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FINAL
ENVIRONMENTAL ASSESSMENT

WEST POINT INSTALLATION INFORMATION INFRASTRUCTURE MODERNIZATION PROGRAM AND TELECOMMUNICATIONS CLOSETS INSTALLATION IN BUILDING 600/TAYLOR HALL

UNITED STATES MILITARY ACADEMY
WEST POINT, ORANGE COUNTY, NEW YORK

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DIRECTORATE OF HOUSING AND PUBLIC WORKS
UNITED STATES MILITARY ACADEMY
WEST POINT, NEW YORK

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APPROVAL SHEET

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ABBREVIATIONS AND ACRONYMS

ACHP	Advisory Council on Historic Preservation
APE	Area of Potential Effect
AR	Army Regulation
B.P.	before present
BMPs	Best Management Practices
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CMP	Coastal Management Program
CUITN	Common User Installation Transport Network
DA	United States Department of the Army
dBA	A-weighted decibels
DHPW	Directorate of Housing and Public Works, USMA
EA	Environmental Assessment
ESA	Endangered Species Act
ESRI	Environmental Systems Research Institute
FEMA	Federal Emergency Management Agency
FY	fiscal year
GIS	Geographic Information System
gpm	gallons per minute
HVAC	heating, ventilation, and air conditioning
Kv	kilovolt
HABS/HAER	Historic American Buildings Survey/Historic American Engineering Record
HHSASS	Hudson Highlands Scenic Area of Statewide Significance
I3MP	Installation Information Infrastructure Modernization Program
ICRMP	Integrated Cultural Resources Management Plan
L_{dn}	day-night noise level
mgd	million gallons per day
MSDS	Material Safety Data Sheet(s)
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NHLD	National Historic Landmark District
NOx	nitrogen oxides
NPS	United States Department of the Interior, National Park Service
NRB	Natural Resources Branch
NRHP	National Register of Historic Places
NYS	New York State
NYSDEC	New York State Department of Environmental Conservation
NYSDOS	New York State Department of State
NYSDOT	New York State Department of Transportation
NYSECL	New York State Environmental Conservation Law

ABBREVIATIONS AND ACRONYMS

NYSOPRHP	New York State Office of Parks, Recreation and Historic Preservation
NWI	National Wetlands Inventory
O&R	Orange and Rockland Utilities, Inc.
ODIA	Directorate of Intercollegiate Athletics, USMA
OSCAR	Outside Cable Rehabilitation
OSHA	Occupational Safety and Health Administration
PEM	Palustrine Emergent
PFO	Palustrine Forested
PIPC	Palisades Interstate Park Commission
PM	particulate matter
PSS	Palustrine Scrub Shrub
RFFA	reasonably foreseeable future action
SHPO	State Historic Preservation Officer
SIP	State Implementation Plan
SPDES	State Pollution Discharge Elimination System
U&FD	Utilities and Facilities Division
USACE	United States Army Corps of Engineers
USDA SCS	United States Department of Agriculture, Soil Conservation Service
USDI	United States Department of the Interior
USEPA	United States Environmental Protection Agency
USFWS	United States Department of the Interior, Fish and Wildlife Service
USMA	The United States Military Academy, West Point, New York
UXO	unexploded ordnance
VOCs	volatile organic compounds

1.0 INTRODUCTION

In accordance with a United States Department of the Army (DA) national directive, the United States Military Academy (USMA) at West Point is planning to upgrade its telecommunications system at the USMA at West Point, located on the western shore of the Hudson River in the Town of Highlands, Orange County, New York (see Figure 1 for general site location map).

The telecommunications system upgrade would consist of replacing the existing, copper line and multi-mode fiber optic cable telecommunications system at the USMA, with a single-mode fiber optic cable system, as required by the DA directive. This upgrade would involve the replacement of existing telecommunications lines outside of the USMA's buildings, either by stringing cable through existing conduits, fastening cable to existing utility poles, or, where existing conduits and utility poles are not available, installing new buried conduits and fiber optic cable. Additionally, this upgrade would involve upgrading existing telecommunications facilities inside the USMA's buildings, and installing new telecommunications closets and associated infrastructure in several buildings, including Taylor Hall (Building 600), a prominent and historically significant building at the USMA at West Point. Collectively, these projects are known as "Installation Information Infrastructure Modernization Program (I3MP) and Telecommunications Closets Installation in Building 600/Taylor Hall," hereafter referred to as the Project.

This environmental assessment (EA) was prepared to assess the potential environmental effects of implementing these mandated telecommunications upgrade projects. This EA has been prepared in accordance with the requirements of the National Environmental Policy Act of 1969 (NEPA), the Council on Environmental Quality regulations for implementing NEPA (40 Code of Federal Regulations [CFR] 1500-1508), and the Army Regulation (AR) 200-2 (32 CFR Part 651).

Our principal purposes in preparing this EA are to:

- identify and assess potential impact on the natural and human environment that would result from the implementation of the proposed action;
- assess reasonable alternatives to the proposed action that would avoid or minimize adverse effects on the environment; and,
- identify and recommend alternatives and specific mitigation measures as necessary to minimize environmental impact.

Figure 1. General Location of USMA at West Point, New York.

2.0 DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES

2.1 BACKGROUND

The USMA at West Point, located in the Town of Highlands, Orange County, New York, is approximately 50 miles north of New York City, and approximately 7 miles southeast of Newburgh, New York. The USMA at West Point encompasses approximately 16,000 acres, and is located on the western shore of the Hudson River in Orange County, New York, and on Constitution Island in Putnam County, New York (Figure 1).

The USMA at West Point is proposing the Project in response to a DA national directive to upgrade the telecommunications system at the USMA at West Point. A primary component of the national directive requires all military installations nationwide to upgrade their telecommunications systems to single-mode fiber optic cable, to allow the convergence of voice, video, and data within a single telecommunications system.

