Regional Liaison Organization, Fort Drum supplies 23 percent of the jobs in Jefferson, Lewis, and St. Lawrence counties creating $1.9 billion revenue for these three counties. In addition to the 19,000 direct jobs from the military operations, there are additional 6,000 indirect jobs in the region to serve this large military organization. According to this report, the state and local taxes collected from these jobs exceeded $400 million (North Country Public Radio, 2020).

Housing characteristics for NYS and the nine counties are presented in Table 3-11. As shown, the percentage of owner-occupied units is much higher than the state in most counties. The percent vacant units in Hamilton County compared to other counties is very high, and the homeownership in this county is also very high at higher than 85 percent owner-occupied units. Compared to the counties in the study area, the state has a low vacancy percentage. The percentages of owner/renter occupied units in Jefferson County are similar to those of the state.

Table 3-11. Housing Demographics

Geography	Total Housing Units	% Vacant units	% Owner-Occupied	% Renter-Occupied
State of New York	**8,255,911**	**11.5**	**54**	**46**
Essex County, New York	26,114	41.6	76	24
Hamilton County, New York	8,885	87.7	84.7	15.3
Herkimer County, New York	33,726	25.3	71.7	28.3
Jefferson County, New York	59,547	27.4	55.6	44.4
Lewis County, New York	15,519	34	78	22
Oneida County, New York	104,998	13.8	66.6	33.4
Onondaga County, New York	206,707	10.1	64.9	35.1
Oswego County, New York	54,304	15.5	72.6	27.4
St. Lawrence County, New York	52,908	21.3	72.5	27.5

Source: ACS 2013-2017 5-year Estimate (U.S. Census Bureau, 2017b)

As shown in Table 3-12, Onondaga and Oneida counties have the largest labor forces in the region, with more than 200,000 and 100,000 individuals, respectively, in the labor force. New York has an annual unemployment rate of 4.7 percent, which is the same as Onondaga County but lower than all other eight counties within the study area. Table 3-12 shows the total labor force and annual unemployment in 2017 for all nine counties and New York.

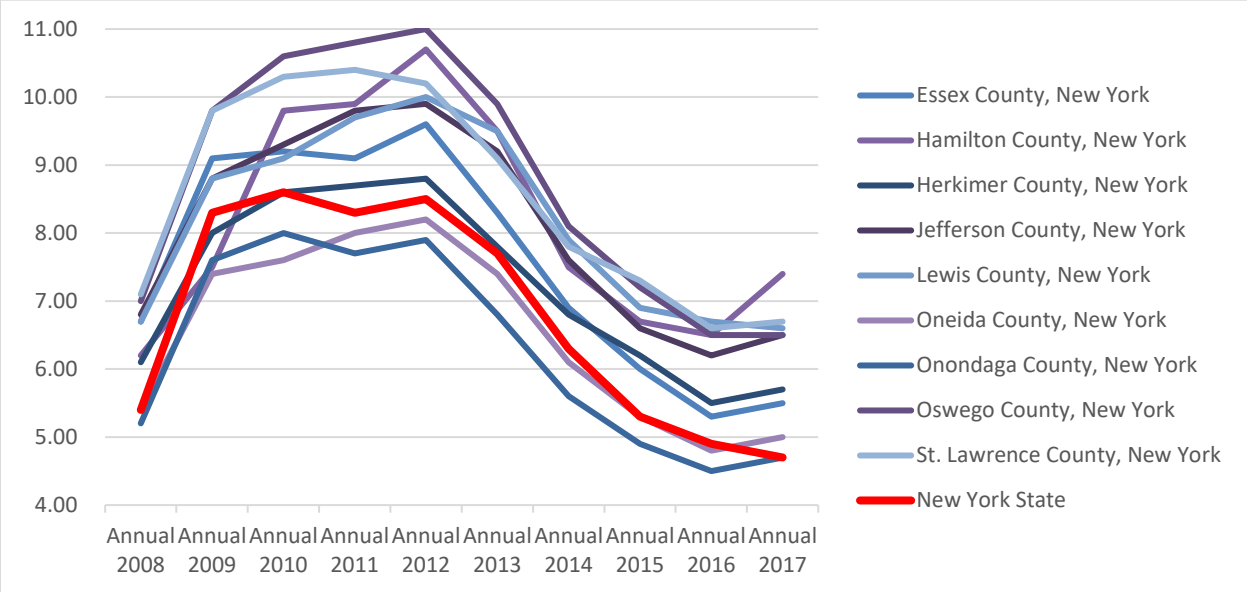
Table 3-12. Total Annual Labor and Unemployment - 2017

Geography	Total Labor Force in 2017	Annual Unemployment rate 2017
State of New York	**9,664,773**	**4.7**
Essex County, New York	17,138	5.5
Hamilton County, New York	2,313	7.4
Herkimer County, New York	27,981	5.7
Jefferson County, New York	44,926	6.5
Lewis County, New York	11,583	6.6
Oneida County, New York	101,610	5.0
Onondaga County, New York	219,386	4.7
Oswego County, New York	52,631	6.5
St. Lawrence County, New York	43,249	6.7

Source: (U.S. Bureau of Labor Statistics, 2020)

The unemployment rate has fluctuated significantly in the past ten years due to the national recession. As shown in Figure 3-15, the unemployment rate has increased to more than ten percent for some counties, and only recently has returned to the lower levels described in Table 3-12. Figure 3-15 shows the unemployment fluctuation over the past ten years for all nine counties compared to NYS. All nine counties follow similar trends in unemployment.

Figure 3-15: Ten-year Unemployment Rate (2008-2017)



Source: (U.S. Bureau of Labor Statistics, 2020)

3.8.1.3 Environmental Justice

Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, directs that federal programs, policies, and activities not have disproportionately high and adverse human health and environmental effects on minority and low-income populations. The general purposes of this executive order are as follows:

- focus the attention of federal agencies on human health and environmental conditions in minority communities and low-income communities with the goal of achieving environmental justice;
- foster nondiscrimination in federal programs that substantially affect human health or the environment; and
- improve data collection efforts on the impacts of decisions that affect minority communities and low-income communities and encourage more public participation in federal decision making by ensuring documents are easily accessible (e.g., readily available in multiple languages).

To identify the environmental justice communities within the study area, demographic data from the U.S. Census Bureau's ACS 5-year estimates (2013-2017) were used to identify whether high minority and/or low-income populations reside within the nine counties in the study area. Statistics from the counties were compared to those from the state to determine if additional analysis for disproportionate impacts is required. The minority populations in the analysis per CEQ's guidance include:

- Black or African American (a person having origins in any of the black racial groups of Africa);
- Asian (a person having origins in any of the original peoples of the Far East, Southeast Asia, the Indian subcontinent);
- American Indian and Alaskan Native (a person having origins in any of the original people of North America, South America, including Central America, and who maintains cultural identification through tribal affiliation or community recognition);
- Native Hawaiian or Other Pacific Islander (people having origins in any of the original peoples of Hawaii, Guam, Samoa, or other Pacific Islands); and
- Hispanic or Latino (a person of Mexican, Puerto Rican, Cuban, Central or South American, or other Spanish culture or origin, regardless of race).

Hispanic or Latino is classified as an ethnicity rather than a race in the U.S. Census to avoid double counting, because a person who self-identifies as Hispanic may be of any race. For the purposes of an environmental justice analysis, the population of concern is any individual that does not identify as either white alone or having Hispanic origin.

Table 3-13 shows the number and percentage of racial minority and Hispanic or Latino individuals within each county and the state. As shown, all counties have a very low percentage of minority individuals compared to NYS. A minority population exists where the percentage of minorities in an affected area either exceeds 50 percent or is meaningfully greater than the general population. Based on the data presented in the table, none of the counties meet this threshold and are therefore not identified as environmental justice communities on the basis of minority population.

Per the CEQ's Environmental Justice Guidance under NEPA, an environmental justice community is identified on the basis of income based on the number of individuals whose income falls below the poverty line. The Census Bureau's annual poverty measure uses a set of income thresholds that vary by family size and composition to determine the households that live in poverty. If a household's total income falls below

the threshold, then that household and every individual in it is defined as being in poverty. In 2017, the weighted average poverty threshold for a family of four was an annual income of $25,000.

Table 3-13. Total Minority population -2017

Geography	Black or African American	American Indian and Alaska Native	Asian	Native Hawaiian and Other Pacific Islander	Percent racial minority	Hispanic or Latino	Percent Hispanic or Latino
State of New York	**3,100,685**	**77,130**	**1,652,846**	**7,937**	**24.4**	**8,726,665**	**44**
Essex County, New York	1,220	79	173	9	3.9	3,146	8.2
Hamilton County, New York	36	1	1	1	0.8	208	4.5
Herkimer County, New York	786	195	330	88	2.2	3,276	5.2
Jefferson County, New York	6,753	710	1,792	329	8.2	20,909	17.9
Lewis County, New York	198	56	119	23	1.5	1,116	4.2
Oneida County, New York	14,636	397	9,323	64	10.5	40,472	17.4
Onondaga County, New York	52,493	2,503	18,112	104	15.7	106,866	22.9
Oswego County, New York	1,199	186	833	10	1.9	6,832	5.7
St. Lawrence County, New York	2,637	762	1,215	63	4.2	8,767	7.9

Source: ACS 2013-2017 5-year Estimate (U.S. Census Bureau, 2017c)

Table 3-14 shows the total population and the population below poverty level for all nine counties and NYS for 2017 based on American Community Survey (ACS) 2013-2017 5-year estimate. Overall, most counties within the study area have a low percentage of low-income populations. As shown Essex County has the lowest percentage of individuals whose incomes fell below the poverty level at 8.9 percent. St. Lawrence County has the highest percentage of low-income individuals at 19.4 percent.

Table 3-14. Total populations below poverty level within 12 months - 2017

Geography	Total population for whom poverty status is determined	Below poverty level	Percent below poverty level
State of New York	**19,285,448**	**2,908,471**	**15.1**
Essex County, New York	35,631	3,170	8.9
Hamilton County, New York	4,608	446	9.7
Herkimer County, New York	61,769	9,201	14.9
Jefferson County, New York	109,663	16,189	14.8

Geography	Total population for whom poverty status is determined	Below poverty level	Percent below poverty level
Lewis County, New York	26,502	3,765	14.2
Oneida County, New York	219,770	36,487	16.6
Onondaga County, New York	448,918	67,057	14.9
Oswego County, New York	114,419	20,978	18.3
St. Lawrence County, New York	98,799	19,142	19.4

Source: ACS 2013-2017 5-year Estimate (U.S. Census Bureau, 2017d)

Low-income populations are defined as those counties where the percentage of the population considered below poverty level to be greater than or equal to the percentage of the population with low incomes in NYS. The study area as a whole has a lower percentage of low-income households than the state. However, because poverty levels in three counties out of the nine counties is higher than the state, those counties are considered environmental justice communities of concern for low-income populations.

Overall, all counties analyzed, except for Oswego (18.3 percent), St. Lawrence (19.4 percent), and Oneida (16.6 percent), include relatively low percentage of low-income populations. All the counties include very low percentage minority populations; therefore, the study area is not considered an environmental justice area.

3.8.2 Environmental Consequences

The impacts of a project within minority and low-income populations may be different from impacts on the general population because of various social and cultural elements. However, because the study area as a whole does not include low-income and minority population above the state threshold, there would be no disproportionately high and adverse impacts to these populations resulting from this project.

For an impact to be considered an environmental justice impact, the affected minority and/or low-income population must be disproportionately affected by the project's negative impacts. The proposed project would have indirect benefits to any low-income populations with economic growth effects and through improved socioeconomic conditions such as potential employment or business opportunities.

However, because three of the nine counties within the study area show higher percentages of low-income population than the threshold (state percentage), special attention must be paid to any operations within those counties to prevent any potential disproportionately high and adverse impacts to the low-income groups residing within those counties.

The following sections focus on impacts of the Proposed Action and its alternatives on socioeconomics conditions.

3.8.2.1 Alternative 1

Under Alternative 1, six times a year Fort Drum would conduct up to a 14-day training event, where Soldiers would travel using large numbers of vehicles convoys from Fort Drum to one of the many locations within the nine-county study area. Any temporary construction needed to accommodate these training exercises would be performed by the Soldiers as part of the training. If the sites selected for the training area are private, the owner would be compensated for the lease. Therefore, economic impacts would be beneficial, short-term, and negligible.

3.8.2.2 Alternative 2

Under Alternative 2, two times a year Fort Drum would conduct up to a 14-day training event. The socioeconomic impacts of Alternative 2 would be very similar to those of Alternative 1. The main difference is that, because Alternative 2 includes events only twice a year instead of six, it would provide slightly less benefits to the area compared to Alternative 1. Overall, impacts would be beneficial, short-term, and negligible.

3.8.2.3 Alternative 3 (No Action Alternative)

Under Alternative 3, the social and economic conditions of the area would remain unchanged from the current conditions. Impacts would be beneficial, short-term, and negligible.

3.9 TRANSPORTATION AND TRAFFIC

3.9.1 Affected Environment

3.9.1.1 Traffic

The nine-county action or study area spans from Interstate (I)-87 (The Northway) to the east, the New York (NY) 37 corridor to the north along the St Lawrence River, the I-81 corridor to the west, and the I-90 (New York Thruway) to the south. The Federal Highway Administration (FHWA) has designed a functional classification of roadways to define a role that a particular roadway segment plays in serving the flow of traffic through the network (Federal Highway Administration, 2017a).

The study area contains the following seven FHWA-designated functional classified system of roads that connect Fort Drum: Interstate, other freeways and expressways, principal arterial, minor arterial, major collector, minor collector, and local roadways (see Figure 3-16). Interstates, freeways, and expressways provide a high level of travel capacity and carry longer distance travel between regions and states by offering the highest speed limits and limiting the opportunities to enter and exit the roadway (Federal Highway Administration, 2017a). This class of roads also contains bridges designed to carry trucks and passenger cars. FHWA has designed Interstates as part of the Strategic Highway Network (STRAHNET), a primary designation to serve military transport needs (Federal Highway Administration, 2017b). Freeway and expressway classification are one level below Interstates and serve a more local connection at the similar level as Interstates. Interstates, freeways, and expressways are included as principal arterials. Other principal arterial network represent that contains roadways that connect Interstates to city centers and provide a secondary connection between cities not served by Interstates.

FHWA designates Interstates, freeways, expressways, and arterials as part of the National Highway System (NHS). The NHS consists of roadways important to the nation's economy, defense, and mobility (Federal Highway Administration, 2017b). Together the NHS and STRAHNET represent the most appropriate roadway network for a military convoy to use for most of the trip. The last few miles may require access to lower functional classified roadways such as minor arterials, major collectors, minor collectors. These roadways are intended to connect the principal arterial system to the destination or a local roadway serving a final destination.

The following section describes the roadways designated by FHWA as part of the NHS, spanning the nine-county study area containing the functional classification, Annual Average Daily Traffic (AADT) volume, posted speed limit, number of travel lanes, volume to capacity (V/C) ratio, general directional orientation, and city connections. The AADT is the daily traffic volume averaged by 365 days of data (see Figure 3-17). The V/C ratio is a comparison between the actual road segment volume surveyed and the estimated road segment capacity. If the ratio equals or exceed 1.0, the roadway operation is considered oversaturated or failing. Roadway capacity is calculated based on the travel lane(s) width, right shoulder width, number of through lanes, and percent trucks (Federal Highway Administration, 2017c). This assessment excludes intersections operations and is focused only on roadway links between major intersections. The source for the classification, NHS and STRAHNET designation, AADT, and speed limit is the 2019 NYS Roadway