The existing telecommunications system at the USMA at West Point consists of a combination of copper lines and multi-mode fiber optic cable. The speed of transmission along these existing systems allows signals to travel at approximately 100 megabits per second, which is now considered substandard, inadequate for present and future needs at the USMA at West Point, and does not achieve the DA's established objectives. In addition, the existing copper lines require a large number of repeaters to convey bandwidth signals over short distances, and are limited to transmitting only voice and video signals. Although the existing multi-mode fiber optic cable used in areas at the USMA is superior to the copper lines, it still can only transmit bandwidth signals for a distance of about 1 mile before new repeaters are necessary to continue signal conveyance, and the multi-mode cable is limited to carrying only data signals.

The Project would allow the convergence of voice, video, and data within a single fiber optic cable. This single-mode fiber optic cable would significantly improve telecommunications service by providing unlimited expanded bandwidths and allowing signal transmission at a speed of 1 gigabit per second for distances up to 50 miles before a repeater is necessary. This single-mode fiber optic cable also would permit the future expansion of the telecommunication system to handle bi-directional television communication.

The Project has two components: the Outside Cable Rehabilitation (OSCAR) program and the Common User Installation Transport Network (CUITN), as described in Section 2.3. Generally, the OSCAR involves the installation of the "backbone" of the single fiber optic cable telecommunications system outside of buildings, providing an accessible mainline linkage between each building and the main telecommunications node at the USMA at West Point. Generally, the CUITN involves upgrades to each building's internal telecommunications system equipment, inside each building. As part of the CUITN component of the Project, substantial alterations are required to one building,

Taylor Hall (Building 600), which is a prominent and historically significant building at the USMA at West Point.

This EA addresses the I3MP Fiber Optics Program (including the OSCAR and the CUITN) and the separate, but related project, involving the installation of telecommunications closets and associated upgrades in Taylor Hall.

2.2 PURPOSE AND NEED

The purpose of the Project is to bring the USMA at West Point into compliance with the DA's national directive to upgrade its telecommunications systems. The existing telecommunications system at the USMA at West Point is considered inadequate for present and future telecommunications needs at the USMA at West Point, and does not meet the DA's objectives as it seeks to modernize and transform DA systems nationwide.

The OSCAR, by providing the basic installation transmission connectivity from the user to the dial central office/main communications node, would support the voice and data requirements of the warfighting commanders engaged in contingency deployments and split-base operations during peacetime, war, and other military operations (USMA 2003a). The CUITN would provide an intelligent and secure data information infrastructure, as well as the necessary bandwidth and data networking capabilities for digital communications as the DA undergoes transformation. The CUITN would provide the capability to transport high-volume and near real-time data throughout the installation, and to the Defense Information Switched Network, in support of sustainability, contingencies, and split-based operations (USMA 2003a). Together, they would be sufficiently robust and scalable to easily meet the installation's data requirements in support of the legacy force, interim force, and objective force.

2.3 PROPOSED ACTION

The Proposed Action consists of implementing the I3MP Fiber Optics Program and the installation of telecommunications closets in Taylor Hall (Building 600). Construction of the Proposed Action would begin in Spring 2004 and would require 18 to 24 months to complete.

The I3MP Fiber Optics Program has two components: the Outside Cable Rehabilitation (OSCAR) program and the Common User Installation Transport Network (CUITN), as described in the following paragraphs.

<u>Outside Cable Rehabilitation Program (OSCAR)</u>

The OSCAR component involves replacing existing information transfer systems (i.e., copper cable and multi-mode fiber optic cable) throughout the USMA at West Point with a single fiber optic cable, to achieve the single cable, multi-use concept mandated by the DA's national directive. The OSCAR generally involves the "backbone" of the

telecommunication system, linking each building to the main communications node at the USMA at West Point. This "backbone" single fiber optic cable would be installed throughout the main cantonment area of the USMA at West Point, and to Camp Buckner. This component generally would be routed along existing roads, and installed using a combination of three different methods: through existing conduits and manholes, on existing aerial utility poles (e.g., telephone poles), or through new conduits and manholes that would be installed as part of this Project. A total of approximately 20.2 miles (106,376 linear feet) of new single fiber optic cable would be installed as part of the OSCAR component of the Project, including:

- 9.7 miles (51,215 feet) installed through existing conduits;
- 4.5 miles (23,727 feet) aerially installed on telephone poles; and,
- 6.0 miles (31,434 feet) installed by trenching to lay new conduits and fiber optic cable.

In addition, the USMA at West Point may also install an additional 2,400 feet (0.45 mile) of new fiber optic cable using trenched excavation methods under Cullum Road in the northeast portion of the Main Post/Academic Area. Figures 2a and 2b depict the proposed route of the new single fiber optic cable associated with the OSCAR component of the Project, including the "optional" extra length of new cable under Cullum Road (Figure 2a).

The USMA at West Point has designed the OSCAR component of the Project to maximize the use of the existing telecommunications infrastructure, including existing routing and conduits, and minimize construction of new telecommunications infrastructure. In particular, the USMA would re-use 67 existing manhole conduits and two existing handhole conduits, which has reduced the amount of new trench excavation required. Most of the new OSCAR fiber optic cable would be installed or buried below ground, with the exception of an approximately 4.5-mile length of cable that would be installed on existing telephone poles as it extends southwest to Camp Buckner, beginning just south of the New York State (NYS) Route 218/U.S. Route 9W/NYS Route 293 interchange area (southwest end of route shown on Figure 2a and all of route shown on Figure 2b).

Due to the absence or congestion of existing buried conduits in some areas, installation of the new cable would require excavation of a trench where required to install the cable between existing usable conduits. The total length of trench excavation would be approximately 31,434 linear feet (6.0 miles). Figure 2a shows the locations where trench excavation would be required to install the new single fiber optic cable. Additional activities associated with the required trench excavation include:

- Approximately 82,623 square feet (1.9 acres) of cut and resurface of existing asphalt;
- Approximately 20,730 square feet (0.5 acre) of cut and resurface of existing concrete (sidewalks and concrete base roads);

- Approximately 58 square feet of cut and resurface of existing cobblestone;
- Approximately 121 road cuts/crossings;
- Construction of approximately 20 new manholes (14 manholes measuring 12 by 6 by 7 feet and six manholes measuring 8 by 5 by 7 feet); and,
- Construction of approximately 15 new hand holes (measuring 6 by 4 by 4 feet).

Common User Installation Transport Network (CUITN)

The CUITN component of the Project involves upgrading internal telecommunications systems inside certain buildings designated as Tier 1 and Tier 2 buildings throughout the USMA at West Point. Tier 1 buildings are those that serve as the main telecommunications contact points between the USMA at West Point and the "outside world," such as the information procurement center, certain administration buildings, and certain academic buildings. Tier 2 buildings are those that must provide or function using high-level telecommunications services, such as academic buildings, hospital and medical clinic, and various administration buildings and barracks/dorms. These tier designations differentiate these buildings from Tier 3 and Tier 4 buildings, which are not currently being considered or evaluated for the I3MP upgrades addressed in this EA. (Tier 3 buildings include other data network subscribers, such as cadet residence halls containing personal computers that have network or web-enabled applications, or other lower bandwidth requirements. Tier 4 buildings include all other buildings that have less than the networking requirements of Tier 3 buildings.)

Under the CUITN component of the Project, internal telecommunications systems would be upgraded in a total of nine (9) Tier 1 buildings and 31 Tier 2 buildings.[1] Table 1 lists the 40 Tier 1 and Tier 2 buildings scheduled to receive I3MP upgrade, including the use or purpose of the building. The locations of these buildings are shown in Figures 2c and 2d.

In all of these buildings except one (e.g., Taylor Hall), the internal telecommunications system upgrades would be accomplished using existing access points in basements or along outside walls, installing cable along existing interior routing paths through the cores of the buildings, and into existing telecommunications closets inside the buildings, with only minor or no alteration of the interior or exterior of the buildings. Minor alterations would be required in buildings 329, 622, 626, and 681 for relocation of existing telecommunications closets.

[1] Sixty-six (66) buildings designated Tier 3 and 37 buildings designated Tier 4 will ultimately undergo similar interior upgrades at some time in the future, pending available funding. Although the core of the I3MP will be designed and implemented to accommodate Tier 3 buildings, the I3MP will not provide connectivity to Tier 3 or Tier 4 buildings. Therefore, Tier 3 and Tier 4 buildings are not addressed in this EA.

Figure 2a. Proposed Route of New Fiber Optic Cable for Main Post/Academic Area.

Figure 2b. Proposed Route of New Fiber Optic Cable Proceeding from Main Post Area to Camp Buckner.

Table 1. Buildings Receiving I3MP Upgrades as Part of the Proposed Project.

Building Number	Building Name	Building Use/Purpose	Additional Upgrades[a]
Tier 1 Buildings			
600	Taylor Hall	Post Headquarters, Administration	-Construct one new telecommunications closet -New conduit pathways (interior) -Install HVAC, power, and lighting in five existing telecommunications closets -Redesign Superintendent conference room
601	Thayer Hall	Academic Classrooms	
626	Finance/Housing	Administration, General Purpose	Move main telecommunications closet from B18 to 159
667A & B	Directorate of Housing and Public Works	Administration, Logistical Support	
745A & B	Washington Hall	Cadet Mess, Corps of Cadets Headquarters, Administration, Academic Classrooms	
756	Bradley Barracks/Cadet Dorm	Cadet Barracks	
845	Post Laundry	Logistical Support	Construct a telecommunications closet in basement to house Backbone Network Equipment
1630	Communication Building	Administration/Communication for Range Areas	Construct New Area Distribution Node
2101	Spellman Hall	Information Procurement Center	
Tier 2 Buildings			
329	Inspector General/Memorial Affairs	Administration, General Purpose	Move main telecommunications closet from basement to kitchen pantry
602	Grants Hall/Barracks	Academic Classrooms	
606	Admissions/Health Clinic	Administration, General Purpose	
607	Lincoln Hall	Academic Classrooms	Cable would enter building at new location, to facilitate installation from MH-26
609	Turbine Lab	Academic Classrooms	
616	Provost Marshal Office	Administration, General Purpose	
621	1/1 Infantry Headquarters	Emergency Operations Comment/Administration	Cable would enter building at new location
622	Post Services	Administration, General Purpose	Move main telecommunications closet from 106 to 105
639	Office of the Directorate of Intercollegiate Athletics (ODIA)	Administration, General Purpose	
655	Eisenhower Hall / Benny's Lounge	Multipurpose (Theater, Public Events and Activities)	Construct additional/new entrance conduits for building entry
681	Garrison Headquarters	Administration, General Purpose	Move main telecommunications closet from M1A to G08
687	Cadet Uniform Factory	Textile/Clothing Fabrication and Repair	

Table 1. Buildings Receiving I3MP Upgrades as Part of the Proposed Project (continued).

Building Number	Building Name	Building Use/Purpose	Additional Upgrades[a]
Tier 2 Buildings (continued)			
722	The Cadet Chapel	Chapel	
727	Arvin Gym	Physical Fitness Center	
735	Scott Barracks/Cadet Dorm	Cadet Barracks	Cable would enter building at new location, to facilitate installation from MH-19D
738	Sherman Barracks/Cadet Dorm	Cadet Barracks	Cable would enter building at new location, to facilitate installation from MH-3D
740	Lee Barracks/Cadet Dorm	Cadet Barracks	Construct additional conduits from MH-X4 into building
745C	Eisenhower Barracks	Cadet Barracks	Construct additional conduits from MH-5A into building
745D	MacArthur Barracks (Long)	Cadet Barracks	
745E	MacArthur Barracks (Short)	Cadet Barracks	
747	Nininger Hall	Administration, General Purpose	
751	Pershing Barracks/Cadet Dorms	Cadet Barracks	
752	Mahan Hall	Academic Classrooms	Cable would enter building at new location, to facilitate installation from MH-3C.
753	Bartlett Hall	Academic Classrooms	
757	Cadet Library	Technical Library	
900	Keller Hospital	Medical Center/Hospital	
1403	Range Control	Administration, Logistical Support	
1548	Camp Buckner Headquarters	Headquarters, Administration, Logistical Support	
1580	Camp Buckner Superintendent's Quarters/Commander's Cottage	Headquarters, Administration	
1666	"Snake Pit"	Cadet Field Training, Administration, Logistical Support	
1670	Highland Warrior	Cadet Field Training, Administration, Logistical Support	

Source: USMA 2003a.