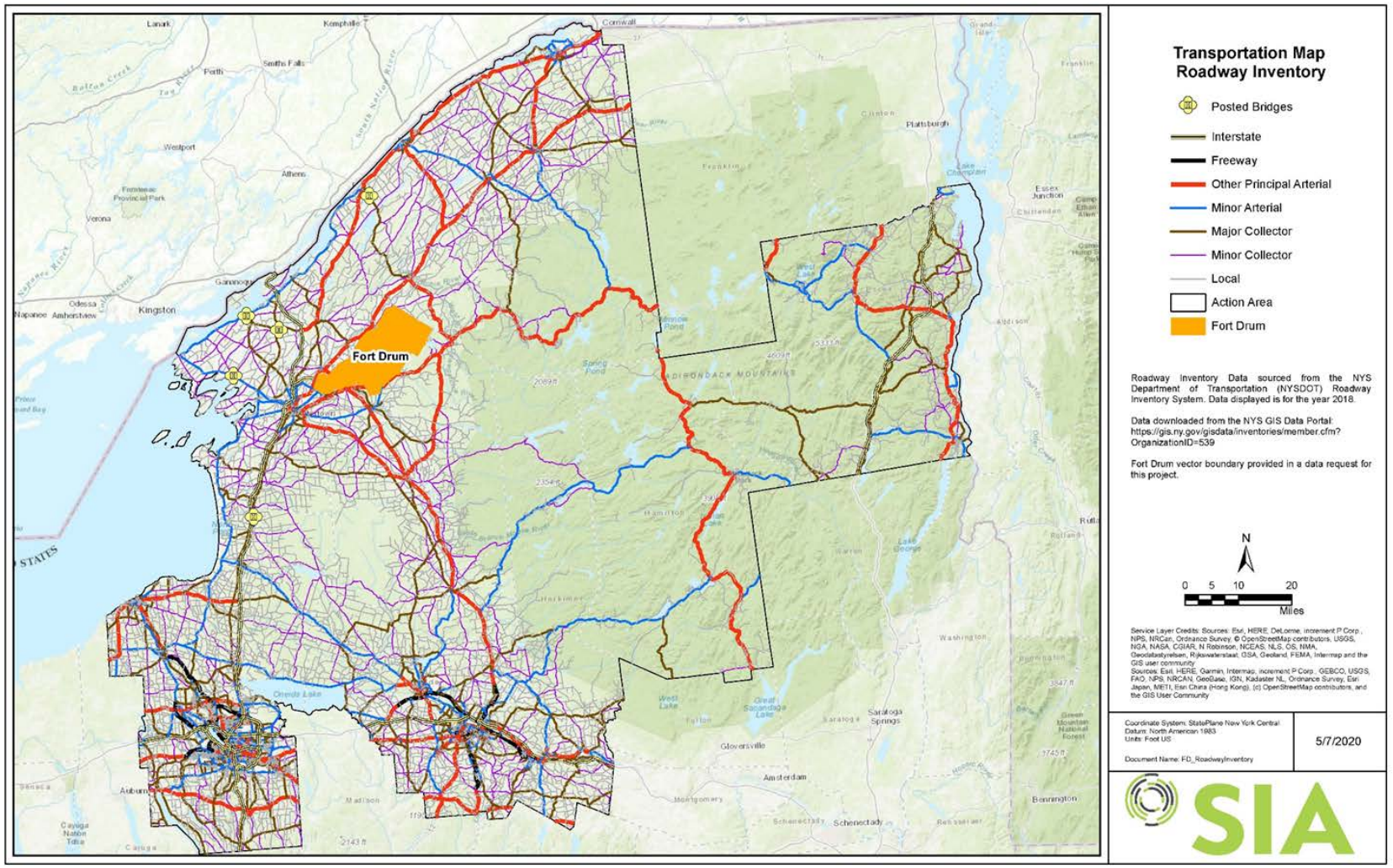


Figure 3-16: Roadway Inventory

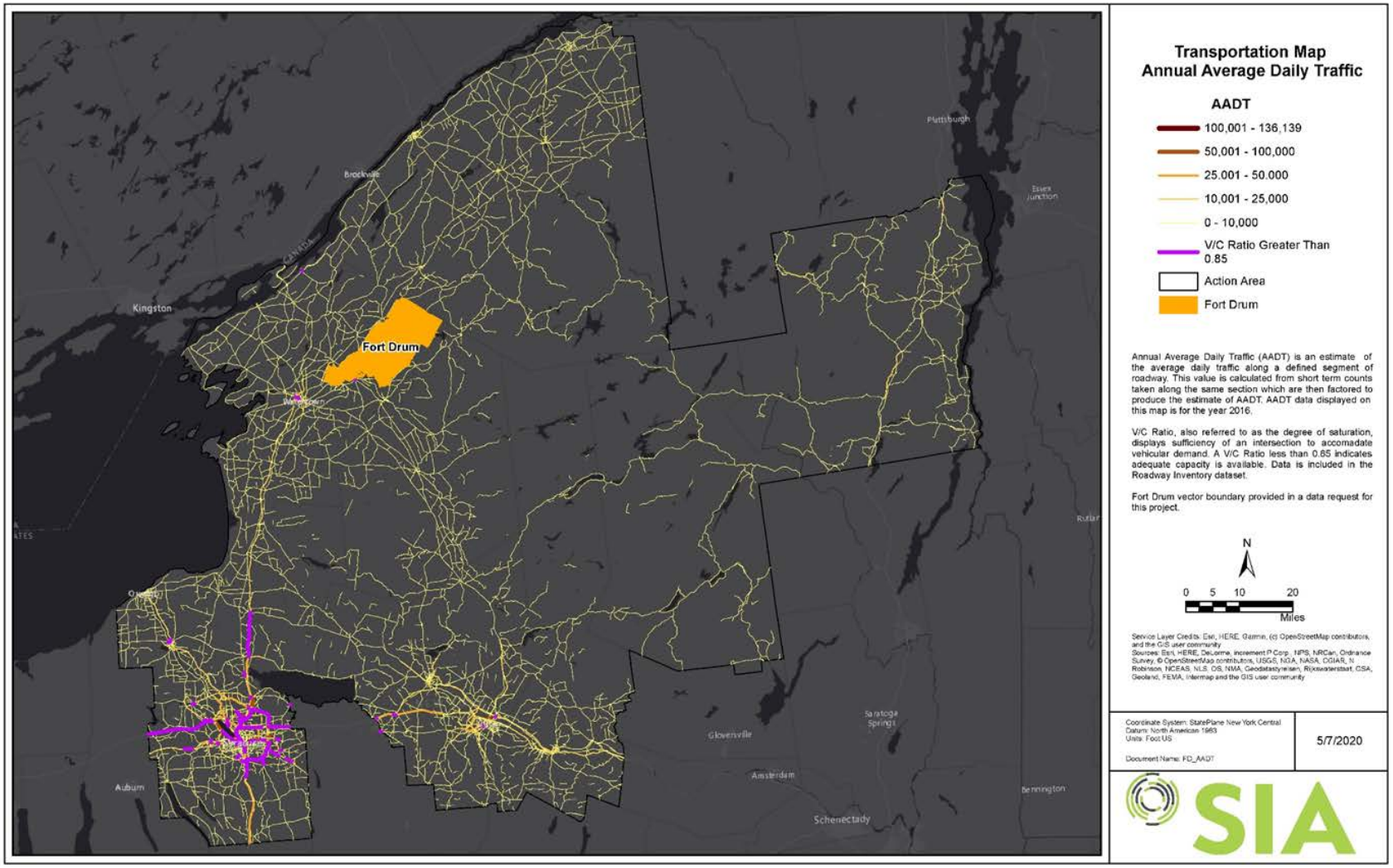


Figure 3-17: Annual Average Daily Traffic

Inventory System Geodatabase on the NYS Department of Transportation (NYSDOT) website (https://gis.ny.gov/gisdata/inventories/details.cfm?DSID=1302), downloaded on December 18, 2019. Because one of the criteria for selecting possible exercise locations is rural areas outside city boundaries, only routes designated as NHS that serve areas outside of Syracuse and Utica are listed in the following section.

I-81: Interstate classified roadway orientated north-south connecting Canadian border to the north at the St. Lawrence River and Syracuse to the south. The speed posted is 65 miles per hour (mph) for a majority of the segments, and the AADT varies from over 42,000 near Syracuse to under 7,000 near the Canadian border. Near Fort Drum, the AADT is over 24,000 vehicles per day. The V/C ratio exceeds 1.0 within a 15-mile radius of Syracuse. I-81 has two travel lanes north of Syracuse, three travel lanes through Syracuse, and is designated as part of the NHS and STRAHNET.

I-87: Interstate classified roadway orientated north-south connecting Plattsburgh to the north and I-90 in Albany to the south. The posted speed is 65 mph, and the AADT varies between 6,900 and 8,900 vehicles per day. The V/C ratio is not exceeded within the study area. I-87 has two travel lanes in each direction and is designated as part of the NHS and STRAHNET.

I-481/ NY 481: Interstate, expressway, and other principal arterial classified roadway orientated north-south connecting NY 104 at Oswego to the north and I-81 at Syracuse to the south. The posted speed is 55 mph north of Fulton and 65 mph south of Fulton, and the AADT is 38,000 vehicle per day in the Syracuse area and 12,000 vehicles per day in the Oswego area. The V/C ratio is exceeded along this route between I-81 and I-90 northeast of Syracuse and between I-690 and I-81 southeast of Syracuse. I-481/NY 418 has two travel lanes in each direction south of Fulton and one travel lanes in each direction north of Fulton. The entire route is designated as part of the NHS, and the Interstate portion is designated as a part of the STRAHNET.

I-781: Interstate classified roadway orientated east-west connecting I-81 to the west and the Fort Drum to the east. The posted speed varies between 55 mph to 65 mph and the AADT is 8,925. The V/C ratio is not exceeded along this route. I-781 has two travel lanes in each direction and is designated as part of the NHS and STRAHNET.

US-11: Other principal arterial classified roadway orientated southwest-northeast connecting downtown Watertown to the southwest and Potsdam to the northeast. The route continues south of Watertown as a major collector paralleling I-81 and thus would not be a viable route for the actions. The posted speed is 55 mph outside the town centers along the route, and the AADT varies between 5,000 and 9,000 vehicles per day. The V/C ratio is not exceeded along this route segment. US 11 has one travel lane in each direction for most of the route and is designated as part of the NHS.

US-20: Other principal arterial classified roadway oriented east-west connecting NY 28 near Springfield to east and Auburn to the west. The posted speed is 55 mph outside the town centers along the route and the AADT varies between 1,900 and 9,000 vehicles per day. The V/C ratio is not exceeded along this route segment. US 20 has one travel lane in each direction for most of the route and is designated as part of the NHS.

NY-3: Other principal arterial classified roadway orientated east-west connecting Saranac Lake (near Lake Placid) to the east and downtown Watertown to the west. The route continues south of Watertown parallel to I-81 as a minor arterial, thus would not be a viable route for the actions. The posted speed is 55 mph outside the town centers along the route and the AADT varies between 1,200 and 7,000 vehicles per day. The V/C ratio is not exceeded along this route segment. NY 3 has one travel lane in each direction and is designated as part of the NHS (except for a segment that travels through Carthage). For a five mile stretch north of Carthage, the other principal arterial designed route follows NY 3A instead of NY 3 and is designated as part of the NHS. NY 3 is designated as a minor arterial between Carthage and the intersection of NY 3A and would not be a viable route for the actions.

NY-12 (excludes NY-12B, NY-12D, NY-12E, or NY-12F): Other principal arterial classified roadway orientated northwest-southeast connecting downtown Watertown to the northwest and Utica to the southeast. The approach to Utica is classified as an expressway/freeway. The route continues south of Utica I-81 as an expressway and other principal arterial. The route also continues northwest of Watertown as a minor arterial and loops back to I-81 near the Canadian border. This segment might be used to access the Clayton area. The posted speed is 55 mph outside the town centers along the route, and the AADT varies between 2,100 and 11,000 vehicles per day. The V/C ratio is not exceeded along this route segment. NY 12 has one travel lane in each direction and is designated as part of the NHS.

NY-26: Other principal arterial classified roadway orientated north-south connecting US 11 at Evan Mills to the north and NY 12 at Lowville to the south and travels through Fort Drum. The posted speed is 55 mph outside the town centers along the route and the AADT varies between 3,300 and 7,000 vehicles per day. The V/C ratio is exceeded along this route segment in the vicinity of NY 3 at Great Bend. NY 26 has one travel lane in each direction and is designated as part of the NHS.

NY-30: Other principal arterial classified roadway orientated north-south connecting NY 3 at Malone to the north and Northville to the south. The posted speed varies between 40 and 55 mph and the AADT is 600 vehicles per day. The V/C ratio is not exceeded along this route segment. NY 30 has one travel lane in each direction and is designated as part of the NHS.

NY-37: Other principal arterial classified roadway orientated southwest-northeast connecting NY 411/I-81 to the southwest and Massena to the northeast. The route continues south of NY 411 as a major collector, thus would not be a viable route for the actions. The posted speed is 55 mph outside the town centers along the route, and the AADT varies between 3,000 and 5,000 vehicles per day. The V/C ratio is not exceeded along this route segment. NY 37 has one travel lane in each direction and is designated as part of the NHS.

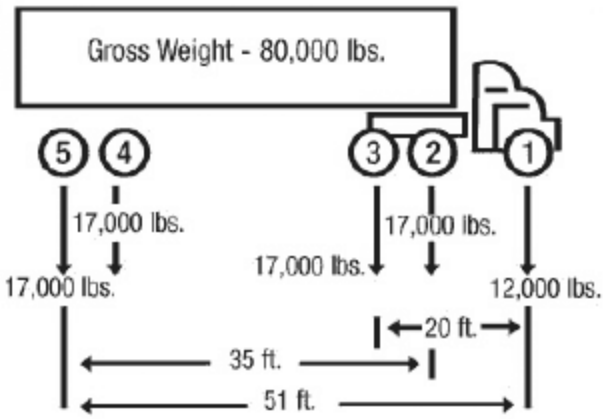
NY-56: Other principal arterial classified roadway orientated north-south connecting NY 37 at Massena to the north and US 11 at Potsdam to the south. The posted speed is 55 mph outside the town centers along the route, and the AADT varies between 4,800 and 7,400 vehicles per day. The V/C ratio is not exceeded along this route segment. NY 56 has one travel lane in each direction and is designated as part of the NHS.

NY-104: Other principal arterial classified roadway orientated east-west connecting I-81 at Maple View to the east and NY 34 at Hannibal to the west. The posted speed is 55 mph outside the town centers along the route, and the AADT varies between 3,900 and 5,900 vehicles per day. The volume to capacity ratio is not exceeded along this route segment. NY 104 has one travel lane in each direction and is designated as part of the NHS.

NY-812: Other principal arterial classified roadway orientated north-south connecting NY 37 at Ogdensburg to the north and NY 12 at Lowville to the south. The posted speed is 55 mph outside the town centers along the route, and the AADT varies between 1,100 and 3,300 vehicles per day. The V/C ratio is not exceeded along this route segment. NY 812 has one travel lane in each direction and is designated as part of the NHS.

3.9.1.2 Bridges

Bridge structural conditions are an important component of the FHWA NHS-designated roadway system. Bridges are designed to accommodate a gross weight up to 80,000 pounds, spread across five axles where the distance between the first and fifth axle is 51 feet and the distance between the second and fifth axle is 35 feet (Federal Highway Administration, 2019). The first axle is at the front of the truck, the second axle is under the front of the trailer, and the fifth axle is at the rear of the trailer. Figure 3-18 illustrates the maximum bridge designed axle to weight distribution.



Source: (Federal Highway Administration, 2019)

Figure 3-18: Interstate Bridge Axle to Weight Distribution

NYSDOT allows trucks up to 102,000-pound maximum weight with the appropriate number of axles to drive over its bridges, but they must carry an approved NYSDOT overweight permit (New York State Department of Transportation, n.d.). NYSDOT provides a snapshot in time of the bridges with posted overweight restrictions. Based on the NYSDOT-maintained interactive posted bridges map, NYSDOT has issued overweight restrictions for the following bridges within the study area (New York State Department of Transportation, n.d.):

1. US 11 crossing the CSX St. Lawrence Sub between Mannsville and Laconia;
2. NY 3 crossing a Black River tributary east of the intersection with NY 3A east of Deferiet, adjacent to Fort Drum;
3. NY 12E crossing the Chaumont River in Chaumont and crossing the French Creek in Clayton;
4. NY 180 crossing the Chaumont River in Orleans; and
5. NY 58 crossing the Oswegatchie River northwest of Gouverneur and crossing a creek south of Morristown.

The locations listed above are along minor arterials and major collectors and not part of the FHWA NHS-designated network.

3.9.1.3 Bicycle Network

The nine-county study area contains six bicycle routes serving the greater Watertown, Syracuse, and Utica area. The bicycle routes either parallel a linear water feature, roadway, or shoreline. The source for the trail name, paved status, and mileage is from the 2018 NYS Bicycle Routes Geodatabase available on the NYS website (https://gis.ny.gov/gisdata/inventories/details.cfm?DSID=1358), downloaded on December 18, 2019.

The Seaway Trail is a paved 149-mile scenic byway that parallels the shoreline of Lake Ontario. The trail begins at Lakeview Wildlife Management Area near Ellisburg and follows NY 12 and NY 37 to Massena. Bicyclists must traverse NY 37 along the northern stretch of the trail and NY 12 on the remaining sections.

The Olympic Trail is a paved 168-mile scenic byway that parallels the NY 3 corridor. The trail begins at Sackets Harbor at the junction of the Seaway Trail and follows NY 3 through Watertown to the east to Lake Placid, then continues north to Lake Champlain intersecting with the State Bike Route 11 Trail. Bicyclists must traverse NY 3 along most of the trail between Watertown and Saranac Lake.

The State Bike Route 11 Trail is a paved 316-mile route that parallels the US 11 corridor. The trail begins south of Syracuse near Binghamton and follows US 11 to the north through Watertown to Champlain near the Canadian border, intersecting with the Olympic Trail. Bicyclists must traverse NY 11 along the trail through the study area.

The Black River Trail is a paved 84-mile route that parallels the NY 12 and NY 812. The trail begins in Boonville and follows NY 12 to NY 812 north through Lowville to Ogdensburg and crossing the St. Lawrence River into Canada. Bicyclists must traverse NY 12 along the south piece of the trail and NY 812 along the remaining piece of the trail north of Lowville.

The State Bike Route 5 Trail is a paved 358-mile route that parallels NY 5. The trail begins in Niagara Falls and follows several routes across the state passing through Syracuse and Utica to New Lebanon at the Massachusetts border. Bicyclists must traverse several roadways between Syracuse and Utica.

The Erie Canal Trail is a paved 124-mile route that parallels NY 5. The trail begins in East Syracuse and follows the Erie Canal through Utica to Amsterdam. A majority of the trail is on its own right-of-way, but bicyclists must cross over other roadways and traverse a number of routes along segments not on their own right-of-way.

3.9.1.4 Railroads

The nine-county Action Area contains railroads operated by CSX, short lines, and state operated lines (see Figure 3-19). At-grade crossings could pose an issue for the Proposed Action. The source for the railroad line name and operator is from the 2013 NYS Railroad Lines Geodatabase available on the NYS website (https://gis.ny.gov/gisdata/inventories/details.cfm?DSID=904), downloaded on December 18, 2019.

CSX Rail operates several lines that crisscross the study area. They operate the St. Lawrence sub that travels from Syracuse to Massena. Two at-grade crossings exist, one in Canton where the CSX line crosses US 11 and a second near Hewittville where the CSX line crosses NY 56. CSX operates the Carthage Secondary and has one at-grade crossing over NY 3/3A in Carthage. Two private lines that are spurs off CSX mainlines are operated by CSX and contain at-grade crossings. One is located along a private sub line off the St. Lawrence sub CSX line serving the private manufacturing facility and crosses US 11 west of Gouverneur. A second at-grade crossing exists off the CSX Fulton sub line north of Fulton where the tracks cross NY 481.

The New York and Ogdensburg Railroad (NYOG) operates spur lines off the CSX line. The spur between Norwood and Ogdensburg has an at-grade crossing in Ogdensburg that crosses NY 37. The same operator also operates a spur line between Norwood and Waddington with an existing at-grade crossing in Norfolk across NY 56.

The Adirondack Railroad operates from a junction with the Mohawk Adirondack and Northern railroad north of Utica. One at-grade crossing exists in Tupper Lake and crosses NY 3.