Notes:

[a] "Additional Upgrades" refers to work beyond upgrading existing telecommunications systems within existing conduits and in existing telecommunications closet locations.

Figure 2c. Tier 1 and Tier 2 Buildings in Main Post/Academic Area Receiving Upgrades as Part of Project.

Figure 2d. Tier 1 and Tier 2 Buildings at Camp Buckner Receiving Upgrades as Part of Project.

Relatively major alterations would be required in Taylor Hall (Building 600), which does not currently have appropriate usable interior routing paths and does not have existing telecommunications closets. Substantial alteration of the interior of Taylor Hall would be required to accommodate the Project upgrades, including:

- Installation of single fiber optic cable through existing access points outside to gain access inside the building, and installation of new routing pathways within the building;
- Construction of one new telecommunications closet (actually a small room) on the 6th floor;
- Installation of heating, ventilation, and air conditioning (HVAC) systems, power, and lighting in five (5) existing telecommunications closets in the building (2nd basement, two locations on 1st basement, 2nd Floor, and 3rd Floor);
- Installation of a door on the existing telecommunications closet on the 3rd Floor; and,
- Redesign of the existing telecommunications system in the Superintendent's Conference Room to accommodate multi-media presentations.

Like many of the buildings at the USMA at West Point, Taylor Hall is individually eligible for the National Register of Historic Places (NRHP) and is a contributing element of the National Historic Landmark District (NHLD) at the USMA at West Point. Accordingly, any planned alteration of the interior of Taylor Hall requires intensive planning, specified design, and review to ensure that the planned alterations do not negatively impact the historic integrity and appearance of this important building. Therefore, the USMA at West Point has completed a building structure survey and evaluation as part of a cultural resources support study to determine the potential effects to cultural resources as a result of this Project, and to make recommendations for resolving potential adverse effects based on the findings of its study.

Although the Project would not provide connectivity to Tier 3 and Tier 4 buildings, the core would be designed and implemented to accommodate future upgrades to 66 Tier 3 buildings, including numerous barracks buildings, the mail distribution and print plant, indoor pistol firing range, vehicle maintenance shop, athletics and physical fitness centers, Michie Stadium, fire houses, band training building, day care center, water treatment plant, main sewer plant, a few chapels, visitor center, museum, crew and sailing center, laundry/dry cleaning building, and other administration and general purpose buildings.

2.4 ALTERNATIVES

Alternatives to the Proposed Action were considered during the process of Project planning, and generally consisted of the No Action Alternative, system alternatives, cable route alternatives, and alternative installation and construction methods, as described in the following sections.

2.4.1 No Action Alternative

The No Action Alternative consists of not implementing the Proposed Action or any alternative to the Proposed Action. The USMA at West Point's telecommunications systems would remain as is, and would not be upgraded. Although the No Action Alternative would avoid Project-related environmental impacts at the USMA at West Point, it would prevent the USMA at West Point's compliance with the DA's national directive for all military installations to upgrade their telecommunications systems. Therefore, the No Action Alternative would not fulfill the requirements imposed on the USMA at West Point, and would not satisfy the purpose and need for the Project.

2.4.2 System Alternatives

System alternatives consist of alternative approaches, methods, technologies, or other means of fulfilling the Project purpose and need. The purpose and need of this Project is to comply with the DA's national directive for all military installations to upgrade their fiber optic telecommunications systems to a single fiber optic cable, to allow the convergence of voice, video, and data within a single fiber optic cable.

One conceptual system alternative could include conversion to wireless telecommunications systems. The USMA at West Point already has one of the largest high-speed, wireless networks in the world (USMA 2003b). It is used to enhance teaching and learning and also makes it more convenient for students, staff, and faculty. Every location engaged in teaching and learning has wireless connectivity, including classrooms, conference rooms, faculty offices, the library, and the student union. However, the U.S. Department of Defense and the DA do not regard wireless telecommunications systems to be feasible as primary systems, enterprise-wide, due to the uncertain security, reliability, and low cost-effectiveness to implement wireless systems.

No other system alternatives or alternative technologies are currently available to fulfill the Project purpose and need, other than the proposed Project.

2.4.3 Fiber Optic Cable Route Alternatives

The following section addresses route alternatives for the proposed new single fiber optic cable locations.

2.4.3.1 Major Route Alternatives

Major route alternatives consist of routing a large portion of the single new fiber optic cable in areas different than currently proposed for this Project. These would include areas other than where the existing telecommunication infrastructure is located.

During the Project planning process, the general approach to routing the new fiber optic cable was to utilize existing telecommunications system locations and routes, both outside and inside of buildings, to the maximum extent possible. This was considered the most sensible approach, allowing the use of existing conduits and existing telecommunications infrastructure locations to the maximum extent practicable. The USMA favored this approach as a means of reducing planning and engineering efforts and construction costs.

2.4.3.2 Minor Route Alternatives

Minor route alternatives consist of rerouting short segments of the outside cable route to avoid specific identified problems or to reduce certain site-specific impacts. In general, numerous minor route alternatives were considered during Project planning and many have been incorporated into the currently proposed route.