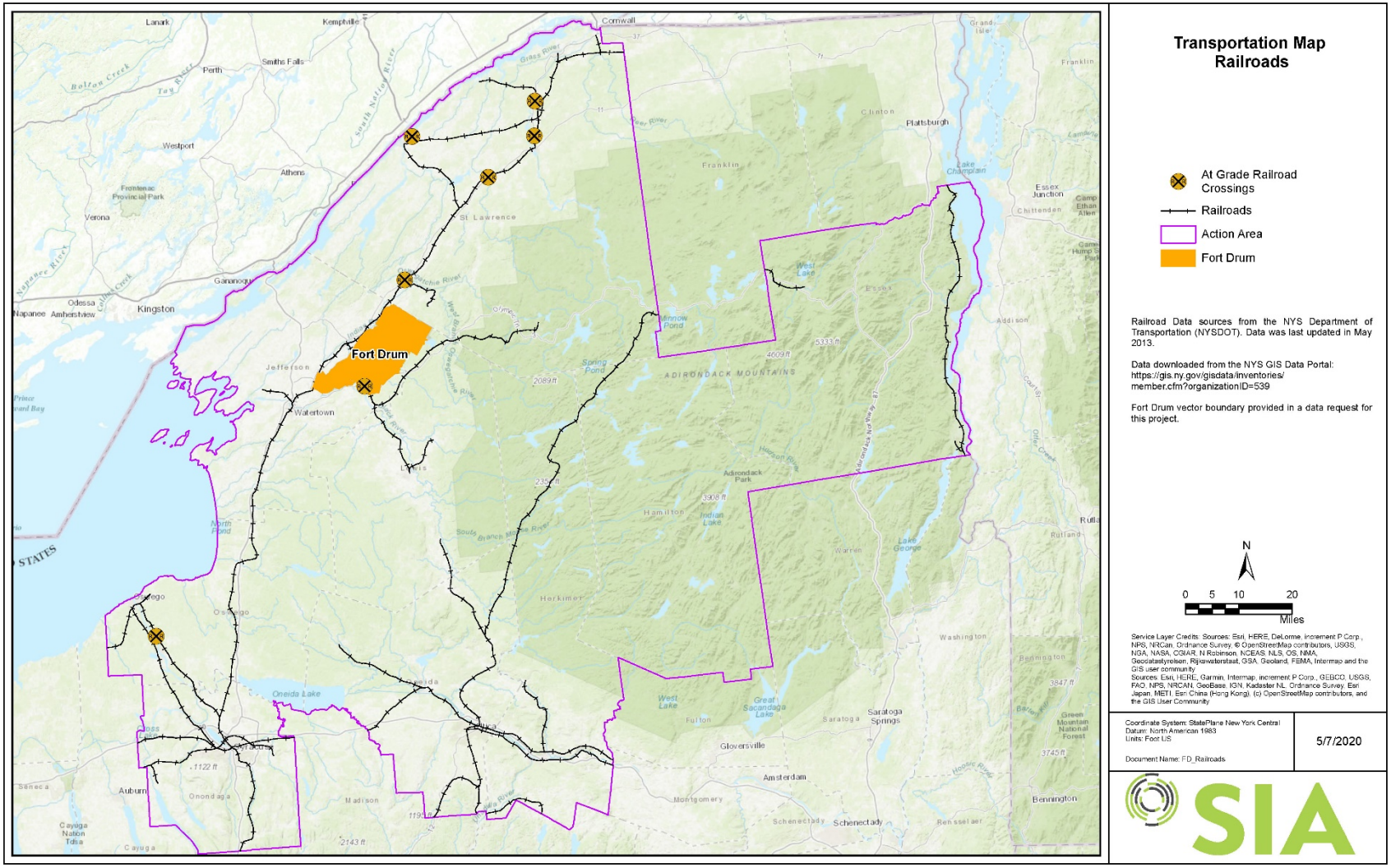


Figure 3-19: Railroads

3.9.2 Environmental Consequences

3.9.2.1 Alternative 1

Under Alternative 1, six times a year Fort Drum would conduct up to a 14-day training event, during which Soldiers would travel using vehicle convoy from Fort Drum to selected locations within the nine-county study area. The 14-day training event would be followed by an up to seven-day period to return the property to its condition prior to the exercise. It is assumed that the military convoys would travel from Fort Drum and the training site via roadways designated as part of the NHS. The last mile or two might also include non-NHS designated routes, but those routes would be kept to a minimum. The multiple military convoys traveling throughout the nine-county area along the NHS-designated roadways would add vehicle trips to the network and affect links that are currently experiencing volumes exceeding capacity (V/C ration equal or greater than 1.0). They would also affect NHS-designated roadways experiencing volumes where 10 percent more volume could exceed the capacity. Given the programmatic nature of this evaluation, 90 percent of capacity or a 0.9 V/C ratio might be enough to increase the volume to be equal or greater than the roadway designed capacity.

The following NHS-designated roadway segments would operate at or exceed capacity if the military convoys were added to the network:

1. NY 26 near the intersection of NY 3 northeast of Watertown adjacent to Fort Drum;
2. I-81 between NY 49 and NY 32 near Mallory;
3. I-481 between I-81 and NY 298 northeast of Syracuse;
4. I-481 between I-690 and I-81 near Dewitt;
5. I-481 between NY 49 and Fourth Street in Fulton; and
6. I-81 through downtown Syracuse.

NHS-designated roadways operating near the 90 percent threshold might be affected by the increase in vehicle trips. The following roadway segments could operate at capacity if the military convoys were added to the network:

1. NY 12 between I-81 and Watertown Center;
2. I-81 between NY 32 and NY 69 near Parish;
3. I-81 between I-481 and Onondaga County Line near Tully; and
4. I-481 between US 11 and I-81 in Syracuse.

If a military convoy destined to a training site includes an overweight truck, the Army can apply for a NYSDOT permit, assuming the weight does not exceed the maximum bridge limit. If the travel route crosses any of the bridges with overweight restrictions along US 11, NY 3, NY 12E, NY 58, and NY 180, then a new route would need to be assigned to avoid these restricted bridges. Because these restricted bridges are not located along the NHS-designated network, the only reason to cross these bridges would be to access a training site located along these specific routes.

All bicycle trails within the study area cross the NHS-designated roadways in numerous locations in the study area. Some trails such as the Erie Canal Trail, travel on their own right-of-way and cross the NHS-designated roadways at intersections, while other trails, such as the Olympic Trail, share the pavement with the NHS-designated roadways.

At-grade railroad crossings along the NHS-designated roadways currently can cause vehicle delays. An addition of vehicles from a military convoy would add to the length of the queue for vehicles waiting to

clear the railroad crossing after the train has passed. The following railroad mainlines have at-grade crossings that would be affected by the increased vehicle volumes:

1. CSX at US 11 in Canton; and
2. CSX at NY 56 in Hewittville.

The following railroad subs (less trains than mainlines) have at-grade crossings that could be affected by the increased vehicle volumes:

1. NYOG at NY 37 11 in Ogdensburg;
2. NYOG at NY 56 in Norfolk;
3. CSX at NY 3/3A;
4. CSX at US 11 at Gouverneur;
5. CSX at NY 481 at Fulton; and
6. Adirondack Railroad at NY 3 in Tupper Lake.

Adding vehicle trips to the study area roadway network would affect the roadway operations based on an increase in vehicle volume and potential longer delays to clear at-grade railroad crossings after a train passes. The additional vehicles would also increase bicycle conflicts with vehicles along bicycle trails that cross the NHS-designated roadways. The shortest convoy travel route to a training site might not be feasible if the route is proposed to cross a restricted overweight bridge and at least one vehicle in the convoy is overweight based on the number of axles and their spacing. This could require a longer, more circuitous route, thus adding more traffic to more of the study area roadway network. Therefore, under Alternative 1, there would be adverse, short-term, and minor to moderate impacts to transportation reflecting the addition of vehicles destined to the temporary training sites.

Potential mitigation measures to avoid or reduce transportation impacts would include the following:

- schedule the military convoys to travel between Fort Drum and the training sites during off-peak daytime travel hours. This would reduce traffic along the NHS designated roadways and reduce the potential delays for at-grade railroad crossings;
- develop travel routes that remain on the Interstate system as much as possible and avoid town/city centers; and
- avoid using overweight trucks as part of the military convoy.

3.9.2.2 Alternative 2

Under Alternative 2, two times a year Fort Drum would conduct up to a 14-day training event, where Soldiers would travel using vehicle convoy from Fort Drum to selected locations within the nine-county study area. The impacts to roadways, bicycles, and delays caused by at-grade railroad crossings would be very similar to Alternative 1. In addition, detours due to overweight trucks included in the convoys would also be similar to Alternative 1. The primary difference would be the number of times the impacts would affect the study area would only be twice per year. Therefore, under Alternative 2, there would be adverse, short-term, minor to moderate impacts to transportation reflecting the addition of vehicles destined to the temporary training sites.

The proposed mitigation would be similar to Alternative 1.

3.9.2.3 Alternative 3 (No Action Alternative)

Under Alternative 3, the roadway, bicycle, and railroad networks would continue to operate similar to the existing condition. The roadway network would continue to experience the same vehicle volumes as present and would continue to cause the same congestion issues at the same locations as present. The bicycle

network would continue to encounter the same vehicle-bicycle conflicts as present when crossing a roadway. The at-grade railroad crossings would continue to delay a similar number of vehicles while the train crosses the road as present. Therefore, under Alternative 3, there would be adverse, short-term, negligible impacts to transportation.

3.10 PUBLIC HEALTH AND SAFETY

This discussion of public health and safety includes consideration of any activities, occurrences, or operations that have the potential to affect the safety, well-being, or health of members of the public. The primary goal is to identify and prevent potential accidents or impacts on the general public.

A safe environment is one in which there is no, or optimally reduced, potential for death, serious bodily injury or illness, or property damage. Various stressors in the environment can adversely affect public health and safety. Identification and control or elimination of these stressors can reduce risks to health and safety to acceptable levels or eliminate risk entirely.

Emergency services are organizations that ensure public safety and health by addressing different emergencies. The three main emergency service functions include police, fire and rescue service, and emergency medical service.

Environmental health and safety risks to children are defined as those that are attributable to products or substances a child is likely to come into contact with or ingest, such as air, food, water, soil, and products that children use or to which they are exposed.

Executive Order 13045, *Protection of Children from Environmental Health Risks and Safety Risks*, requires federal agencies to "make it a high priority to identify and assess environmental health and safety risks that may disproportionately affect children and shall ensure that its policies, programs, activities, and standards address disproportionate risks to children that result from environmental health risks or safety risks."

3.10.1 Affected Environment

3.10.1.1 Emergency Services

Fort Drum

The Fort Drum Directorate of Emergency Services provides fire and emergency services on the Installation (U.S. Army Garrison Fort Drum, 2020). There are three fire stations on the Installation, and hospitals are located nearby in Jefferson County. The directorate has a mutual aid agreement with Jefferson County Office of Fire and Emergency Management for Fire Protection and Hazardous Materials and Wastes Incident Response (Matrix Design Group, 2018).

Nine Counties

The emergency services in the nine counties under consideration for the Proposed Action are presented below. The number of fire departments in each of the counties is based on the information available on the NYS Division of Homeland Security and Emergency Services (NYSDHSES) website for fire department identification (New York State Division of Homeland Security and Emergency Services, 2020). Similarly, the number of hospitals and their designation is based on the information available on the NYS Department of Health (NYSDH) hospital by region/county and service website (New York State Department of Health, 2020a). NYS has a statewide trauma and health system in which participating hospitals are designated as Level I (one), II (two), or III (three), depending on their resources and services availability (New York State Department of Health, 2020b). The highest level is Level I, which denotes a comprehensive regional resource that is a tertiary care facility. A Level II trauma center is able to initiate definitive care for all injured patients. A Level III trauma center has demonstrated an ability to provide prompt assessment, resuscitation, surgery, intensive care, and stabilization of injured patients and emergency operations (American Trauma Society, 2020).

Essex

Essex County Emergency Services coordinates the county's emergency resources and responses (Essex County, 2020). The county has 51 fire departments. There are three hospitals in Essex County: Adirondack Medical Center-Lake Placid; the University of Vermont Health Network-Elizabethtown Community Hospital in Elizabethtown, NY; and the Moses- Ludington Hospital in Ticonderoga, NY, which is a satellite hospital of the University of Vermont Health Network-Elizabethtown Community Hospital.

Hamilton

Hamilton County Office of Emergency Services oversees first-responder services in the county and is the initial lead agency for major emergencies (Adirondack Region 211, 2020). The county has 23 fire departments. There are no hospitals in the county.

Herkimer County

Herkimer County Office of Emergency Services coordinates the county's emergency resources and responses (Herkimer County, 2020). The county has 53 fire departments and one hospital—Little Falls Hospital.

Jefferson

Jefferson County Office of Fire and Emergency Management serves as the lead coordinating agency for regional preparedness and emergency management efforts (Jefferson County, 2020). The county has 93 fire departments and three hospitals—Carthage Area Hospital Inc.; River Hospital, Inc.; and Samaritan Medical Center.

As mentioned above, there is a mutual aid agreement between Fort Drum and Jefferson County Office of Fire and Emergency Management for Fire Protection and Hazardous Materials and Wastes Incident Response (Matrix Design Group, 2018).

Lewis

Lewis County Emergency and Fire Management Services is in charge of emergency planning, preparedness, mitigation, response and recovery (Lewis County, 2020). The county has 42 fire departments and one hospital—Lewis County General Hospital.

Oneida

Oneida County Department of Emergency Services coordinates the county's emergency resources and responses (Oneida County, 2020) The county has 111 fire departments and four hospitals—Faxton-St Luke's Healthcare St Luke's Division; Mohawk Valley Heart Institute, Inc.; Rome Memorial Hospital, Inc.; and St Elizabeth Medical Center, which is a Level III Adult Trauma Center.

Onondaga

Onondaga County Department of Emergency Management is designated to coordinate all emergency management activities: mitigation, preparedness, response, and recovery (Onondaga County, 2020). The county has 97 fire departments and five hospitals—Crouse Hospital; Crouse Hospital - Commonwealth Division; St. Joseph's Hospital Health Center; Upstate University Hospital at Community General; and University Hospital SUNY Health Science Center, which is a Level I Adult and Pediatric Trauma Center.

Oswego

The Oswego County Emergency Management Office coordinates the county's emergency resources and responses (Oswego County, 2020). Oswego County has 73 fire departments and one hospital offering emergency medical services—Oswego Hospital.

Oswego County also contains two nuclear power plants—Nine Mile Point Nuclear Station and James A. FitzPatrick Nuclear Generating Station. The two power plants are located within the same site, which

encompasses an area of 1,500 acres on the south shore of Lake Ontario, in the Town of Scriba. The Oswego County Emergency Management Office in collaboration with Exelon Generation, NYS, and FEMA, has developed an emergency management plan for the power plant (Exelon Generation, 2020).

St. Lawrence

The St. Lawrence County Office of Emergency Services provides training, support services, and coordination for emergency response throughout the county (St. Lawrence County, 2020). The county has 102 fire departments and five hospitals—Claxton-Hepburn Medical Center; Clifton-Fine Hospital; Gouverneur Hospital; Massena Memorial Hospital; and Canton-Potsdam Hospital, which is a Level III Adult Trauma Center.

Hazardous Waste and Hazardous Material

Hazardous waste is generated primarily from the use and maintenance of vehicles, aircraft, and other vehicles and equipment used during training exercises. The most common types of hazardous waste are POLS. Other types of hazardous wastes associated with maintaining equipment used during training exercises include antifreeze, degreasers and solvents, chemical batteries, and paint-related materials (U.S. Army Garrison Fort Drum, 2002). These hazardous materials are used and temporarily stored at locations throughout the Fort Drum Cantonment Area and primarily in aircraft and vehicle maintenance complexes (U.S. Army Garrison Fort Drum, 2007).

Fort Drum manages its hazardous wastes and materials through several plans and programs. The SPCC Plan (U.S. Army Public Health Command, 2016) addresses the prevention of unintentional pollutant discharges of petroleum products and other hazardous materials. The Oil and Hazardous Substance Spill Contingency (OHSSC) Plan (U.S. Army Garrison Fort Drum, 2019f) identifies the organizational structure and procedures for preparing for and responding to releases of hazardous substances, hazardous waste, pollutants, and contaminants, as well as providing state, county, and local spill response and emergency preparedness officials with awareness of the oil and hazardous substance storage locations at Fort Drum. All hazardous materials on Fort Drum are distributed through the Hazardous Materials Control Center in accordance with the Hazardous Waste Management Plan (U.S. Army Garrison Fort Drum, 2019g), which establishes guidelines for proper handling of hazardous wastes.

The Environmental Division of Public Works at Fort Drum is responsible for environmental management on the Installation and determines suitable environmental management procedures for each activity and proposed project at Fort Drum. These procedures, which include all pertinent federal, state, and local regulations, would be followed during project implementation.

Noise

Section 3.2, *Noise*, presents the background on noise levels associated with military training activities.

Airspace

Section 3.3, *Airspace*, presents the background on airspace class designations and flight hazards in and around the Fort Drum LFA.

Transportation and Traffic

Section 3.9, *Transportation and Traffic*, presents an overview of the transportation network around Fort Drum and the nine counties.

3.10.2 Environmental Consequences

Potential impacts of the Alternatives on public health and safety are evaluated in the following section at a programmatic level. Following final site selection and identification of specific training exercise logistics, site-specific analyses would be necessary to identify specific impacts.

3.10.2.1 Alternative 1

Under Alternative 1, increased frequency of off-base training exercises would result in increased potential for adverse impacts to public health and safety. Potential impacts could include accidents during training exercises which could result in personal injury or accidental release of hazardous substances such as fuel or chemical spills.

Following established safety protocols during training exercises would minimize the potential for accidents that could result in injury. In the event of an accident or emergency, Fort Drum would coordinate with the appropriate emergency services contacts within the affected county or counties. Fort Drum would follow any applicable requirements or procedures outlined in emergency management plans established within each county. If appropriate, prior to the training exercise, Fort Drum would conduct an Environmental Condition of Property to document the physical and environmental condition of the property resulting from the past storage, use, release, and disposal of hazardous substances and petroleum products.

Similarly, Fort Drum would follow all applicable protocols and guidelines to minimize the risk of accidental discharge of hazardous waste during training exercises in accordance with its SPCC Plan and Hazardous Waste Management Plan. Additionally, secondary containment systems on all equipment containing POL or hazardous materials would minimize the likelihood of spills. In the event of a spill, Fort Drum would follow the procedures outlined in its OHSSC Plan to respond to the spill and coordinate with state, county, and local spill response and emergency preparedness officials as needed.

The potential for adverse impacts to public health and safety would increase compared to existing conditions because off-base training exercises would occur more frequently. Most potential adverse impacts would be temporary, lasting for the duration of training exercises. However, some impacts such as release of hazardous substances could result in long-term adverse impacts depending on the nature of the substance and magnitude of the spill. Implementing procedures and protocols outlined in the Installation SPCC Plan, Hazardous Waste Management Plan, OHSSC Plan, and any relevant county Emergency Management Plans would minimize the potential for adverse impacts and ensure that appropriate response measures are taken in the event of an accident or emergency.

As discussed in Section 3.2, *Noise*, based on avoidance measures and due to the infrequent occurrence and the temporary exposure, noise impacts from Alternative 1 to public health would be adverse, short-term and negligible to minor.

As discussed in Section 3.3, *Airspace*, there would be no impacts to Airspace from Alternative 1.

As discussed in Section 3.9, *Transportation and Traffic*, adding vehicle trips to the study area roadway network would affect the roadway operations based on an increase in vehicle volume and potential longer delays to clear at-grade railroad crossings after a train passes. The additional vehicles would also increase bicycle conflicts with vehicles along bicycle trails that cross the NHS-designated roadways. Impacts to traffic operations and bicycle safety would be adverse, short-term, and minor to moderate. Measures to avoid those impacts are also discussed in Section 3.9.

Therefore, under Alternative 1 overall, impacts to public health and safety would be adverse, short- or long-term, and no impacts to moderate.

3.10.2.2 Alternative 2

Under Alternative 2, potential adverse impacts to public health and safety from off-base training exercises would be the same as those described under Alternative 1 but would occur less frequently. Alternative 2 would not be expected to result in significant adverse impacts because appropriate measures would be taken to minimize the potential for adverse impacts and ensure that appropriate response measures are taken in the event of an accident or emergency, as described under Alternative 1. Overall, impacts to public health and safety would be adverse, short- or long-term, and no to moderate impacts.

3.10.2.3 Alternative 3 (No Action Alternative)

Under the No Action Alternative, there would be no change in the potential for adverse impacts to public health and safety compared to existing conditions. The No Action Alternative would not be expected to result in significant adverse impacts because appropriate measures would be taken to minimize the potential for adverse impacts and ensure that appropriate response measures are taken in the event of an accident or emergency, as described under Alternative 1. Overall, impacts to public health and safety would be adverse, short- or long-term, and no to moderate impacts.

3.11 SUMMARY OF ENVIRONMENTAL CONSEQUENCES

The resources that are potentially impacted and discussed in detail in this PEA include: land use, noise, airspace, geology and soils, biological resources (vegetation, invasive species, wildlife, and threatened and endangered species), water resources, cultural resources, socioeconomics and environmental justice, transportation and traffic, and public health and safety. Table 3-15 contains a summary of potential impacts on these resources.

Table 3-15. Summary Environmental Impacts

Resource	Alternative 1	Alternative 2	Alternative 3 (No Action Alternative)
Land Use	Because training is temporary, any impacts to land use would be short-term in nature. Schools, churches, and populated areas would be avoided. It is recommended if parks and recreation areas are used, they are avoided during peak times (hunting, fishing, and boating seasons). Coordination with owner would occur prior to the start of training exercises. Impacts to land use would be adverse, short-term and minor as no permanent changes to designated land uses would be made. Tiered NEPA analysis would determine the impact once sites have been selected.	Because training is temporary, any impacts to land use would be short-term in nature. Schools, churches, and populated areas would be avoided. It is recommended if parks and recreation areas are used, they are avoided during peak times (hunting, fishing, and boating seasons). Coordination with owner would occur prior to the start of training exercises. Impacts to land use would be adverse, short-term and minor as no permanent changes to designated land uses would be made. Tiered NEPA analysis would determine the impact once sites have been selected.	There would be no changes to existing training duration and amounts. Impacts would be adverse, short-term, and minor.
Noise	Training exercises are short-term. Helicopter overflights associated with the training exercises would be infrequent and of a short duration. Aviators are instructed to avoid flyovers of residential areas, known wildlife refuges, and livestock. For areas where aviators takeoff, land, and hover, and during engine run-ups, receivers of noise may experience additional disturbances. The number and amount of disturbances will also be dependent on the number of aircraft involved in the training exercises. Therefore, noise impacts on human annoyance and domestic animals would be adverse, short-term, and range from negligible to minor. Noise impacts on wildlife would be adverse, short-term, and range from negligible to moderate.	Training exercises are short-term. Helicopter overflights associated with the training exercises would be infrequent (two thirds less than Alternative 1) and of a short duration. Aviators are instructed to avoid flyovers of residential areas, known wildlife refuges, and livestock. Therefore, noise impacts on human annoyance and domestic animals would be adverse, short-term, and range from negligible to minor. Noise impacts on wildlife would be adverse, short-term, and range from negligible to moderate.	Aircraft would continue to operate as in the past. Therefore, noise from aircraft operations would be adverse, short-term, and range from negligible to minor.

Resource	Alternative 1	Alternative 2	Alternative 3 (No Action Alternative)
Airspace	10th CAB helicopters would continue to use the airspace as they currently do; no changes are proposed to the current airspace; therefore, there would be no impacts to airspace in the Action Area.	10th CAB helicopters would continue to use the airspace as they currently do; no changes are proposed to the current airspace; therefore, there would be no impacts to airspace in the Action Area.	Aircraft would continue to operate in the existing airspace as in the past. Aircraft operations would have no impact to airspace in the Action Area.
Geology and Soils	There would be no direct effects to geology and soils because training locations would be chosen based on criteria designed to minimize impact. Minor short-term impacts to surface topography would occur due to aircraft and heavy vehicles onsite. If prime farmland areas are used, coordination with owner would occur prior to the start of training exercises. Impacts would be adverse, short-term, and minor. Tiered NEPA analysis would determine the impact once sites have been selected. Appropriate measures would be taken to minimize impacts and restore the site to its original condition following the exercise.	There would be no direct effects to geology and soils because training locations would be chosen based on criteria designed to minimize impact. Minor short-term impacts to surface topography could occur due to aircraft and heavy vehicles onsite. If prime farmland areas are used, coordination with owner would occur prior to the start of training exercises. Impacts would be adverse, short-term, and minor. Tiered NEPA analysis would determine the impact once sites have been selected. Appropriate measures would be taken to minimize impacts and restore the site to its original condition following the exercise.	Under the No Action Alternative, there would be no new adverse impacts to geology and soils compared to existing conditions. Minor short-term impacts to surface topography could occur, and appropriate measures would continue to be taken to minimize impacts and restore the site to its original condition following the exercise.
Biological Resources	Training activities would result in adverse, short- and long-term, negligible to moderate impacts to biological resources. Impacts could include removal of vegetation from clearing, crushing, or trampling; spreading of invasive species from soil disturbances; and disturbances to wildlife, including threatened or endangered species, and habitats from noise and visual disturbances during training exercises. There could also be long-term impacts from habitat alteration, mortality of individual animals, or destruction of nests and eggs of ground-nesting birds. Implementing appropriate conservation measures and terms and	Potential adverse impacts to biological resources would be the same in nature as those described under Alternative 1 but reduced in frequency because off-base training exercises would occur less frequently. Implementing appropriate conservation measures, terms and conditions and following permit conditions would ensure that adverse impacts are avoided, minimized, or mitigated as necessary. Impacts would be adverse, short- and long-term, and negligible to moderate. Final conservation measures would be developed in consultation with USFWS and NYSDEC at the time of site selection	Under the No Action Alternative, there would be no new adverse impacts to biological resources compared to existing conditions. Impacts would be adverse, short- and long-term, and negligible to moderate.

Resource	Alternative 1	Alternative 2	Alternative 3 (No Action Alternative)
	conditions and following permit conditions would ensure that adverse impacts are avoided, minimized, or mitigated as necessary. Final conservation measures would be developed in consultation with USFWS and NYSDEC at the time of site selection.		
Water Resources	There would be no direct impacts to surface waters, floodplains, wetlands, and water supplies because training would not occur in areas near these resources. Activities would not increase the demand for groundwater and would not directly impact any surface waters. Adverse, minor, short-term impacts to surface waters and water resources would occur. Appropriate stormwater management design and Best Management Practice (BMP) implementation on site would minimize impacts.	There would be no direct impacts to surface waters, floodplains, wetlands, and water supplies because training would not occur in areas near these resources. Activities would not increase the demand for groundwater and would not directly impact any surface waters. Adverse, minor, short-term impacts to surface waters and water resources would occur. Appropriate stormwater management design and BMP implementation on site would minimize impacts.	There would be no changes to existing training duration and amounts. Impacts would be adverse, short-term, and minor.
Cultural Resources	Known historic resources would be avoided. However, training exercises have the potential to impact unknown archaeological resources. BMPs would be followed to ensure impacts to cultural resources remain minor. Impacts to cultural resources would be adverse, short- or long-term and minor to moderate.	Alternative 2 would have a minor impact on known and potentially unknown cultural resources on Fort Drum and nine-county Action Area. The BMPs would be followed to ensure impacts to cultural resources remain minor. Impacts to cultural resources would be adverse, short or long-term and minor to moderate.	Under the No Action Alternative, impacts to cultural resources would remain unchanged from the current conditions. Impacts to cultural resources would be adverse, short- or long-term and minor to moderate.

Resource	Alternative 1	Alternative 2	Alternative 3 (No Action Alternative)
Socioeconomic, Environmental Justice	Any temporary construction needed to accommodate these training exercises would be performed by the Soldiers as part of the training. If the sites selected for the training area is private, the owner would be compensated for the lease. Therefore, there could be negligible beneficial economic impacts. Overall, impacts would be beneficial, short-term, and negligible.	Impacts would be similar to but less than Alternative 1. Overall, impacts would be beneficial, short-term, and negligible.	Under the No Action Alternative, the social and economic conditions of the area would remain unchanged from the current conditions. Impacts would be beneficial, short-term, and negligible.
Transportation and Traffic	Adverse, short-term, and minor to moderate impacts would occur to traffic operations and bicycle safety. Fort Drum would employ potential mitigation measures to avoid or reduce transportation impacts.	Impacts would be similar to but less than Alternative 1. Fort Drum would employ potential mitigation measures to avoid or reduce transportation impacts	There would be no change in the potential for adverse impacts compared to existing conditions. Adverse, short-term, and minor to moderate impacts would occur to traffic operations and bicycle safety.
Public Health and Safety	Fort Drum would follow its safety protocols and plans to minimize the potential for accidents and coordinate with the appropriate emergency services contacts within the affected county or counties. Noise impacts on human annoyance would be adverse, short-term and negligible to minor and there would be no impacts to Airspace. Fort Drum would employ mitigation measures to avoid impacts to traffic and transportation.	Fort Drum would follow same safety protocols and plans and coordination as with Alternative 1. Impacts would be similar to but less than Alternative 1.	There would be no change compared to existing conditions. Impacts would be adverse, short- or long-term, and negligible to minor.

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4.0 CUMULATIVE IMPACTS

A cumulative impact is defined in the CEQ NEPA regulations as "the impact on the environment which results from the incremental impact of the action when added to other past, present, or reasonably foreseeable future action regardless of what agency (federal or non-federal) or person undertakes such other actions" (see 40 CFR 1508.7). This section goes on to note that "such impacts can result from individually minor but collectively significant actions taking place over a period of time."

Due to the programmatic nature of the Proposed Action, cumulative impacts analysis in this PEA considers the two training exercises that occur within the proposed Action Area.

These are: (1) Jaded Thunder – Per Fort Drum, Special Operations exercise that only occurs when the CAB is deployed and includes fixed wing aircraft, and (2) National Guard Bureau – Camp Ethan Allen Exercise.

4.1 LAND USE

It is recommended if parks and recreation areas are used, they avoid being used during peak times (hunting, fishing, and boating seasons). Air and ground training exercises would result in minor to moderate impacts to land use in the Action Area. Similar impacts would occur from the Jaded Thunder and Ethan Allen Exercises. For this reason, under both Action Alternatives, there could be minor to moderate cumulative impacts to land use. Impacts under Alternative 3 (No Action Alternative), would have a similar contribution to cumulative impacts. Once specific sites are selected, the tiered NEPA analysis will evaluate sites for cumulative impacts to land use.

4.2 NOISE

The helicopter overflights associated with Alternative 1 or Alternative 2 would contribute additional overflight noise to the overall noise levels calculated as a yearly average with aircraft noise from Jaded Thunder and Camp Ethan Allen Exercises. For this reason, under the Action Alternatives there could be short-term, direct, cumulative, and adverse noise impacts. Because these training exercises are not performed simultaneously, there would be no impact to daily average noise levels, nor would there be an increase in noise levels in the LFA remotely close to a 65 dB ADNL. Impacts under Alternative 3 (No Action Alternative), would have similar contribution to cumulative impacts.

The addition of convoy noise associated with Alternative 1 or Alternative 2 would contribute additional roadway transportation noise to the cumulative noise levels calculated as a yearly average with ground vehicles used in conjunction with Jaded Thunder and Camp Ethan Allen Exercises. For this reason, under the Action Alternatives there could be short-term, direct, cumulative, and adverse noise impacts due to an increase in military vehicle convoys. However, the exercises would most likely not be performed simultaneously. Impacts under Alternative 3 (No Action Alternative), would have similar contribution to cumulative impacts.

Once specific sites are selected, the tiered NEPA analysis will evaluate sites for cumulative impacts from noise in the areas that would be affected.

4.3 AIRSPACE

Because 10th CAB helicopters would continue to use the airspace as they currently do; no changes are proposed to the current airspace. Therefore, there would be no impacts to airspace and the Proposed Action and Alternatives would not contribute to cumulative impacts.

4.4 GEOLOGY AND SOILS

Training exercises would result in no impacts to geology and soils and adverse, minor, and short-term impacts to surface topography. The impacts would be minimal on a site chosen within specified parameters. Alternative 1 would contribute the greatest impact because training exercises would occur more often. Alternative 2 would contribute the same types of minor impacts, but less than Alternative 1 because training

exercises would occur less frequently. Similar impacts would occur from the Jaded Thunder and Camp Ethan Allen Exercises. Therefore, the Action Alternatives would contribute an increment to the overall minor cumulative impact. However, the exercises would most likely not be performed simultaneously or at the same site. Impacts under Alternative 3 (No Action Alternative), would have similar contribution to cumulative impacts. Once specific sites are selected, the tiered NEPA analysis will evaluate sites for cumulative impacts to geology and soils.

4.5 BIOLOGICAL RESOURCES

Air and ground training exercises would result in short- and long-term, negligible to moderate impacts to biological resources in the Action Area including habitat disturbance, temporary displacement of wildlife, and potential wildlife mortality. Alternative 1 would contribute the greatest adverse impacts because training exercises would occur more often. Alternative 2 would contribute the same types of adverse impacts, but less than Alternative 1 because training exercises would occur less often than under Alternative 1. Similar impacts would occur from the Jaded Thunder and Camp Ethan Allen Exercises. Therefore, the Action Alternatives would contribute an increment to the overall adverse cumulative impact. However, the exercises would most likely not be performed simultaneously Impacts under Alternative 3 (No Action Alternative), would have similar contribution to cumulative impacts. Once specific sites are selected, the tiered NEPA analysis will evaluate sites for cumulative impacts to biological resources and consulted with USFWS and NYSDEC, as appropriate.

4.6 WATER RESOURCES

Air and ground training exercises would result in adverse, minor impacts to water resources in the Action Area including short-term impacts to surface water drainage. Alternative 1 would contribute the greatest impact because training exercises would occur more often. Alternative 2 would contribute the same types of minor impacts, but less than Alternative 1 because training exercises would occur less often. Similar impacts would occur from the Jaded Thunder and Camp Ethan Allen Exercises. Therefore, the Action Alternatives would contribute an increment to the overall minor cumulative impact. However, the exercises would most likely not be performed simultaneously. Impacts under Alternative 3 (No Action Alternative), would have a similar contribution to cumulative impacts. Once specific sites are selected, the tiered NEPA analysis will evaluate sites for cumulative impacts to water resources.

4.7 CULTURAL RESOURCES

Alternatives 1 and 2 would not involve any physical disturbance of known historic sites as they would be avoided during land and air training exercises. Known archaeological resources would be avoided; however, there is a chance vehicles and land-based training exercises could disrupt unknown archaeological resources. Although it is unlikely for there to be any impacts to known cultural resources, both Alternatives 1 and 2 could have adverse, short- or long-term and minor to moderate impacts on unknown historic and archaeological resources. Similar impacts would occur from the Jaded Thunder and Camp Ethan Allen Exercises. For this reason, under both Action Alternatives there could be minor cumulative impacts to Cultural Resources. Because these training exercises are not performed simultaneously, the likelihood is low. Impacts under Alternative 3 (No Action Alternative) would have a similar contribution to cumulative impacts. Once specific sites are selected, the tiered NEPA analysis will evaluate sites for cumulative impacts to cultural resources.

4.8 SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE

Training exercises would result in beneficial economic impacts if the sites selected for the training area are private because the owner would be compensated for the lease. Alternative 1 (Proposed Action) would contribute the greatest benefit because training exercises would occur more often. Alternative 2 would contribute similar benefits, but less than Alternative 1 because training exercises would occur less often than under Alternative 1. If Jaded Thunder and Camp Ethan Allen Exercises were to select similar sites, the impacts would be similar to those from the Action Alternatives and therefore, would contribute

incrementally to the overall beneficial cumulative impact. However, the exercises would most likely not be performed simultaneously. Impacts under Alternative 3 (No Action Alternative), would have similar contribution to cumulative impacts. Once specific sites are selected, the tiered NEPA analysis will evaluate socioeconomic and environmental cumulative impacts in those areas.

4.9 TRANSPORTATION AND TRAFFIC

Under Alternatives 1 and 2, there could be adverse, short-term, minor to moderate traffic and transportation impacts reflecting the addition of vehicles destined to the temporary training sites. Jaded Thunder and Camp Ethan Allen Exercises could also affect the study area roadway network by adding vehicle trips to the NHS-designated roadways that are experiencing volumes nearing or exceeding capacity. The exercises could also create vehicle trips that cross or drive adjacent to designate bicycle trails or add to vehicle delays at railroad crossings after a train has passed. If overweight trucks are part of the convoy, a special overweight permit would be required from NYSDOT. Therefore, the Action Alternatives would contribute an increment to the overall adverse cumulative impact. However, the exercises would most likely not be performed simultaneously. Impacts under Alternative 3 (No Action Alternative), would have similar contribution to cumulative impacts. Once specific sites are selected, the tiered NEPA analysis will evaluate cumulative impacts to transportation and traffic in those areas.

4.10 PUBLIC HEALTH AND SAFETY

Overall, impacts to public health and safety would be adverse, short- or long-term, and no to moderate impacts. Alternative 1 would contribute the greatest adverse impacts because training exercises would occur more often. Alternative 2 would contribute the same types of adverse impacts, but less than Alternative 1 because training exercises would occur less often than under Alternative 1. Jaded Thunder and Camp Ethan Allen Exercises would have similar impacts. Therefore, the Action Alternatives would contribute an adverse increment to the overall adverse cumulative impact. Impacts under Alternative 3 (No Action Alternative), would have similar contribution to cumulative impacts. Once specific sites are selected, the tiered NEPA analysis will evaluate cumulative impacts to Public Health and Safety.

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5.0 REFERENCES

Adirondack Region 211. (2020, February 9). *Hamilton County Emergency Services*. Retrieved from https://211adirondackregion.communityos.org/zf/profile/agency/id/374452

American Trauma Society. (2020, February 9). *Trauma Centers Explained*. Retrieved from American Trauma Society: https://www.amtrauma.org/page/traumalevels

Army Public Health Center. (2016, April). *Fort Drum Installation Compatible Use Zone Plan.* Retrieved December 2019, from https://evogov.s3.amazonaws.com/media/159/media/96052.pdf

Audubon New York. (2019, December 27). *Birds of Conservation Concern*. Retrieved from https://ny.audubon.org/birds-0/birds-conservation-concern

Bergman Associates. (2008). *Lewis County Existing Land Use.* Retrieved from Lewis County Existing Land Use: https://evogov.s3.amazonaws.com/media/62/media/19374.pdf

Bowles, A. (1995). *Responses of Wildlife to Noise.* Washington DC: Island Press, R.L. Knight and K.J. Gutzwiller (eds).