Overall, the USMA at West Point attempted to use existing conduits and telephone pole systems to route the new fiber optic cable to the maximum extent practicable, thereby avoiding the need to install new buried conduits project-wide (and avoiding extensive disturbances associated with trench excavation along the entire length of new fiber optic cable routes). As a result, the areas proposed for new conduit installation via trench excavation were limited to approximately one third of the total length of proposed new fiber optic cable. Issues that guided decisions on new trenching included consideration of the presence or absence of existing buried conduits and infrastructure where the new fiber optic cable must be located, and the availability of space within those existing conduits to accommodate the additional bulk of new fiber optic cable. In addition, the selection of the planned locations of trenching considered the location of existing buried utilities such as sewer, water, and power lines, and the Project was routed to avoid disturbing this existing infrastructure as much as possible. Maintained grass areas adjacent to roadways were generally favored over in-street (asphalt or concrete) trenching due to reduced cost to excavate and repair grassy lawn areas, and the reduced impact to on-Post traffic during construction. However, much of the USMA at West Point is paved, and the grassy roadside areas have in many cases already been selected for routing of other buried infrastructure and facilities. Therefore, relatively few opportunities were available to route the new cable in grassy roadside areas.

The following discussion presents examples of minor route alternatives considered for the outside cable route.

<u>Buffalo Soldier Field Crossing</u>

An alternative to the currently proposed route through the Buffalo Soldier Field athletic field was considered. The alternative would have routed the new fiber optic cable along roadways and would have avoided trenching through the outfield of a softball field. However, the alternative route location would have crossed a stream and would have required a larger amount of trenching and resurfacing of asphalt roads and parking areas.

Therefore, the USMA selected the currently proposed route through the Buffalo Soldier Field area.

NYS Route 218 Alignment

After consideration of a route alternative located on the southeast side of NYS Route 218, between the Washington Gate and the NYS Route 218/U.S. Route 9W/NYS Route 293 interchange area, the currently proposed route on the opposite (northwest) side of the road was selected. Constraints associated with the southeast side of the road include lack of space along the roadside due to congestion with existing buried fiber optic cable and other utilities. In addition, to achieve the desired level of security for the USMA at West Point's new fiber optic cable, a new hand hole system with locking access points was required in order to provide adequate security and protection to the new cable leading to the Area Distribution Node at Building 1630.

"Y"-Intersection at Washington and Mills Roads

The original cable routing plans called for trenching through the "Y"-intersection along Washington Road, eastward to the intersection of Washington, Parke, Jefferson, and Ruger roads (see Figure 4 for location of the "Y"-intersection), due to space limitations within the existing buried conduits in this area. However, the severe traffic impacts anticipated to result from in-street trench construction at the "Y"-intersection prompted the USMA to reconsider the alternative of stringing the new fiber optic cable through the existing conduits and infrastructure in this area. Although the existing conduits under Washington Road in this segment have minimal space to accommodate the new fiber optic cable, the USMA at West Point has configured the Project design to enable the new cable installation in these existing conduits along this 1,050-foot-long segment. As a result, 1,050 feet (0.2 mile) of in-street trenching would be avoided, and potentially severe traffic impacts at the "Y" intersection would be reduced.

"5-Point" Intersection Crossing on Washington Road

Similar to the potentially severe traffic impacts that would have resulted from in-street trenching activities at the "Y"-intersection (described above), the USMA at West Point considered the alternative of using existing buried conduits to avoid traffic impacts at the "5-Point" intersection of Washington Road, Buckner Hill Road Biddle Loop, and the access road to buildings 683 (Old Post Exchange), 695 (Self Help Center), and 697 (Cemetery Maintenance Building) (see Figure 4 for location of the "5-Point" intersection). However, the USMA determined that there is insufficient space available in the existing conduits in this area to accommodate the new fiber optic cable. Therefore, the USMA selected the currently proposed alternative, requiring extensive trenching through this "5-Point" intersection, and utilizing several specific impact reduction measures to minimize traffic impacts (see Section 3.9.2 for details on the planned traffic impact reduction measures).

2.4.4 Alternative Installation and Construction Methods

Alternative installation and construction methods also were considered in the Project planning and decision-making process for this Project. For example, the options planning staff considered for the outside cable installation were: stringing cable through existing conduits and manholes, installing cable and new conduits via new trench excavation, or aerially stringing new cable on existing utility poles. Some of the factors affecting the utility of any one of these options in specific areas included: availability of existing conduits with capacity to accept another cable, availability of existing utility poles, and aesthetic effects of aerially stringing new cable.

Construction methods considered as an alternative to mechanized trenching to avoid surface impacts to certain roadways, sidewalks, or other areas of concern included horizontal boring, a subsurface drilling technique; jacking (or hydraulically "pushing" a steel pipe horizontally underground) to create an underground tunnel; and hand shoveling (or "tunneling") in small localized areas to limit the extent of disturbance and workspace area. All of these alternative measures are prescribed construction techniques in specified areas of the Project. Factors affecting the utility of boring included: congestion or obstruction by existing underground utilities, and the higher cost of boring compared to trenching.

3.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL IMPACTS

This section identifies and describes the existing environmental conditions present in the Project area that potentially would be affected by implementation of the Project, and the nature of potential impacts resulting from construction and operation of the Project. Focused discussions on land use and socio-economics are not included in this EA because the proposed Project would not change or otherwise measurably affect existing or future land use, zoning, population, economy, or tax revenues.

3.1 GEOLOGY AND SOILS

3.1.1 Affected Environment

The USMA is located in eastern Orange County, New York, in the New England Upland Section of the New England Physiographic Province (United States Department of the Interior [USDI], Geological Survey 1995). The landscape consists of steep, rocky hillsides typically created through the physical and chemical alteration of metamorphic rocks. Bedrock in this area primarily consists of Precambrian metamorphic rock (granite, gneiss, quartzite, marble, and anorthositic rocks) and some igneous rock formed more than 570 million years ago during the Middle Proterozoic (Helikan) period of the Paleozoic era and Phanerozoic eon (New York State Museum, Geologic Survey 1986).