Bowles, A. P. (1990). *The Effects of Aircraft Noise and Sonic Booms on Domestic Animals: A Preliminary Model and a Synthesis of the Literature and Claims.* Wright-Patterson AFB, OH: Noise and Sonic Boom Impact Technology Advanced Development Program Office, Technical Report #13.

Bryce, S. G. (2010). *Ecoregions of New York (color poster with map, descriptive text, summary tables, and photographs).* Reston, Virginia: U.S. Geological Survey.

California Department of Transportation. (1998). *Technical Noise Supplement, A Technical Spplement to the Traffic Noise Analysis Protocol.*

City of Oswego. (2014). *Oswego Zoning Map*. Retrieved from https://www.oswegony.org/government/zoning-map-2014

Edinger, G. J. (2014). *Ecological Communities of New York State. Second Edition. A revised and expanded edition of Carol Reschke's Ecological Communities of New York State.* Albany, New York: New York Natural Heritage Program, New York State Department of Enviornmental Conservation.

Essex County. (2019, December). *Alfalfa Production in Essex County, NY.* Retrieved from Alfalfa Production in Essex County, NY: https://storymaps.arcgis.com/stories/768bf91d06b7484f8ee3a7f23c236512

Essex County. (2020, February 9). *Essex County Emergency Services*. Retrieved from http://www.co.essex.ny.us/OfficeOfEmergencyServices/index_files/Page382.htm

Exelon Generation. (2020, February 12). *Emergency Planning for the Nine Mile Point and James A. FitzPatrick Nuclear Stations. Important Safety Information for your Coummunity and Annual Needs Survey 2019/2020.* Retrieved from https://www.oswegocounty.com/NMP_2019-2020-Singles_Prf-v1.pdf

Federal Aviation Administration. (1991). *Title 14: Aeronautics and Space, Part 91- Central Operating and Flight Rules.* Code of Federal Regulations, Title 14 Section91.135.

Federal Emergency Management Agency. (1992/2014). *Flood Insurance Rate Map.*

Federal Highway Administration. (2017a). *Statewide Transportation Planning Process.* Retrieved January 24, 2020, from https://www.fhwa.dot.gov/planning%20/processes/statewide/related/highway_functional_classifications/section02.cfm#Toc336872975

Federal Highway Administration. (2017b). *National Highway System.* Retrieved January 23, 2020, from https://www.fhwa.dot.gov/Planning/national_highway_system/

Federal Highway Administration. (2017c). *Simplified Highway Capacity Calculation Method for the Highway Performance Monitoring System.* Retrieved January 27 2020, from https://www.fhwa.dot.gov/policyinformation/pubs/pl18003/hpms_cap.pdf

Federal Highway Administration. (2019). *Bridge Formula Weights.* Retrieved January 28, 2020, from https://ops.fhwa.dot.gov/freight/publications/brdg_frm_wghts/

Gladwin, D. K. (1988). *Effects of Aircraft Noise and Sonic Booms on Domestic Amnimals and Wildlife: Bibliographic Abstracts.* Fort Collins, CO: National Ecology Research Center, NERC-88/32.

Harris, Miller, Miller, and Hanson (HMMH) Inc. (2017). *Basic Aircraft Noise Terminology*. Retrieved from https://www.lawa.org/uploadedFiles/lax/noise/presentation/noiseRT_090311_Noise%20101%20Presentation.pdf

Herkimer County. (2020, February 9). *Emergency Services/911*. Retrieved from https://www.herkimercounty.org/services-and-departments/emergency-services-911.php#

Jefferson County. (2020, February 9). *Emergency Management*. Retrieved from https://co.jefferson.ny.us/departments/EmergencyManagement/about-us-1

Jefferson County Department of Planning. (2018). *Jefferson County Land Use Map.* Retrieved from Jefferson County Land Use Map: https://evogov.s3.us-west-2.amazonaws.com/media/117/media/181261.pdf

Larkin, R. P. (1996). *Effects of Military Noise on Wildlife: A Literature Review, USACERL Technical Report 96/21.* USA CERL.

Lewis County. (2020, February 9). *Emergency Management*. Retrieved from https://www.lewiscounty.org/departments/emergency-management/emergency-management, Retrieved February 9, 2020

Matrix Design Group. (2018). *Fort Drum Land Use Study.* Retrieved from https://evogov.s3.amazonaws.com/media/159/media/116417.pdf

Missile Defense Agency. (2016, May). *Continental United States Interceptor Site (CIS) Draft EIS.* Retrieved from Continental United States Interceptor Site (CIS) Draft EIS: https://www.mda.mil/global/documents/pdf/CIS_DEIS_Section_3.5_FTD.pdf

New York Invasive Species Information. (2019, December 27). *New York State's gateway to science-based invasive species information*. Retrieved from http://nyis.info/species-information/

New York State Department of Environmental Conservation. (2019a, December 18). *Environmental Resource Mapper*. Retrieved from http://www.dec.ny.gov/gis/erm/

New York State Department of Environmental Conservation. (2019b). *New York Nature Explorer County Results Report.* Retrieved from http://www.dec.ny.gov/natureexplorer/app/location/county/results.2

New York State Department of Environmental Conservation. (2020). *Herkimer County Map.* Retrieved from Herkimer County Map: https://www.dec.ny.gov/outdoor/56067.html

New York State Department of Health. (2020a, February 9). *Hospitals by Region/County and Service*. Retrieved from New York State Department of Health: https://profiles.health.ny.gov/hospital/county_or_region/

New York State Department of Health. (2020b, February 9). *New York State Trauma Centers*. Retrieved

from New York State Department of Health: https://www.health.ny.gov/professionals/ems/state_trauma/trauma2.htm

New York State Department of Transportation. (n.d.). *Posted Bridges.* Retrieved January 28, 2020, from https://www.dot.ny.gov/postedbridges

New York State Division of Homeland Security and Emergency Services. (2020, February 9). *What is My Fire Department Identification (FDID) Number*. Retrieved from New York State Division of Homeland Security and Emergency Services: http://www.dhses.ny.gov/ofpc/faq/

New York State Planning and Developement. (2020, February 8). *Coastal Boundary Map*. Retrieved from https://www.dos.ny.gov/opd/atlas/

North Country Public Radio. (2020, February 2). *Fort Drum's economic impact in the North Country almost $2 billion.* Retrieved from NCPR: https://www.northcountrypublicradio.org/news/story/38332/20190327/fort-drum-s-economic-impact-in-the-north-country-almost-2-billion

Oneida County. (2019). *Oneida County Planning Map.* Retrieved from https://ocgov.net/sites/default/files/planning/OneidaCountyMap/OCMAP2019web_vers2.pdf

Oneida County. (2020, February 9). *Emergency Services - 911*. Retrieved from https://ocgov.net/oneida/E911

Onondaga County. (2020, February 9). *Emergency Management*. Retrieved from http://www.ongov.net/em/EmergencyManagement.html

Oswego County. (2020, February 12). *Emergency Management Office*. Retrieved from https://www.oswegocounty.com/departments/public_safety/emergency_management/index.php

Rainbolt, R. (2020, May). Comment on Preliminary Draft Programmatic Environmental Assessment for Fort Drum 10th Combat Aviation Brigade and 10th Sustainment Brigade Mission and Training Activities.

Rylander, R. S. (1974). Re-Analysis of Aircraft Noise Annoyance Data Against the dB(A) Peak Concept. *Journal of Sound and Vibration*, 36 (3): 399-406.

Rylander, R. S. and M. Bjorkman. (1988). Maximum Noise Levels as Indicators of Biological Effects. *Journal of Sound and Vibration, 127*(3), 555-563.

St. Lawrence County. (2020, February 12). *St. Lawrence County Emergency Services.* Retrieved from https://www.stlawco.org/Departments/EmergencyServices/

St. Lawrence County. (2020). *St. Lawrence County Facts*. Retrieved from St. Lawrence County Government: https://www.stlawco.org/About/

St. Lawrence County Planning Office. (2010, June). *A User's Guide to the Adirondacks in St. Lawrence County.* Retrieved from A User's Guide to the Adirondacks in St. Lawrence County: https://www.stlawco.org/data/files/departments/Planning/A%20User's%20Guide%20to%20the%20Adirondacks%20in%20SLC%20-%20FINAL%20PDf.pdf

St. Lawrence-Eastern Lake Ontario Partnership for Regional Invasive Species Management. (2019, December 27). *Our Partners in the SLELO Region*. Retrieved from https://www.sleloinvasives.org/slelo-prism-partners/

Syracuse Onondaga County Planning Agency. (2020, February 5). *2010 Development Guide for Onondaga County.* Retrieved from http://www.ongov.net/planning/documents/plan_2010_development_guide.pdf

U. S. Air Force. (2005). *SELCalc2 Noise Model.* Wright-Patterson AFB, Ohio.

U. S. Army Garrison Fort Drum. (2010). *Integrated Cultural Resources Management Plan (2011-2015).* Fort Drum, New York: Directorate of Public Works, Environmental Division.

U.S. Army. (1998, May 12). *Field Manual 10-416.* Retrieved December 21, 2019, from GlobalSecurity.org: https://www.globalsecurity.org/military/library/policy/army/fm/10-416/ch9.htm

U.S. Army. (2007a). *Army Regulation 200-1, Environmental Protection and Enhancement, Chapter 14 Operational Noise.* U.S. Army.

U.S. Army. (2007b). *Operational Noise Consultation No. 52 EN-6W7a-07, Operational Noise Contours for Fort Drum.* Center for Health Promotion and Preventive Medicine.

U.S. Army. (2011). *Environmental Assessment of Stationing Actions to Support the Grow the Army Initiative Fort Drum, New York.*

U.S. Army. (2013). *Army 2020 Force Structure Realignment Programmatic Environmental Assessment* .

U.S. Army. (2018, July). *U.S. Army Fort Drum Home of the 10th Mountain Division (LI)*. Retrieved December 2019, from https://home.army.mil/drum/index.php/about/history

U.S. Army Garrison Fort Drum. (2002). *Environmental Assessment for Master Plan Projects (MPEA) for Fort Drum, New York.* Fort Drum, New York: Directorate of Public Works.

U.S. Army Garrison Fort Drum. (2007). *Supplemental Environmental Assessment for Proposed Projects and Actions in the Master Plan Fort Drum Military Installation, Fort Drum, New York.* Fort Drum, New York: Directorate of Public Works.

U.S. Army Garrison Fort Drum. (2010). *Integrated Cultural Resources Management Plan (ICRMP) 2011-2015.* Fort Drum, New York: Directorate of Public Works, Environmental Division.

U.S. Army Garrison Fort Drum. (2018). *Integrated Natural Resources Management Plan.* Fort Drum, New York: Natural Resources Branch, Environmental Division, Directorate of Public Works. Retrieved December 2019, from https://fortdrum.isportsman.net/files/Documents%2FPublications%2FINRMP%202018%20FINAL.pdf

U.S. Army Garrison Fort Drum. (2019a, April 3). *10th Mountain Division (LI)*. Retrieved December 2019, from https://home.army.mil/drum/index.php/units-tenants/10th-mountain-division-li

U.S. Army Garrison Fort Drum. (2019b, January 8). *10th Combat Aviation Brigade*. Retrieved December 2019, from https://home.army.mil/drum/index.php/units-tenants/10th-CAB

U.S. Army Garrison Fort Drum. (2019c, January 8). *10th Sustainment Brigade*. Retrieved December 2019, from https://home.army.mil/drum/index.php/units-tenants/10th-Sustainment

U.S. Army Garrison Fort Drum. (2019d). *Fort Drum Local Flying Rules 95-1.* Fort Drum, New York: U.S. Army, Fort Drum.

U.S. Army Garrison Fort Drum. (2019e). *Wheeler-Sack Army Airfield Wildlife Hazard Management Plan.* Fort Drum, New York.

U.S. Army Garrison Fort Drum. (2019f). *Oil and Hazardous Substance Spill Contingency Plan.* Fort Drum, New York: Directorate of Public Works.

U.S. Army Garrison Fort Drum. (2019g). *Hazardous Waste Management Plan.* Fort Drum, New York: Directorate of Public Works.

U.S. Army Garrison Fort Drum. (2020, February 12). *U.S. Army Fort Drum Directorate of Emergency Services (DES)*. Retrieved from

https://home.army.mil/drum/index.php/about/Garrison/directorate-emergency-services

U.S. Army Public Health Command. (2016). *Spill Prevention, Control, and Countermeasure for Fort Drum, New York.*

U.S. Army, Operational Noise Program, Public Health Center. (2016). *Fort Drum Installation Compatible Use Zone Plan.* U.S. Army, USAPHC.

U.S. Bureau of Labor Statistics. (2020, February 2). Retrieved from www.bls.gov

U.S. Census Bureau. (2017a). *American Community Survey 5-Year Estimates (2013-2017), Table B01003-Total Population and Table DP-1-Profile of General Demographic Characteristics: 2000.* Retrieved January 31, 2020, from https://factfinder.census.gov/

U.S. Census Bureau. (2017b). *2013-2017 American Community Survey 5-Year Estimates, Table DP05-ACS Demographic and Housing Estimates.* Retrieved January 31, 2020, from https://factfinder.census.gov/

U.S. Census Bureau. (2017c). *2013-2017 American Community Survey 5-Year Estimates – Table B02001 RACE.* Retrieved February 3, 2020, from https://factfinder.census.gov

U.S. Census Bureau. (2017d). *American Community Survey 5-Year Estimates Table S1701 POVERTY STATUS IN THE PAST 12 MONTHS.* Retrieved February 3, 2020, from https://factfinder.census.gov

U.S. Environmental Protection Agency. (1974, March). *Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety.* Retrieved from nonoise.org: http://www.nonoise.org/library/levels74/levels74.htm

U.S. Fish and Wildlife Service. (2012). *American Hart's-tongue Fern (Asplenium scolopendrium var. americanum) 5-Year Review: Summary and Evaluation.* Cookeville, Tennessee: USFWS Ecological Services Field Office.

Washburn, B. E., Begier, M., & Wright, S. E. (2015). Collisions between eagles and aircraft: an increasing problem in the airport environment. *Journal of Raptor Research, 49*(2), 192-200.

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6.0 GLOSSARY OF TERMS

Bounding overwatch. This helicopter movement technique is employed when enemy contact is anticipated, and the greatest degree of concealment is required. It is the slowest movement technique, too slow for high tempo operations and too vulnerable for nonlinear and/or urban operations. Units normally employ contour and NOE flight with the bounding overwatch technique. Airspeed during each bound is varied depending on availability of vegetation and terrain for concealment.

Contour flight. Contour flight is conducted at low altitudes conforming to the earth's contours. It is characterized by varying airspeeds and altitude and dictated by terrain and obstacles.

Local Flying Area (LFA). For Fort Drum, the LFA includes the states of New York, Vermont, New Hampshire, Maine, Massachusetts, Rhode Island, Connecticut, New Jersey, and Pennsylvania. FD Reg 95-1 lists altitude flight restrictions over cities and villages in the LFA.

Low-level flight. Aviators perform low-level flight at constant altitude and airspeed dictated by threat avoidance.

Nap-of-the-Earth (NOE) flight. NOE flight is conducted at varying airspeeds as close to the earth's surface as vegetation and obstacles permit.

Operational Theater. The total land, water, and air space in which military operations are performed in order to succeed in a stated mission.

Traveling. Movement technique designed to exploit mobility of helicopters while employing fire and maneuver concepts. This technique is employed to move rapidly over the battlefield when enemy contact is unlikely, or the situation requires speed for evading the enemy.

Traveling overwatch. Movement technique designed to exploit mobility of helicopters while employing fire and maneuver concepts. This technique is employed when speed is essential and enemy contact is possible. This technique is normally associated with reconnaissance, security, and attack missions when threat and/or environmental conditions preclude use of bounding overwatch.

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Appendix A
Agency Coordination and Public Involvement

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Fort Drum PEA Coordination and Consultation Mailing List

Federal Agencies
U.S. Fish and Wildlife Service

State Agencies
New York State Department of Environmental Conservation Commissioner
New York State Department of Environmental Conservation Region #6
New York State Department of Environmental Conservation Region #5
New York State Department of Environmental Conservation Region #7
New York State Office of Parks, Recreation, & Historic Preservation

Federally Recognized Tribal Governments
Oneida Indian Nation
Onondaga Nation
Saint Regis Mohawk Tribe

County Offices
Essex County
Hamilton County
Herkimer County
Jefferson County
Lewis County
Monroe County
Oneida County
Onondaga County
Oswego County
St. Lawrence County

City Offices
Little Falls
Watertown
Rome
Sherrill
Utica
Syracuse
Canandaigua
Geneva
Fulton
Oswego
Ogdensburg

Town Offices
Town of Chesterfield
Town of Crown Point
Town of Elizabethtown
Town of Essex
Town of Jay
Town of Keene
Town of Lewis
Town of Minerva
Town of Moriah
Town of Newcomb
Town of North Elba
Town of North Hudson
Town of Schroon
Town of St. Armand
Town of Ticonderoga
Town of Westport
Town of Willsboro
Town of Wilmington
Town of Arietta
Town of Benson
Town of Hope
Town of Indian Lake
Town of Inlet
Town of Lake Pleasant
Town of Long Lake
Town of Morehouse

Town of Wells
Town of Columbia
Town of Danube
Town of Fairfield
Town of Frankfort
Town of German Flatts
Town of Herkimer
Town of Litchfield
Town of Little Falls
Town of Manheim
Town of Newport
Town of Norway
Town of Ohio
Town of Russia
Town of Salisbury
Town of Schuyler
Town of Stark
Town of Warren
Town of Webb
Town of Winfield
Town of Adams
Town of Alexandria
Town of Antwerp
Town of Brownville
Town of Cape Vincent
Town of Champion
Town of Clayton
Town of Ellisburg
Town of Henderson
Town of Hounsfield
Town of Le Ray
Town of Lorraine
Town of Lyme
Town of Orleans
Town of Pamelia
Town of Philadelphia
Town of Rodman
Town of Rutland
Town of Theresa
Town of Watertown
Town of Wilna
Town of Worth
Town of Croghan
Town of Denmark
Town of Diana
Town of Greig
Town of Harrisburg
Town of Lewis
Town of Leyden
Town of Lowville
Town of Lyonsdale
Town of Martinsburg
Town of Montague
Town of New Bremen
Town of Osceola
Town of Pinckney
Town of Turin
Town of Watson
Town of West Turin
Town of Annsville
Town of Augusta
Town of Ava
Town of Boonville
Town of Bridgewater
Town of Camden
Town of Deerfield
Town of Florence
Town of Floyd
Town of Forestport
Town of Kirkland
Town of Lee
Town of Marcy
Town of Marshall
Town of New Hartford
Town of Paris
Town of Remsen
Town of Sangerfield
Town of Steuben
Town of Trenton
Town of Vernon
Town of Verona
Town of Vienna

Town of Western
Town of Westmoreland
Town of Whitestown
Town of Camillus
Town of Cicero
Town of Clay
Town of DeWitt
Town of Elbridge
Town of Fabius
Town of Geddes
Town of LaFayette
Town of Lysander
Town of Manlius
Town of Marcellus
Town of Onondaga
Town of Otisco
Town of Pompey
Town of Salina
Town of Skaneateles
Town of Spafford
Town of Tully
Town of Van Buren
Town of Albion
Town of Amboy
Town of Boylston
Town of Constantia
Town of Granby
Town of Hannibal
Town of Hastings
Town of Mexico
Town of Minetto
Town of New Haven
Town of Orwell
Town of Oswego
Town of Palermo
Town of Parish
Town of Redfield
Town of Richland
Town of Sandy Creek
Town of Schroeppel
Town of Scriba
Town of Volney
Town of West Monroe
Town of Williamstown
Town of Brasher
Town of Canton
Town of Clare
Town of Clifton
Town of Colton
Town of De Kalb
Town of De Peyster
Town of Edwards
Town of Fine
Town of Fowler
Town of Gouverneur
Town of Hammond
Town of Hermon
Town of Hopkinton
Town of Lawrence
Town of Lisbon
Town of Louisville
Town of Macomb
Town of Madrid
Town of Massena
Town of Morristown
Town of Norfolk
Town of Oswegatchie
Town of Parishville
Town of Piercefield
Town of Pierrepont
Town of Pitcairn
Town of Potsdam
Town of Rossie
Town of Russell
Town of Stockholm
Town of Waddington

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Correspondence

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DEPARTMENT OF THE ARMY
US ARMY INSTALLATION MANAGEMENT COMMAND
HEADQUARTERS, UNITED STATES ARMY GARRISON, FORT DRUM
10000 10TH MOUNTAIN DIVISION DRIVE
FORT DRUM, NEW YORK 13602-5046

JUN 24 2020

Office of the Garrison Commander

David Stilwell
US Fish and Wildlife Service
New York Field Office
3817 Luker Road
Cortland, New York 13045

Dear Mr. Stilwell:

Fort Drum is initiating agency coordination for a new proposed action within the existing nine county Local Flying Area surrounding Fort Drum's Installation Restricted Airspace area. The proposed action includes conducting up to six high-intensity, multi-day training events per year at off-installation locations to replicate multi-domain battle. These training events would serve to integrate air and/or ground operations, and sustainment activities by simulating real-world distances and threats, challenging logistical supply lines and mission command systems over distances beyond the geographic boundaries of Fort Drum, as well as expanding logistical routes via air and ground to simulate a large-scale battlefield.

Attached is the Programmatic Environmental Assessment (PEA) and Draft Finding of No Significant Impact (FONSI) that analyzes and evaluates the potential environmental impacts of increasing mission and training activities at Fort Drum Army Installation and within the Local Flying Area (LFA) of Fort Drum. Environmental consequences were analyzed for two action alternatives; conducting high-intensity, multi-day training events to replicate multi-domain battle, either two or six times per year, as well as the No Action Alternative.

This PEA describes the application of criteria provided by Fort Drum to select specific sites for the proposed training events. Fort Drum would ensure the appropriate National Environmental Policy Act (NEPA) review is conducted for specific sites when proposed for training events. This PEA was prepared in accordance with NEPA, the Council on Environmental Quality (CEQ) regulations (40 Code of Federal Regulations (CFR) Parts 1500 – 1508), and 32 CFR Part 651. The site specific NEPA review will be tiered from the PEA and will be consistent with this document, incorporating by reference where appropriate.

Your assistance in providing information is greatly appreciated. Please provide written comments by close of the public comment period to Ms. Cait Schadock, NEPA Coordinator, Directorate of Public Works, 4896 Jones St, Fort Drum, NY 13602-5097, or send via e-mail to usarmy.drum.imcom.mbx.dpw-nepa@mail.mil. If nothing is heard by this date, it will be taken as agreement with this action. If you need further information, please contact Ms. Schadock at (315) 771-6026. Public Comments will be received from July 6, 2020 to August 5, 2020.

Sincerely,

Jeffery P. Lucas
Colonel, U.S. Army
Garrison Commander

Enclosure

DEPARTMENT OF THE ARMY
US ARMY INSTALLATION MANAGEMENT COMMAND
HEADQUARTERS, UNITED STATES ARMY GARRISON, FORT DRUM
10000 10TH MOUNTAIN DIVISION DRIVE
FORT DRUM, NEW YORK 13602-5046

JUN 24 2020

Office of the Garrison Commander

Basil Seggos, Commissioner
New York State Department
of Environmental Conservation
625 Broadway
Albany, NY 12233

Dear Mr. Seggos:

Fort Drum is initiating agency coordination for a new proposed action within the existing nine county Local Flying Area surrounding Fort Drum's Installation Restricted Airspace area. The proposed action includes conducting up to six high-intensity, multi-day training events per year at off-installation locations to replicate multi-domain battle. These training events would serve to integrate air and/or ground operations, and sustainment activities by simulating real-world distances and threats, challenging logistical supply lines and mission command systems over distances beyond the geographic boundaries of Fort Drum, as well as expanding logistical routes via air and ground to simulate a large-scale battlefield.

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This Programmatic Environmental Assessment describes the application of criteria provided by Fort Drum to select specific sites for the proposed training events. Fort Drum would ensure the appropriate National Environmental Policy Act review is conducted for specific sites when proposed for training events. This Assessment was prepared in accordance with National Environmental Policy Act, the Council on Environmental Quality regulations (40 Code of Federal Regulations Parts 1500 – 1508), and 32 Code of Federal Regulations Part 651. The site specific National Environmental Policy Act review will be tiered from the Programmatic Environmental Assessment and will be consistent with this document, incorporating by reference where appropriate.

Your assistance in providing information is greatly appreciated. Please provide written comments by close of the public comment period to Ms. Cait Schadock, National Environmental Policy Act Coordinator, Directorate of Public Works, 4896 Jones St, Fort Drum, NY 13602-5097, or send via e-mail to usarmy.drum.imcom.mbx.dpw-nepa@mail.mil. If nothing is heard by this date, it will be taken as agreement with this action. If you need further information, please contact Ms. Schadock at (315) 771-6026. Public comments will be received from July 6, 2020 to August 5, 2020.

Sincerely,

Jeff ry P. Lucas
Colonel, U.S. Army
Garrison Commander

Enclosure

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US ARMY INSTALLATION MANAGEMENT COMMAND
HEADQUARTERS, UNITED STATES ARMY GARRISON, FORT DRUM
10000 10TH MOUNTAIN DIVISION DRIVE
FORT DRUM, NEW YORK 13602-5046

JUN 24 2020

Office of the Garrison Commander

Robert Stegemann, Regional Director
New York State Department of
Environmental Conservation Region #5
1115 NYS Rt. 86, P.O. Box 296
Ray Brook, NY 12977-0296

Dear Mr. Stegemann:

Fort Drum is initiating agency coordination for a new proposed action within the existing nine county Local Flying Area surrounding Fort Drum's Installation Restricted Airspace area. The proposed action includes conducting up to six high-intensity, multi-day training events per year at off-installation locations to replicate multi-domain battle. These training events would serve to integrate air and/or ground operations, and sustainment activities by simulating real-world distances and threats, challenging logistical supply lines and mission command systems over distances beyond the geographic boundaries of Fort Drum, as well as expanding logistical routes via air and ground to simulate a large-scale battlefield.

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Your assistance in providing information is greatly appreciated. Please provide written comments by close of the public comment period to Ms. Cait Schadock, National Environmental Policy Act Coordinator, Directorate of Public Works, 4896 Jones St, Fort Drum, NY 13602-5097, or send via e-mail to usarmy.drum.imcom.mbx.dpw-nepa@mail.mil. If nothing is heard by this date, it will be taken as agreement with this action. If you need further information, please contact Ms. Schadock at (315) 771-6026. Public comments will be received from July 6, 2020 to August 5, 2020.

Sincerely,

Jeffery P. Lucas
Colonel, U.S. Army
Garrison Commander

Enclosure

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US ARMY INSTALLATION MANAGEMENT COMMAND
HEADQUARTERS, UNITED STATES ARMY GARRISON, FORT DRUM
10000 10TH MOUNTAIN DIVISION DRIVE
FORT DRUM, NEW YORK 13602-5046

JUN 24 2020

Office of the Garrison Commander

Randall Young, Director
New York State Department of
Environmental Conservation Region #6
317 Washington St.
Watertown, NY 13601-3787

Dear Mr. Young:

Fort Drum is initiating agency coordination for a new proposed action within the existing nine county Local Flying Area surrounding Fort Drum's Installation Restricted Airspace area. The proposed action includes conducting up to six high-intensity, multi-day training events per year at off-installation locations to replicate multi-domain battle. These training events would serve to integrate air and/or ground operations, and sustainment activities by simulating real-world distances and threats, challenging logistical supply lines and mission command systems over distances beyond the geographic boundaries of Fort Drum, as well as expanding logistical routes via air and ground to simulate a large-scale battlefield.

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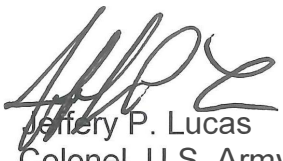
Sincerely,



Jeffery P. Lucas
Colonel, U.S. Army
Garrison Commander

Enclosure

DEPARTMENT OF THE ARMY
US ARMY INSTALLATION MANAGEMENT COMMAND
HEADQUARTERS, UNITED STATES ARMY GARRISON, FORT DRUM
10000 10TH MOUNTAIN DIVISION DRIVE
FORT DRUM, NEW YORK 13602-5046

JUN 24 2020

Office of the Garrison Commander

Matthew Marko, Regional Director
New York State Department of
Environmental Conservation Region #7
615 Erie Blvd. West
Syracuse, NY 13204-2400

Dear Mr. Marko:

Fort Drum is initiating agency coordination for a new proposed action within the existing nine county Local Flying Area surrounding Fort Drum's Installation Restricted Airspace area. The proposed action includes conducting up to six high-intensity, multi-day training events per year at off-installation locations to replicate multi-domain battle. These training events would serve to integrate air and/or ground operations, and sustainment activities by simulating real-world distances and threats, challenging logistical supply lines and mission command systems over distances beyond the geographic boundaries of Fort Drum, as well as expanding logistical routes via air and ground to simulate a large-scale battlefield.

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Sincerely,

Jeffery P. Lucas
Colonel, U.S. Army
Garrison Commander

Enclosure

DEPARTMENT OF THE ARMY
US ARMY INSTALLATION MANAGEMENT COMMAND
HEADQUARTERS, UNITED STATES ARMY GARRISON, FORT DRUM
10000 10TH MOUNTAIN DIVISION DRIVE
FORT DRUM, NEW YORK 13602-5046

JUN 24 2020

Office of the Garrison Commander

Dr. Nancy Herter
New York State Historic Preservation Office
Peebles Island Resource Center
P.O. Box 189
Waterford, NY 12188-0189

Dear Dr. Herter:

Fort Drum is initiating agency coordination for a new proposed action within the existing nine county Local Flying Area surrounding Fort Drum's Installation Restricted Airspace area. The proposed action includes conducting up to six high-intensity, multi-day training events per year at off-installation locations to replicate multi-domain battle. These training events would serve to integrate air and/or ground operations, and sustainment activities by simulating real-world distances and threats, challenging logistical supply lines and mission command systems over distances beyond the geographic boundaries of Fort Drum, as well as expanding logistical routes via air and ground to simulate a large-scale battlefield.

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Sincerely,

Jeffery P. Lucas
Colonel, U.S. Army
Garrison Commander

Enclosure

DEPARTMENT OF THE ARMY
US ARMY INSTALLATION MANAGEMENT COMMAND
HEADQUARTERS, UNITED STATES ARMY GARRISON, FORT DRUM
10000 10TH MOUNTAIN DIVISION DRIVE
FORT DRUM, NEW YORK 13602-5046

JUN 24 2020

Office of the Garrison Commander

Mr. Jesse Bergevin
Historic Resources Specialist
The Oneida Indian Nation
2037 Dream Catcher Plaza
Oneida, NY 13421-0662

Dear Mr. Bergevin:

We hope that this letter finds you, your family, and the Nation doing well during these challenging times.

Fort Drum has prepared a document that describes a new proposed action within the existing nine county Local Flying Area surrounding Fort Drum's Installation Restricted Airspace area. The nine counties are Jefferson, Lewis, St. Lawrence, Oneida, Oswego, Hamilton, Onondaga, Franklin, and Herkimer. The proposed action includes conducting up to six high-intensity, multi-day training events per year at off-installation locations to replicate multi-domain battle. These training events would serve to integrate air and/or ground operations, and sustainment activities by simulating real-world distances and threats, challenging logistical supply lines and mission command systems over distances beyond the geographic boundaries of Fort Drum, as well as expanding logistical routes via air and ground to simulate a large-scale battlefield. We know that the attached document is a long and imposing one. However, as a valued consultation partner, Fort Drum would greatly appreciate your thoughts, opinions, and any possible concerns related to increased aviation activity in these nine counties.

Attached is the Programmatic Environmental Assessment and Draft Finding of No Significant Impact that analyzes and evaluates the potential environmental impacts of increasing mission and training activities at Fort Drum Army Installation and within the Local Flying Area of Fort Drum. Environmental consequences were analyzed for two action alternatives; conducting high-intensity, multi-day training events per year to replicate multi-domain battle either two or six times per year, as well as the No Action Alternative. The No Action Alternative would be the same amount of aviation training that takes place on Fort Drum today.

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Your time and effort in contributing to this process is greatly appreciated. If you have any questions or concerns at all about this document please do not hesitate to contact Dr. Laurie Rush, my delegated Native American Affairs Coordinator. She can be reached at laurie.w.rush.civ@mail.mil and (315) 783-9894. She will be delighted to hear from you. If you need further information, you could also contact Ms. Cait Schadock at (315) 771-6026. Fort Drum will also be asking for comments from the public and will hope to hear from them between July 6, 2020 and August 5, 2020.

Sincerely,

Jeffery P. Lucas
Colonel, U.S. Army
Garrison Commander

Enclosure

DEPARTMENT OF THE ARMY
US ARMY INSTALLATION MANAGEMENT COMMAND
HEADQUARTERS, UNITED STATES ARMY GARRISON, FORT DRUM
10000 10TH MOUNTAIN DIVISION DRIVE
FORT DRUM, NEW YORK 13602-5046

JUN 24 2020

Office of the Garrison Commander

Mr. Tony Gonyea, Faithkeeper
The Onondaga Nation
Administration Building
4040 Route 11
Onondaga Nation
Nedrow, NY 13120

Dear Faithkeeper Gonyea:

We hope that this letter finds you, your family, and the Nation doing well during these challenging times.

Fort Drum has prepared a document that describes a new proposed action within the existing nine county Local Flying Area surrounding Fort Drum's Installation Restricted Airspace area. The nine counties are Jefferson, Lewis, St. Lawrence, Oneida, Oswego, Hamilton, Onondaga, Franklin, and Herkimer. The proposed action includes conducting up to six high-intensity, multi-day training events per year at off-installation locations to replicate multi-domain battle. These training events would serve to integrate air and/or ground operations, and sustainment activities by simulating real-world distances and threats, challenging logistical supply lines and mission command systems over distances beyond the geographic boundaries of Fort Drum, as well as expanding logistical routes via air and ground to simulate a large-scale battlefield. We know that the attached document is a long and imposing one. However, as a valued consultation partner, Fort Drum would greatly appreciate your thoughts, opinions, and any possible concerns related to increased aviation activity in these nine counties.

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Sincerely,

Jeffery P. Lucas
Colonel, U.S. Army
Garrison Commander

Enclosure

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US ARMY INSTALLATION MANAGEMENT COMMAND
HEADQUARTERS, UNITED STATES ARMY GARRISON, FORT DRUM
10000 10TH MOUNTAIN DIVISION DRIVE
FORT DRUM, NEW YORK 13602-5046

JUN 24 2020

Office of the Garrison Commander

Mr. Darren Bonaparte
St. Regis Mohawk Tribe
Tribal Historic Preservation Office
71 Margaret Terrance Memorial Way
Akwesasne, NY 13655

Dear Mr. Bonaparte:

We hope that this letter finds you, your family, and the Nation doing well during these challenging times.

Fort Drum has prepared a document that describes a new proposed action within the existing nine county Local Flying Area surrounding Fort Drum's Installation Restricted Airspace area. The nine counties are Jefferson, Lewis, St. Lawrence, Oneida, Oswego, Hamilton, Onondaga, Franklin, and Herkimer. The proposed action includes conducting up to six high-intensity, multi-day training events per year at off-installation locations to replicate multi-domain battle. These training events would serve to integrate air and/or ground operations, and sustainment activities by simulating real-world distances and threats, challenging logistical supply lines and mission command systems over distances beyond the geographic boundaries of Fort Drum, as well as expanding logistical routes via air and ground to simulate a large-scale battlefield. We know that the attached document is a long and imposing one. However, as a valued consultation partner, Fort Drum would greatly appreciate your thoughts, opinions, and any possible concerns related to increased aviation activity in these nine counties.

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Sincerely,

Jeffe Lucas
Colonel, U.S. Army
Garrison Commander

Enclosure

DEPARTMENT OF THE ARMY
US ARMY INSTALLATION MANAGEMENT COMMAND
HEADQUARTERS, UNITED STATES ARMY GARRISON, FORT DRUM
10000 10TH MOUNTAIN DIVISION DRIVE
FORT DRUM, NEW YORK 13602-5046

JUN 24 2020

Dear Interested Party,

Fort Drum announces the availability of a Programmatic Environmental Assessment (PEA) and Draft Finding of No Significant Impact (FONSI) that analyzes and evaluates the potential environmental impacts of increasing mission and training activities at Fort Drum Army Installation and within the Local Flying Area (LFA) of Fort Drum. Environmental consequences were analyzed for two action alternatives; conducting high-intensity, multi-day training events per year to replicate multi-domain battle either two or six times per year, as well as the No Action Alternative.

The PEA and Draft FONSI are available for review at https://home.army.mil/drum/index.php/about/fort-drum-EA. For those who do not have ready access to a computer or the internet, the materials posted to the website will be made available upon request by contacting Ms. Cait Schadock, NEPA Coordinator, Directorate of Public Works, Fort Drum, by phone at (315) 772-6899, by mail at 4896 Jones St, Fort Drum, NY 13602-5097, or by email at usarmy.drum.imcom.mbx.dpw-nepa@mail.mil. In response to the coronavirus (COVID-19) pandemic in the United States and the Center for Disease Control's recommendations for social distancing and avoiding large public gatherings, Fort Drum will not hold a public information session for this action.