The bedrock is exposed in several areas, such as the steep rock faces and cliffs fronting the Hudson River, and there are many large boulders exposed on the ground surface throughout the USMA at West Point.

The dominant soil association in the Project area at the USMA at West Point is the Hollis-Rock Outcrop Association. These shallow, medium textured soils of mountainous uplands form over glacial deposits of schist, gneiss, and granite. This soil association is predominantly forested where it occurs (except in developed areas), and occurs on moderately steep to steep slopes. These soils are described as somewhat excessively drained and well drained, and rock outcroppings are common (United States Department of Agriculture [USDA], Soil Conservation Service [SCS] 1981). Soil structures include sandy loams, gravelly loams, gravelly sandy loams, silt loams, and gravelly silt loams, as well as several stony and extremely stony soil types (USMA 1998a). This soil association is well suited as wildlife habitat when forested, but in general, is poorly suited to farming and community development due to shallowness over bedrock, rock outcrops, surface boulders, steep slopes, and associated dryness (USDA SCS 1981). There are no Agricultural Districts, hydric soils, state-designated Unique Farmlands, or Additional Farmlands of Statewide Importance located in the Project area (Cabrera 2003).

3.1.2 Environmental Impacts

The CUITN component of the proposed Project would have no impact on geology or soils in the Project area because this component would be implemented on the interiors of buildings only, and does not involve any earth movement or soil disturbance.

The OSCAR component of the Project would have minor impacts on the existing geology and soils in the Project area. Literature and soils map review suggests that the depth to bedrock is typically greater than 10 feet to more than 60 feet deep in the areas where trench excavation is required to install the new fiber optic cable and conduits (USDA SCS 1981). However, past construction projects at the USMA at West Point have encountered bedrock and boulders within 6 feet to the surface on a site-specific basis. Therefore, it is anticipated that rock would be encountered during excavation and trenching activities in some areas at the USMA at West Point. Blasting, ripping, or hammering hard bedrock may be required to complete trenching and installation of new conduits and fiber optic cable. The USMA at West Point would require its construction contractor to obtain blasting permits if required, and to comply with all associated blasting safety provisions.

The majority of excavation for trenches would occur within existing paved roadways at the USMA at West Point, and associated soil disturbance would generally affect soils adjacent to or under the roadways. In a few areas, trenching would be required in maintained lawns and other vegetated areas between paved areas (such as between Building 687/Cadet Uniform Factory and Building 329/Inspector General Memorial Affairs) or along the entry path to a building (such as the entry to Building 845/Post Laundry). Approximately 560 feet of trench line would be excavated across the Buffalo Soldier's Field, an athletic field consisting of several baseball/softball fields.

In general, trenches would be excavated to a depth of approximately 3 feet, and typically would be approximately 2 feet wide, to enable effective installation of the new fiber optic cable and conduit. Excavated soils would be temporarily side cast, stored adjacent to the trench line, and used to backfill excavated areas after the new fiber optic conduit and cable are installed. The duration of impact would be short, as construction would proceed fairly quickly in any given area; backfilling and restoration of trenches would generally be completed within 72 hours of construction. Following backfilling, soils would be restabilized by resurfacing with asphalt, concrete, or other road surface material; or, in unpaved areas, the disturbed soil would be restored to its original contours and seeded in accordance with the USMA at West Point's specifications for seeding and lawn establishment (Jones 2003).

Best management practices for erosion and sedimentation control would be implemented to mitigate the potential for soil erosion during earthmoving and excavation activities. Specifically, the USMA at West Point would require the contractor to prepare an Erosion Control Plan, specifying best management practices (BMPs) for erosion and sedimentation control and stormwater management during construction. This plan would

be reviewed and approved by the USMA at West Point prior to the initiation of construction activities. The Erosion Control Plan would ensure compliance with the New York State Department of Environmental Conservation's (NYSDEC's) current stormwater management regulations for construction activities pursuant to the State Pollutant Discharge Elimination System (SPDES) that became effective March 10, 2003. As a result, no significant soil erosion or sedimentation would result from implementation of the Proposed Action.

3.2 WATER RESOURCES

Water resources at the USMA at West Point include groundwater resources, surface water resources, and wetlands, as described in the subsections below.

3.2.1 Groundwater Resources

3.2.1.1 Affected Environment

No federally-designated Sole Source Aquifers exist within or near the Project area (Olcott 1995, U.S. Environmental Protection Agency [USEPA] 2003a). Additionally, no state-designated Primary or Principal Aquifers exist within the Project area (Stegville 1999).

The USMA at West Point relies on surface water sources, rather than ground water, for most of its potable water supply. The only productive alluvial aquifers at the USMA at West Point are associated with the Hudson River or Popolopen Brook (Bjornsen 2001). Water supplies to outlying ranges and recreational facilities are provided by 17 small-diameter wells that range between 25 and 40 feet deep (McMaster et al. 1984). These wells yield a modest 3.5 to 6.0 gallons per minute (gpm), and are believed to draw water from stratified alluvial sand and gravel deposits and the upper portions of weathered bedrock aquifers (McMaster et al. 1984).

3.2.1.2 Environmental Impacts

No sole source, primary, principal, or otherwise utilized aquifers or water wells occur at or near the areas of proposed excavation for the Project. The Project would not require increased use or development of groundwater resources. Therefore, no impacts to groundwater are anticipated from construction or operation of the Project.

3.2.2 Surface Water Resources

3.2.2.1 Affected Environment

Based on review of maps and aerial photographs, the route for the OSCAR component of the Project would involve a total of 11 crossings of perennial surface waterbodies (see Figure 3). Specifically, installation of the new conduit and single fiber optic cable via trenching would involve crossing five (5) waterbodies: Kinsley Farm Brook, Crow's

Figure 3. Location of Streams, Wetlands, and 100-year Floodplains in the Project Area.