A public notice has been published in the Watertown Daily Times and the Post Standard announcing the availability of this document for a 30-day public review period beginning July 6, 2020 and ending August 5, 2020.

Fort Drum is calling for written comments from the public on this Programmatic Environmental Assessment. Comments may be provided in writing at any time during the public comment period and must be received/postmarked no later than August 5, 2020. Please submit comments to Ms. Cait Schadock by mail or email at the addresses above.

We greatly appreciate your participation.

Sincerely,

Jeffery P. Lucas
Colonel, U.S. Army
Garrison Commander

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Appendix B
State Listed Species

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State Listed Species

Species that are designated as threatened or endangered under ESA are assigned the same status at the state level in New York. Therefore, federally listed species shown in Table 3-8 are not included in Table B-1 but are also state-listed species.

Table B-1. State Listed Species in the Action Area

Common Name	Scientific Name	State Status	Occurrence in the Action Area (by County)
Birds			
American Bittern	*Botaurus lentiginosus*	Species of Special Concern	Essex, Hamilton, Herkimer, Jefferson, Lewis, Oneida, Onondaga, Oswego, St. Lawrence
Bald Eagle	*Haliaeetus leucocephalus*	Threatened	Essex, Hamilton, Herkimer, Jefferson, Lewis, Oneida, Onondaga, Oswego, St. Lawrence
Bicknell's Thrush	*Catharus bicknelli*	Species of Special Concern	Essex, Hamilton
Cerulean Warbler	*Setophaga cerulea*	Species of Special Concern	Herkimer, Jefferson, Lewis, Oneida, Onondaga, Oswego, St. Lawrence
Common Loon	*Gavia immer*	Species of Special Concern	Essex, Hamilton, Herkimer, Jefferson, Lewis, Oneida, Onondaga, Oswego, St. Lawrence
Common Nighthawk	*Chordeiles minor*	Species of Special Concern	Essex, Hamilton, Herkimer, Jefferson, Lewis, Oneida, Onondaga, Oswego, St. Lawrence
Common Tern	*Sterna hirundo*	Threatened	Essex, Jefferson, Oneida, Onondaga, Oswego, St. Lawrence
Cooper's Hawk	*Accipiter cooperii*	Species of Special Concern	Essex, Hamilton, Herkimer, Jefferson, Lewis, Oneida, Onondaga, Oswego, St. Lawrence
Golden Eagle	*Aquila chrysaetos*	Endangered	Essex, Hamilton, Herkimer, St. Lawrence
Golden-winged Warbler	*Vermivora chrysoptera*	Species of Special Concern	Essex, Jefferson, Lewis, Oneida, Onondaga, Oswego, St. Lawrence

Common Name	Scientific Name	State Status	Occurrence in the Action Area (by County)
Grasshopper Sparrow	*Ammodramus savannarum*	Species of Special Concern	Herkimer, Jefferson, Lewis, Oneida, Onondaga, Oswego, St. Lawrence
Henslow's Sparrow	*Ammodramus henslowii*	Threatened	Herkimer, Jefferson, Lewis, Oneida, Onondaga, Oswego, St. Lawrence
Horned Lark	*Eremophila alpestris*	Species of Special Concern	Essex, Herkimer, Jefferson, Lewis, Oneida, Onondaga, Oswego, St. Lawrence
King Rail	*Rallus elegans*	Threatened	Essex, Oswego
Least Bittern	*Ixobrychus exilis*	Threatened	Essex, Hamilton, Herkimer, Jefferson, Lewis, Oneida, Onondaga, Oswego, St. Lawrence
Loggerhead Shrike	*Lanius ludovicianus*	Endangered	Jefferson, Lewis, Oneida, Oswego, St. Lawrence
Northern Goshawk	*Accipiter gentilis*	Species of Special Concern	Essex, Hamilton, Herkimer, Jefferson, Lewis, Oneida, Onondaga, Oswego, St. Lawrence
Northern Harrier	*Circus hudsonius*	Threatened	Essex, Hamilton, Herkimer, Jefferson, Lewis, Oneida, Onondaga, Oswego, St. Lawrence
Osprey	*Pandion haliaetus*	Species of Special Concern	Essex, Hamilton, Herkimer, Jefferson, Lewis, Oneida, Onondaga, Oswego, St. Lawrence
Peregrine Falcon	*Falco peregrinus*	Endangered	Essex, Hamilton, Herkimer, Jefferson, Oneida, Onondaga, Oswego, St. Lawrence
Pied-billed Grebe	*Podilymbus podiceps*	Threatened	Essex, Hamilton, Herkimer, Jefferson, Lewis, Oneida, Onondaga, Oswego, St. Lawrence
Red-headed Woodpecker	*Melanerpes erythrocephalus*	Species of Special Concern	Essex, Hamilton, Herkimer, Jefferson,

Common Name	Scientific Name	State Status	Occurrence in the Action Area (by County)
			Lewis, Oneida, Onondaga, Oswego, St. Lawrence
Red-shouldered Hawk	*Buteo lineatus*	Species of Special Concern	Essex, Hamilton, Herkimer, Jefferson, Lewis, Oneida, Onondaga, Oswego, St. Lawrence
Sedge Wren	*Cistothorus platensis*	Threatened	Essex, Herkimer, Jefferson, Lewis, Oneida, Onondaga, Oswego, St. Lawrence
Sharp-shinned Hawk	*Accipiter striatus*	Species of Special Concern	Essex, Hamilton, Herkimer, Jefferson, Lewis, Oneida, Onondaga, Oswego, St. Lawrence
Short-eared Owl	Asio flammeus	Endangered	Essex, Herkimer, Jefferson, Lewis, Oneida, Onondaga, St. Lawrence
Spruce Grouse	*Falcipennis canadensis*	Endangered	Essex, Hamilton, St. Lawrence
Upland Sandpiper	*Bartramia longicauda*	Threatened	Essex, Herkimer, Jefferson, Lewis, Oneida, Onondaga, Oswego, St. Lawrence
Vesper Sparrow	*Pooecetes gramineus*	Species of Special Concern	Essex, Herkimer, Jefferson, Lewis, Oneida, Onondaga, Oswego, St. Lawrence
Whip-poor-will	*Antrostomus vociferus*	Species of Special Concern	Essex, Hamilton, Herkimer, Jefferson, Lewis, Oneida, Onondaga, Oswego, St. Lawrence
Yellow-breasted Chat	*Icteria virens*	Species of Special Concern	Jefferson, Oneida, Onondaga, St. Lawrence
Mammals			
Eastern Small-footed Myotis	*Myotis leibii*	Species of Special Concern	Essex, Hamilton, Jefferson, Onondaga, St. Lawrence
Reptiles			
Blanding's Turtle	*Emydoidea blandingii*	Threatened	Hamilton, Jefferson, Lewis, Oneida,

Common Name	Scientific Name	State Status	Occurrence in the Action Area (by County)
			Onondaga, Oswego, St. Lawrence
Eastern Box Turtle	*Terrapene carolina*	Species of Special Concern	Oswego
Eastern Hog-nosed Snake	*Heterodon platirhinos*	Species of Special Concern	Onondaga
Spiny Softshell	*Apalone spinifera*	Species of Special Concern	Essex, Jefferson, Oneida, Oswego
Spotted Turtle	*Clemmys guttata*	Species of Special Concern	Jefferson, Lewis, Oneida, Onondaga, Oswego, St. Lawrence
Timber Rattlesnake	*Crotalus horridus*	Threatened	Essex
Wood Turtle	*Glyptemys insculpta*	Species of Special Concern	Essex, Hamilton, Herkimer, Jefferson, Lewis, Oneida, Onondaga, Oswego, St. Lawrence
Amphibians			
Blue-spotted Salamander	*Ambystoma laterale*	Species of Special Concern	Essex, Herkimer, Jefferson, Lewis, Oneida, Onondaga, Oswego, St. Lawrence
Jefferson Salamander	*Ambystoma jeffersonianum*	Species of Special Concern	Essex, Herkimer, Jefferson, Lewis, Oneida, Onondaga, St. Lawrence
Fish			
Eastern Sand Darter	*Ammocrypta pellucida*	Threatened	Essex, St. Lawrence
Lake Chubsucker	*Erimyzon sucetta*	Threatened	Oneida, Onondaga, Oswego
Lake Sturgeon	*Acipenser fulvescens*	Threatened	Essex, Jefferson, Oneida, Onondaga, Oswego, St. Lawrence
Mooneye	*Hiodon tergisus*	Threatened	Essex, Jefferson, Oswego, St. Lawrence
Northern Sunfish	*Lepomis peltastes*	Threatened	Onondaga, Oswego
Pugnose Shiner	*Notropis anogenus*	Endangered	Jefferson, St. Lawrence
Round Whitefish	*Prosopium cylindraceum*	Endangered	Essex, Hamilton, Herkimer, Lewis, Oswego, St. Lawrence
Spoonhead Sculpin	*Cottus ricei*	Endangered	Oswego
Insects			
Bogbean Buckmoth	*Hemileuca* sp.	Endangered	Oswego
Common Sanddragon	*Progomphus obscurus*	Species of Special Concern	Essex
Extra-striped Snaketail	*Ophiogomphus anomalus*	Species of Special Concern	Essex, Herkimer, Oneida, St. Lawrence

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Frosted Elfin	*Callophrys irus*	Threatened	Oneida
Gray Petaltail	*Tachopteryx thoreyi*	Species of Special Concern	Lewis
Karner Blue	*Plebejus melissa samuelis*	Endangered	Jefferson, Oneida
Olympia Marble	*Euchloe olympia*	Species of Special Concern	Jefferson
Tawny Crescent	*Phyciodes batesii batesii*	Species of Special Concern	Onondaga
Tomah Mayfly	*Siphlonisca aerodromia*	Endangered	Jefferson, Lewis
Snails			
Mossy Valvata	*Valvata sincera*	Species of Special Concern	Onondaga, Oswego
Plants			
Alpine Azalea	*Kalmia procumbens*	Endangered	Essex
Alpine Cliff Fern	*Woodsia alpina*	Endangered	Essex
Alpine Goldenrod	*Solidago leiocarpa*	Threatened	Essex
Alpine Sweetgrass	*Anthoxanthum monticola* ssp. *monticola*	Endangered	Essex
Alpine Willow-herb	*Epilobium hornemannii* ssp. *hornemannii*	Endangered	Essex, Herkimer, Jefferson, St. Lawrence
Alternate-flowered Water Milfoil	*Myriophyllum alterniflorum*	Threatened	Essex, Jefferson, St. Lawrence
Ambiguous Sedge	*Carex amphibola*	Endangered	Oneida
American Dragonhead	*Dracocephalum parviflorum*	Endangered	Jefferson, Lewis, Oneida, St. Lawrence
American Shore Grass	*Littorella americana*	Endangered	Hamilton
American Waterwort	*Elatine americana*	Endangered	Oneida
Angled Spike Rush	*Eleocharis quadrangulata*	Endangered	Oneida, Onondaga, Oswego
Annual Saltmarsh Aster	*Symphyotrichum subulatum* var. *subulatum*	Threatened	Onondaga
Arctic Rush	*Oreojuncus trifidus*	Threatened	Essex
Auricled Twayblade	*Neottia auriculata*	Endangered	Lewis
Autumnal Water-starwort	*Callitriche hermaphroditica*	Endangered	Jefferson, Lewis, St. Lawrence
Back's Sedge	*Carex backii*	Threatened	Essex, Hamilton, Jefferson, St. Lawrence
Bearberry Willow	*Salix uva-ursi*	Threatened	Essex
Bear's Foot	*Smallanthus uvedalia*	Endangered	Onondaga
Big Shellbark Hickory	*Carya laciniosa*	Threatened	Oneida, Onondaga
Bigelow's Sedge	*Carex bigelowii* ssp. *bigelowii*	Threatened	Essex

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Bigleaf Yellow Avens	*Geum macrophyllum* var. *macrophyllum*	Endangered	Essex
Bird's Eye Primrose	*Primula mistassinica*	Threatened	Jefferson, Lewis, Oneida, Oswego
Black Sedge	*Carex nigra*	Endangered	Oneida
Blue-eyed-Mary	*Collinsia verna*	Endangered	Herkimer, Oneida
Blunt-lobe Grape Fern	*Botrychium oneidense*	Threatened	Essex, Herkimer, Lewis, Oneida, Onondaga, St. Lawrence
Boott's Rattlesnake Root	*Nabalus boottii*	Endangered	Essex
Bristly Nodding Sedge	*Carex echinodes*	Endangered	Jefferson, St. Lawrence
Broad-lipped Twayblade	*Neottia convallarioides*	Endangered	Essex, Hamilton, Herkimer, Jefferson, Lewis, Oneida, Onondaga
Brown Bog Sedge	*Carex buxbaumii*	Threatened	Essex, Herkimer, Lewis, Oneida, Onondaga, St. Lawrence
Button Sedge	*Carex bullata*	Endangered	Oneida
Buttonbush Dodder	*Cuscuta cephalanthi*	Endangered	Onondaga
Calypso	*Calypso bulbosa* var. *americana*	Endangered	Herkimer, Jefferson, Lewis, Oneida, Onondaga, Oswego, St. Lawrence
Canada Rice Grass	*Piptatheropsis canadensis*	Threatened	Essex, St. Lawrence
Canadian Single-spike Sedge	*Carex scirpoidea* ssp. *scirpoidea*	Endangered	Essex
Carey's Sedge	*Carex careyana*	Endangered	Jefferson, Onondaga, St. Lawrence
Carey's Smartweed	*Persicaria careyi*	Endangered	Herkimer, Onondaga, Oswego
Carolina Whitlow Grass	*Tomostima reptans*	Threatened	Jefferson
Catfoot	*Pseudognaphalium micradenium*	Endangered	Oneida
Cat-tail Sedge	*Carex typhina*	Endangered	Essex, Oneida
Climbing Fern	*Lygodium palmatum*	Endangered	Oneida, Onondaga
Clinton's Club Sedge	*Trichophorum clintonii*	Endangered	Hamilton, Lewis, St. Lawrence
Cloud Sedge	*Carex haydenii*	Endangered	Essex, Hamilton, Herkimer, Jefferson, Lewis, Onondaga, St. Lawrence

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Clustered Sedge	*Carex cumulata*	Threatened	Essex, Oneida
Common Moonwort	*Botrychium neolunaria*	Endangered	Oneida, Onondaga
Cork Elm	*Ulmus thomasii*	Threatened	Herkimer, Jefferson, Lewis, Oneida, Onondaga, St. Lawrence
Cranefly Orchid	*Tipularia discolor*	Endangered	Onondaga
Crawe's Sedge	*Carex crawei*	Threatened	Herkimer, Jefferson, Oneida, St. Lawrence
Creeping Juniper	*Juniperus horizontalis*	Endangered	Oneida, Onondaga
Creeping Sedge	*Carex chordorrhiza*	Threatened	Herkimer, Jefferson, Lewis, Oneida, Oswego, St. Lawrence
Culver's Root	*Veronicastrum virginicum*	Threatened	Herkimer, Oswego
Cypress-knee Sedge	*Carex decomposita*	Endangered	Oneida
Daisy Fleabane	*Erigeron hyssopifolius*	Endangered	Essex, Hamilton
Davis' Sedge	*Carex davisii*	Threatened	Oneida
Deer's Hair Sedge	*Trichophorum cespitosum* ssp. *cespitosum*	Threatened	Essex
Diapensia	*Diapensia lapponica*	Threatened	Essex
Douglas' Knotweed	*Polygonum douglasii*	Threatened	Essex, Jefferson, St. Lawrence
Downy Lettuce	*Lactuca hirsuta*	Endangered	Essex, Oneida, St. Lawrence
Downy Phlox	*Phlox pilosa* ssp. *pilosa*	Endangered	St. Lawrence
Downy Wood Mint	*Blephilia ciliata*	Endangered	Essex
Dragon's Mouth Orchid	*Arethusa bulbosa*	Threatened	Essex, Hamilton, Jefferson, Lewis, Oneida, Onondaga, Oswego, St. Lawrence
Drummond's Rock Cress	*Boechera stricta*	Threatened	Essex, Jefferson, Onondaga, St. Lawrence
Dwarf Bilberry	*Vaccinium cespitosum*	Endangered	Essex, Oneida
Dwarf Bulrush	*Cyperus subsquarrosus*	Endangered	Essex, Oneida, Oswego
Dwarf Cherry	*Prunus pumila* var. *depressa*	Threatened	Essex, Hamilton, Jefferson, Lewis, Oneida
Dwarf White Birch	*Betula minor*	Endangered	Essex, St. Lawrence
Dwarf Willow	*Salix herbacea*	Endangered	Essex
Eastern Prairie Fringed Orchid	*Platanthera leucophaea*	Endangered	Onondaga
Elk Sedge	*Carex garberi*	Endangered	Jefferson
Emory's Sedge	*Carex emoryi*	Endangered	St. Lawrence
Fairywand	*Chamaelirium luteum*	Endangered	Onondaga

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False Hop Sedge	*Carex lupuliformis*	Threatened	Essex, Jefferson, Lewis, Oneida, Oswego
False Toadflax	*Geocaulon lividum*	Endangered	Essex
Farwell's Water Milfoil	*Myriophyllum farwellii*	Threatened	Essex, Hamilton, Herkimer, Oneida, Onondaga, St. Lawrence
Featherfoil	*Hottonia inflata*	Threatened	Jefferson
Fernald's Blue Grass	*Poa laxa* ssp. *fernaldiana*	Endangered	Essex
Fernald's Sedge	*Carex merritt-fernaldii*	Threatened	Essex, Jefferson, St. Lawrence
Field Dodder	*Cuscuta campestris*	Endangered	Onondaga
Fir Clubmoss	*Huperzia selago*	Endangered	Essex, St. Lawrence
Forest Blue Grass	*Poa sylvestris*	Endangered	Jefferson, Onondaga
Fragrant Cliff Fern	*Dryopteris fragrans*	Endangered	Essex, Hamilton, St. Lawrence
Frank's Sedge	*Carex frankii*	Endangered	Oneida
Georgia Bulrush	*Scirpus georgianus*	Endangered	Essex, Oswego
Glaucous Blue Grass	*Poa glauca* ssp. *glauca*	Endangered	Essex
Glomerate Sedge	*Carex aggregata*	Endangered	Jefferson, Oneida, Onondaga
Golden Corydalis	*Corydalis aurea* ssp. *aurea*	Threatened	Essex, Jefferson, Lewis
Golden Puccoon	*Lithospermum croceum*	Endangered	Onondaga
Goldenseal	*Hydrastis canadensis*	Threatened	Herkimer, Oneida, Onondaga
Goldie's Starwort	*Stellaria longipes* ssp. *longipes*	Threatened	Jefferson
Goosefoot Corn Salad	*Valerianella chenopodiifolia*	Endangered	Oneida, Onondaga
Great Lakes Sand Cherry	*Prunus pumila* var. *pumila*	Endangered	Hamilton, Jefferson, Oswego
Great Plains Flatsedge	*Cyperus lupulinus* ssp. *lupulinus*	Threatened	Oneida, Onondaga, Oswego
Green Gentian	*Frasera caroliniensis*	Threatened	Oneida
Green Rock Cress	*Borodinia missouriensis*	Threatened	Essex
Green Spleenwort	*Asplenium viride*	Endangered	Lewis
Hair-like Sedge	*Carex capillaris*	Endangered	Essex, Hamilton, Onondaga
Handsome Sedge	*Carex formosa*	Threatened	Essex, Oneida, St. Lawrence
Heart Sorrel	*Rumex hastatulus*	Endangered	Onondaga, St. Lawrence
Hidden Spike Moss	*Selaginella eclipes*	Endangered	St. Lawrence