Nest Brook, Sinclair Pond Brook, Cascade Brook, and Highland Brook. Installation of the new cable via aerial lashing to existing telephone poles would involve stringing over six (6) waterbodies at separate crossing locations: Range 10 Brook, Long Pond Brook, a tributary to Bayonet Course Brook, Bayonet Course Brook, and Popolopen Lake Outlet (two crossings). Table 2 summarizes information specific to each stream crossed by the Project. Further discussion of these water resources follows, organized based on the proposed method of fiber optic cable installation.

Installation of Fiber Optic Cable Via Trenching

Kinsley Farm Brook would be crossed along the proposed buried cable/conduit route on Williams Road near the Thayer Road intersection on the east side of the Main Post/Academic Area (see Figure 3). Although Kinsley Farm Brook is considered by the U.S. Army Corps of Engineers (USACE) to be a navigable waterway under the Clean Water Act, this waterbody has been channelized and is conveyed through an existing buried pipe where it is crossed by the proposed cable route. The Kinsley Farm Brook discharge pipe has an estimated 20 feet of cover in the vicinity of the Project crossing location.

Crow's Nest Brook would be crossed along the proposed buried cable/conduit route along the driveway to Keller Army Community Hospital (Building 900) (see Figure 3). Sinclair Pond Brook, a tributary to Crow's Nest Brook, would be crossed by the proposed cable/conduit route along NYS Route 218 (see Figure 3). These perennial surface waters originate from several small tributaries draining Crow's Nest Mountain, and form the Crow's Nest Watershed that drains the northeastern portion of USMA at West Point property into the Hudson River. The NYSDEC Waters Index Number of Crow's Nest Brook is H-81 and Sinclair Pond Brook is H-81-1, and the stream Class of both is C.[2] Class C streams are designated as having a level of water quality that is suitable for primary and secondary contact recreation, and fish propagation and survival (NYSDEC 1996c). Sinclair Pond Brook and Crow's Nest Brook are considered by the USACE to be navigable waterways under the Clean Water Act. Near the Project's point of crossing, Crow's Nest Brook is conveyed under the hospital driveway via a culvert that has a minimum of 15 feet (and ranges up to 30 feet) of earthen cover. Sinclair Pond Brook is currently conveyed under NYS Route 218 via a concrete culvert at the Project's point of crossing.

Cascade Brook would be crossed by the proposed buried cable/conduit route along NYS Route 218, just north of the highway's intersection U.S. Route 9W (see Figure 3). Cascade Brook converges with Highland Brook approximately 600 feet downstream of

[2] Due to the presence of a population of trout that is known to spawn in Crow's Nest Brook downstream (east) of Lee Road near Target Hill Field, under the USMA at West Point's "good stewardship" program, the USMA conducts its activities in the vicinity of this stream east of Lee Road as if the stream classification was C(ts). However, the reach of Crow's Nest Brook that would be crossed by the Project is located approximately 1,200 feet west (upstream) of Lee Road, and approximately 2,000 feet (0.38) mile west (upstream) of the trout spawning area near Target Hill Field. Therefore, construction would not occur in this trout spawning area.

Table 2. Waterbodies Crossed by the New Fiber Optic Cable Route.

Project Component/ Name of Waterbody	Intermittent (I) or Perennial (P) Flow	Navigable? Yes (Y) or No (N)	NYSDEC Water Quality Class.[a]	NYS Index Number	Comments
Installation of Fiber Optic Cable Via Trenching					
Kinsley Farm Brook	P	Y	B	(none assigned)	Near Project's point of crossing, stream is contained underground within a pipe that has an estimated 20 feet of cover.
Crow's Nest Brook	P	Y	C	H-81	At Project's point of crossing, stream is conveyed under a driveway via a culvert that has a minimum of 15 feet (and ranges up to 30 feet) of cover.
Sinclair Pond Brook	P	Y	C	H-81-1	At Project's point of crossing, stream is conveyed under NYS Route 218 via a concrete culvert.
Cascade Brook	P	Y	A(t)	(none assigned)	Tributary to Highland Brook, a public water supply for Village of Highland Falls. At the Project's point of crossing, Cascade Brook is conveyed under the road via a concrete culvert.
Highland Brook	P	Y	A(t)	H-71	Potable water supply intakes for Village of Highland Falls are located 1 mile downstream of Project's point of crossing. Stocked trout stream.
Aerial Installation of Fiber Optic Cable on Telephone Poles					
Range 10 Brook	I	N	(none assigned)	(none assigned)	Potable water supply intakes for USMA at West Point are located in Long Pond, approximately 1,000 ft away from where Project crosses brook.
Long Pond Brook	P	Y	A	H61-6-1	–
Tributary to Bayonet Course Brook	I	Y	A	H-61-7-1a	–
Bayonet Course Brook	I	Y	A	H-61-7	–
Popolopen Lk. Outlet (two crossings)	P	Y	A	H-61-P 188-2	–

Source: USMA 1998a, Deschenes and Pray 2003, Pray 2004.

Notes:

[a] - See the text of the EA (Section 3.2.2.1) for the definitions of the listed NYS Water Quality Classifications.

the proposed trench line/cable crossing location. As a tributary of Highland Brook, Cascade Brook assumes the same Class A(t) water quality classification as Highland Brook, as described in detail in the paragraph below. Cascade Brook is considered by the USACE to be a navigable waterway under the Clean Water Act. At the Project's point of crossing, Cascade Brook is currently conveyed under the road via a concrete culvert.