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Hill's Pondweed	*Potamogeton hillii*	Threatened	Essex, Jefferson, Lewis, St. Lawrence
Hooker's Orchid	*Platanthera hookeri*	Endangered	Essex, Oneida, Onondaga, Oswego, St. Lawrence
Houghton's Sedge	*Carex houghtoniana*	Threatened	Essex, Hamilton, Jefferson, Oneida, Oswego, St. Lawrence
Interior Blue Grass	*Poa interior*	Endangered	Essex
James' Sedge	*Carex jamesii*	Threatened	Jefferson, Onondaga
Kentucky Coffee Tree	*Gymnocladus dioicus*	Endangered	Jefferson, Oneida, Onondaga
Knotted Spike Rush	*Eleocharis equisetoides*	Threatened	Oneida, Onondaga
Lake Cress	*Rorippa aquatica*	Threatened	Essex, Hamilton, Herkimer, Jefferson, Oneida, Onondaga, Oswego, St. Lawrence
Lanceleaf Arnica	*Arnica lanceolata* ssp. *lanceolata*	Endangered	Essex
Lapland Rosebay	*Rhododendron lapponicum*	Endangered	Essex
Large Twayblade	*Liparis liliifolia*	Endangered	Oneida, Onondaga, Oswego
Lesser Fringed Gentian	*Gentianopsis virgata* ssp. *virgata*	Endangered	St. Lawrence
Lindley's Aster	*Symphyotrichum ciliolatum*	Endangered	Jefferson, Onondaga, St. Lawrence
Little-leaf Tick Trefoil	*Desmodium ciliare*	Threatened	Oneida, Onondaga, Oswego
Livid Sedge	*Carex livida*	Endangered	Essex, Herkimer, Jefferson, Oneida, Oswego, St. Lawrence
Lowland Yellow Loosestrife	*Lysimachia hybrida*	Endangered	Essex, Oneida
Many-headed Sedge	*Carex sychnocephala*	Endangered	Herkimer, Jefferson, Oneida
Mare's Tail	*Hippuris vulgaris*	Endangered	Essex, Lewis, St. Lawrence
Marsh Arrow Grass	*Triglochin palustris*	Threatened	Herkimer, Oneida, Onondaga
Marsh Horsetail	*Equisetum palustre*	Threatened	Herkimer, Jefferson, Lewis, Oneida, Oswego, St. Lawrence
Marsh Valerian	*Valeriana uliginosa*	Endangered	Herkimer, Lewis, Oneida, Onondaga
Meadow Horsetail	*Equisetum pratense*	Threatened	Essex, Oneida, St. Lawrence

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Mead's Sedge	*Carex meadii*	Endangered	Herkimer
Melic Oats	*Graphephorum melicoides*	Endangered	Essex, Hamilton
Michigan Lily	*Lilium michiganense*	Endangered	Jefferson, Onondaga, St. Lawrence
Midland Sedge	*Carex mesochorea*	Threatened	Onondaga
Mingan Moonwort	*Botrychium minganense*	Endangered	Oneida, Onondaga
Minute Duckweed	*Lemna perpusilla*	Endangered	Oswego
Mitchell's Sedge	*Carex mitchelliana*	Endangered	Oneida
Moor Rush	*Juncus stygius* var. *americanus*	Endangered	Essex, Herkimer, Jefferson
Mountain Death Camas	*Anticlea elegans* var. *glauca*	Threatened	Jefferson, Onondaga, St. Lawrence
Navel Corn Salad	*Valerianella umbilicata*	Endangered	Oneida
New England Northern Reed Grass	*Calamagrostis stricta* ssp. *inexpansa*	Threatened	Essex, Hamilton, Herkimer, St. Lawrence
Nodding Pogonia	*Triphora trianthophoros* ssp. *trianthophoros*	Threatened	Oneida, Onondaga
Northern Bentgrass	*Agrostis mertensii*	Threatened	Essex
Northern Bog Aster	*Symphyotrichum boreale*	Threatened	Essex, Herkimer, Jefferson, Lewis, Onondaga, Oswego, St. Lawrence
Northern Bog Sedge	*Carex gynocrates*	Endangered	Herkimer, Lewis, Oswego, St. Lawrence
Northern Bog Violet	*Viola nephrophylla*	Endangered	Essex, Hamilton, Herkimer, Jefferson, Oneida, Onondaga, St. Lawrence
Northern Bristly Club Moss	*Spinulum canadense*	Endangered	Essex, St. Lawrence
Northern Clustered Sedge	*Carex arcta*	Endangered	Essex, Herkimer, St. Lawrence
Northern Lowbush Blueberry	*Vaccinium boreale*	Threatened	Essex, Hamilton
Northern Quillwort	*Isoetes septentrionalis*	Endangered	Essex, St. Lawrence
Northern Running-pine	*Diphasiastrum complanatum*	Endangered	Essex, Lewis, Oneida, St. Lawrence
Northern Stickseed	*Hackelia deflexa* ssp. *americana*	Endangered	Jefferson
Northern Tansy-mustard	*Descurainia pinnata* ssp. *brachycarpa*	Endangered	Essex
Northern Wild Comfrey	*Andersonglossum boreale*	Endangered	Essex, Hamilton, Jefferson, Lewis, Oneida, Onondaga

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Northern Wild Licorice	*Galium kamtschaticum*	Endangered	Essex, Hamilton
Nuttall's Tick Trefoil	*Desmodium nuttallii*	Endangered	Herkimer, Onondaga
Ohio Goldenrod	*Solidago ohioensis*	Threatened	Onondaga
Orange Fringed Orchid	*Platanthera ciliaris*	Endangered	Oneida, Onondaga, Oswego
Ovate Spike Rush	*Eleocharis ovata*	Endangered	Essex, Hamilton, Herkimer, Oneida, Oswego, St. Lawrence
Pale Indian-plantain	*Arnoglossum atriplicifolium*	Endangered	Oneida
Pawpaw	*Asimina triloba*	Threatened	Oswego
Pinedrops	*Pterospora andromedea*	Endangered	Essex, Lewis, Oneida, Oswego
Pink Wintergreen	*Pyrola asarifolia* ssp. *asarifolia*	Threatened	Essex, Herkimer, Jefferson, Lewis, Oneida, Onondaga, St. Lawrence
Prairie Dropseed	*Sporobolus heterolepis*	Threatened	Jefferson, Lewis
Prairie Dunewort	*Botrychium campestre*	Endangered	Onondaga
Prairie Redroot	*Ceanothus herbaceus*	Endangered	Jefferson
Prairie Smoke	*Geum triflorum* var. *triflorum*	Threatened	Jefferson, Oswego
Prairie Wedge Grass	*Sphenopholis obtusata*	Endangered	Jefferson
Prickly Rose	*Rosa acicularis* ssp. *sayi*	Endangered	Essex
Primrose-leaved Violet	*Viola primulifolia* var. *primulifolia*	Threatened	St. Lawrence
Purple Cress	*Cardamine douglassii*	Threatened	Essex, Onondaga
Purple Crowberry	Empetrum atropurpureum	Endangered	Essex
Purple Mountain Saxifrage	Saxifraga oppositifolia ssp. oppositifolia	Endangered	Hamilton
Purple Rock Cress	*Boechera grahamii*	Threatened	Essex, Jefferson, Oswego, St. Lawrence
Puttyroot	*Aplectrum hyemale*	Endangered	Essex, Jefferson, Lewis, Oneida, Onondaga, Oswego
Ram's-head Lady's Slipper	*Cypripedium arietinum*	Threatened	Essex, Herkimer, Jefferson, Lewis, Oneida, Onondaga, Oswego
Rand's Goldenrod	*Solidago randii*	Threatened	Essex, Hamilton, Herkimer
Rattlebox	*Crotalaria sagittalis*	Endangered	Lewis
Red Pigweed	*Oxybasis rubra* var. *rubra*	Threatened	Oneida, Onondaga, St. Lawrence

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Red Pondweed	*Potamogeton alpinus*	Threatened	Essex, Herkimer, Jefferson, Lewis, Oneida, Oswego, St. Lawrence
Reflexed Sedge	*Carex retroflexa*	Threatened	Hamilton, Onondaga
Rhodora	*Rhododendron canadense*	Threatened	Essex, Herkimer, Lewis, Oneida, St. Lawrence
Riverbank Goldenrod	*Solidago racemosa*	Endangered	Essex
Riverweed	*Podostemum ceratophyllum*	Threatened	Essex, Jefferson, Oneida, St. Lawrence
Rock Whitlow Grass	*Draba arabisans*	Threatened	Essex, Hamilton, Jefferson, Lewis, Oneida, Onondaga, St. Lawrence
Rough Avens	*Geum virginianum*	Threatened	Jefferson, Oneida, Onondaga, St. Lawrence
Rough Pennyroyal	*Hedeoma hispida*	Threatened	Essex, Herkimer, Jefferson, St. Lawrence
Rugulose Grape Fern	*Botrychium rugulosum*	Endangered	Essex, Hamilton, Herkimer, Oneida, Onondaga, St. Lawrence
Salt-marsh Spike Rush	*Eleocharis uniglumis*	Threatened	Jefferson, Oswego
Salt-meadow Grass	*Diplachne fusca* ssp. *fascicularis*	Endangered	Onondaga
Sand Dune Willow	*Salix cordata*	Threatened	Jefferson, Oswego, Oneida, Onondaga, St. Lawrence
Scabrous Black Sedge	*Carex atratiformis*	Endangered	Essex
Scarlet Indian-paintbrush	*Castilleja coccinea*	Endangered	Jefferson, Lewis, Onondaga, St. Lawrence
Schweinitz's Sedge	Carex schweinitzii	Threatened	Herkimer, Oneida, Onondaga, Oswego
Seaside Agalinis	*Agalinis maritima* var. *maritima*	Threatened	Onondaga
Seaside Bulrush	*Bolboschoenus maritimus* ssp. *paludosus*	Threatened	Onondaga
Sharp-tipped Blue-eyed Grass	*Sisyrinchium mucronatum*	Endangered	Herkimer, St. Lawrence
Sheathed Sedge	*Carex vaginata*	Endangered	Essex, Lewis
Sheep Fescue	*Festuca saximontana* var. *saximontana*	Endangered	Essex
Shining Bedstraw	*Galium concinnum*	Endangered	Onondaga

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Short's Sedge	*Carex shortiana*	Endangered	Onondaga
Shrubby St. John's Wort	*Hypericum prolificum*	Threatened	Oswego
Side-oats Grama	*Bouteloua curtipendula* var. *curtipendula*	Endangered	Jefferson
Sitka Clubmoss	*Diphasiastrum sitchense*	Endangered	Essex, St. Lawrence
Sky-blue Aster	*Symphyotrichum oolentangiense*	Endangered	Oneida, Oswego
Slender Bulrush	*Schoenoplectus heterochaetus*	Endangered	Essex, Jefferson, Oswego, St. Lawrence
Slender Marsh Blue Grass	*Poa paludigena*	Endangered	Lewis
Slender Pondweed	*Stuckenia filiformis*	Endangered	Jefferson, Oneida, Onondaga, Oswego, St. Lawrence
Small Bur-reed	*Sparganium natans*	Threatened	Essex, Hamilton, Jefferson, Lewis, Oswego, St. Lawrence
Small Floating Bladderwort	*Utricularia radiata*	Threatened	Hamilton
Small Southern Yellow Lady's Slipper	*Cypripedium parviflorum* var. *parviflorum*	Endangered	Lewis, Oneida, Onondaga, St. Lawrence
Small White Lady's Slipper	*Cypripedium candidum*	Endangered	Onondaga
Small-headed Aster	*Symphyotrichum lanceolatum* var. *interior*	Endangered	St. Lawrence
Small's Knotweed	*Polygonum buxiforme*	Endangered	Oneida, Onondaga, St. Lawrence
Smooth Beggar-ticks	*Bidens laevis*	Threatened	Jefferson, Oneida
Smooth Cliff Brake	*Pellaea glabella* ssp. *glabella*	Threatened	Essex, Jefferson, Lewis, St. Lawrence, Essex, Hamilton, Herkimer
Snowline Wintergreen	*Pyrola minor*	Endangered	Essex
Soft Fox Sedge	*Carex conjuncta*	Endangered	Herkimer, Oneida
Southern Bluets	*Houstonia purpurea* var. *calycosa*	Endangered	Essex
Southern Snailseed Pondweed	*Potamogeton diversifolius*	Endangered	Essex, Hamilton, Oneida
Southern Swamp Buttercup	*Ranunculus septentrionalis*	Endangered	St. Lawrence
Southern Twayblade	*Neottia bifolia*	Endangered	Hamilton, Lewis, Oneida, Onondaga, Oswego, St. Lawrence

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Southern Wild Raisin	*Viburnum nudum* var. *nudum*	Endangered	Onondaga
Southern Yellow Flax	*Linum medium* var. *texanum*	Threatened	St. Lawrence
Sparse-flowered Sedge	*Carex tenuiflora*	Endangered	Essex, Lewis, Oneida, Oswego, St. Lawrence
Spiked Woodrush	*Luzula spicata* ssp. *spicata*	Endangered	Essex
Spotted Pondweed	*Potamogeton pulcher*	Threatened	Oswego
Spreading Chervil	*Chaerophyllum procumbens* var. *procumbens*	Endangered	Onondaga
Spreading Rush	*Juncus subcaudatus*	Endangered	Oneida
Spurred Gentian	*Halenia deflexa* ssp. *deflexa*	Endangered	Essex, Hamilton, Herkimer, Oneida
Squashberry	*Viburnum edule*	Threatened	Essex, Herkimer
Stalked Bugleweed	*Lycopus rubellus*	Endangered	Herkimer
Stargrass	*Aletris farinosa*	Threatened	Onondaga
Sticky False Asphodel	*Triantha glutinosa*	Endangered	Onondaga
Stiff Tick Trefoil	*Desmodium obtusum*	Endangered	Onondaga, Oswego
Straight-leaved Pondweed	*Potamogeton strictifolius*	Endangered	Essex, Jefferson, Oneida, Onondaga, Oswego, St. Lawrence
Straw Sedge	*Carex straminea*	Endangered	Oswego
Striped Coralroot	*Corallorhiza striata* var. *striata*	Endangered	Jefferson, Lewis
Swamp Aster	*Eurybia radula*	Endangered	St. Lawrence
Swamp Birch	*Betula pumila*	Threatened	Essex, Lewis, St. Lawrence
Swamp Lousewort	*Pedicularis lanceolata*	Threatened	Onondaga
Swamp Oats	*Sphenopholis pensylvanica*	Endangered	Herkimer
Swamp Smartweed	*Persicaria setacea*	Endangered	Oneida, Onondaga, Oswego
Sweet Coltsfoot	*Petasites frigidus* var. *palmatus*	Endangered	Essex, Onondaga, St. Lawrence
Sweet-scented Indian Plantain	*Senecio suaveolens*	Endangered	Onondaga
Tall Bellflower	*Campanula americana*	Endangered	Onondaga
Tall Ironweed	*Vernonia gigantea*	Endangered	Herkimer, Lewis, Oneida
Terrestrial Starwort	*Callitriche terrestris*	Threatened	Essex, Herkimer, Oneida, Onondaga
Tinged Sedge	*Carex tincta*	Endangered	Herkimer
Toothed Rock Cress	*Borodinia dentata*	Threatened	Oneida
Tundra Dwarf Birch	*Betula glandulosa*	Endangered	Essex

Common Name	Scientific Name	State Status	Occurrence in the Action Area (by County)
Twinleaf	*Jeffersonia diphylla*	Threatened	Jefferson, Lewis, Onondaga
Veiny Meadow Rue	*Thalictrum venulosum*	Endangered	Essex
Virginia False Gromwell	*Lithospermum virginianum*	Endangered	Oneida, Onondaga
Virginia Ground Cherry	*Physalis virginiana* var. *virginiana*	Endangered	Oneida
Virginia Three-seeded Mercury	*Acalypha virginica*	Endangered	Onondaga
Water Awlwort	*Subularia aquatica* ssp. *americana*	Endangered	Essex, Hamilton
Whip Nut Sedge	*Scleria triglomerata*	Endangered	Oneida
White Basswood	*Tilia americana* var. *heterophylla*	Endangered	Onondaga
White Mountain Saxifrage	*Saxifraga paniculata* ssp. *paniculata*	Endangered	Essex
White-edge Sedge	*Carex debilis* var. *debilis*	Threatened	Hamilton, Oneida
Whorled Mountain Mint	*Pycnanthemum verticillatum* var. *verticillatum*	Endangered	Herkimer, Oneida, St. Lawrence
Wiegand's Sedge	*Carex wiegandii*	Endangered	Lewis
Wild Pink	*Silene caroliniana* ssp. *pensylvanica*	Threatened	Onondaga
Wild Sweet William	*Phlox maculata* ssp. *maculata*	Endangered	Essex, Hamilton, Lewis, Oneida, Onondaga
Woodland Agrimony	*Agrimonia rostellata*	Threatened	Onondaga
Woodland Cudweed	*Omalotheca sylvatica*	Endangered	Herkimer
Wright's Spike Rush	*Eleocharis diandra*	Endangered	Oneida, Oswego
Yellow Giant-hyssop	*Agastache nepetoides*	Threatened	Essex, Herkimer, Jefferson, Oneida, Onondaga, St. Lawrence
Yellow Mountain Saxifrage	*Saxifraga aizoides*	Threatened	Jefferson, Oneida, Oswego
Yellow Wild Flax	*Linum sulcatum*	Threatened	Oneida, Onondaga

Source: NYSDEC 2019