Highland Brook would be crossed by the proposed buried cable/conduit route along NYS Route 293, just south of the highway's intersection U.S. Route 9W (see Figure 3). The Highland Brook watershed encompasses a drainage area of approximately 2,800 acres. Highland Brook is used as a source of potable water for the Village of Highland Falls, whose water intakes are located in a reservoir approximately 1 mile downstream of the proposed crossing location. The NYSDEC classifies Highland Brook a Class A(t) stream, defined as fresh surface waters best used as a water supply for drinking, culinary, or food processing purposes; primary and secondary contact recreation; and fishing; and shall be suitable for fish propagation and survival (NYSDEC 1996c). The "(t)" designation indicates that the brook is suitable for trout, based on its water quality meeting a standard for suitably high levels of dissolved oxygen and suitably cool temperatures. Routine water testing performed by Highland Falls indicates that the water quality in Highland Brook is extremely good, consistent with the A(t) classification standard (USMA 1998a). Brown trout are stocked annually in Highland Brook, and one of the USMA at West Point's natural resource management objectives is to reestablish a naturally reproducing population of trout in this brook (USMA 1998a). Highland Brook is considered by the USACE to be a navigable waterway under the Clean Water Act.

Aerial Installation of Fiber Optic Cable on Telephone Poles

Range 10 Brook[3], Long Pond Brook, a tributary to Bayonet Course Brook[3], Bayonet Course Brook[3], and Popolopen Lake Outlet (two crossing locations) would be crossed along the portion of the proposed fiber optic cable route that would be aerially lashed to existing telephone poles, as the cable route proceeds southward from the U.S. Route 9W/NYS Route 293 interchange toward Camp Buckner (see Figure 3). Range 10 Brook and Bayonet Course Brook have intermittent flow, whereas Long Pond Brook and Popolopen Lake Outlet (two crossing locations) are perennial streams. The NYSDEC Waters Index Numbers and water quality classifications for each of these streams are listed in Table 2. With the exception of Range 10 Brook, all of these streams are designated Class A for water quality, and all of these streams are considered by the USACE to be navigable waterways under the Clean Water Act. Range 10 Brook is not assigned a water quality designation. The fiber optic cable route would cross Range 10 Brook approximately 500 feet upstream (southeast) of its point of convergence with Long

[3] Range 10 Brook and Bayonet Course Brook are the unofficial names given by the USMA at West Point; these waterbodies and tributaries are unnamed on other standard map sources.

Pond, and the USMA's water intakes in Long Pond are located approximately 500 feet northeast of this point of convergence.

3.2.2.2 Environmental Impacts

Construction and operation of the CUITN portion of the Project would involve work in the interiors of existing buildings, and would not affect any surface water resources. Construction the OSCAR component of the Project that would involve stringing the new fiber optic cable through existing manholes and conduits also would not affect any surface water resources.

The OSCAR components of the Project that would be installed by trench excavation methods and/or aerially lashing the new fiber optic cable on existing telephone poles would traverse 11 mapped waterbodies. In addition to these crossings, the proposed Project has the potential to cross other unmapped streams or drainages. Prior to construction, the USMA at West Point would conduct a site verification survey that will allow the identification of any existing unmapped streams or drainages along the Project alignment.

<u>Installation of Fiber Optic Cable Via Trenching</u>

Construction of the trench-installed portion of the OSCAR would involve the installation of single fiber optic cable and associated protective conduit across five (5) surface waterbodies: Kinsley Farm Brook, Crow's Nest Brook, Sinclair Pond Brook, Cascade Brook, and Highland Brook. With the exception of the Highland Brook crossing location, the proposed cable route is aligned within, under, or parallel and adjacent to paved roadways at all of these crossing locations, and these waterbodies are currently conveyed under the roadway through hard structures such as concrete box culverts or drainage pipes. At Highland Brook, the proposed fiber optic cable will be buried in the bed of an existing gravel access road as it crosses Highland Brook on an elevated earthen bridge. In each of these locations, the Project planners have determined that it would be feasible to install the fiber optic cable via trenching, while avoiding all in-stream disturbances. The new cable and its protective conduit would be installed underground, but above the existing concrete stream culverts or pipes (limiting the trench to a shallower depth than typical, if necessary), thereby avoiding direct disturbances to the stream banks, stream bed, and water flow, and also avoiding equipment/vehicle operation in these five streams.

Although no in-stream trench excavation would be conducted as part of the Project, excavation of upland soils adjacent to waterbodies could contribute to erosion and sedimentation into the waterbodies. To minimize potential erosion, the USMA at West Point would require its contractors to prepare a site-specific Erosion Control Plan for USMA at West Point review and approval prior to construction, and implement the specified erosion control measures during construction. This plan would include typical

BMPs, such as ensuring that spoil piles are placed well away from streams, and erecting sediment barriers to prevent "downhill migration" of soils into streams.

Aerial Installation of Fiber Optic Cable on Telephone Poles

As the cable route proceeds south of U.S. Route 9W/NYS Route 218, toward Camp Buckner, the new cable would be lashed to existing telephone poles and aerially strung over six (6) waterbody crossings: Range 10 Brook, Long Pond Brook, a tributary to Bayonet Course Brook, Bayonet Course Brook, and Popolopen Lake Outlet (two crossing locations). Although no trench excavation activities would be conducted at or near these crossing locations, it is anticipated that temporary equipment bridges may need to be installed across one or more of these streams within the existing telephone/utility right-of-way to provide an access path for vehicles and equipment to deliver, string out, and affix the new cable to the existing telephone poles (most of this 4.5-mile distance is not immediately adjacent to, or accessible by, paved roads).

Temporary impacts of equipment bridge installation and removal could include short-term turbidity, sediment disturbance, and downstream sediment transport. Overall, this impact would be minor and short term, reaching highest levels during the period of bridge installation and removal, and immediately tapering off when these activities cease. If a bridge must be installed to provide vehicle or equipment access across Range 10 Brook, particular care would be taken to ensure that sedimentation into the stream is minimized and the USMA's potable water supply in Long Pond remains unpolluted and water intakes remain functional. If any earth disturbance activities are required (e.g., for bridge installation and removal) in the vicinity of Range 10 Brook during a period when the stream is flowing, the USMA's Natural Resources Branch would be consulted and would provide recommendations on the use of specific BMPs during construction in this area.

Waterbody Crossing Permits and Notifications

Four permits or regulatory authorizations pertaining to waterbody crossings may be required to construct the Project. If installation of temporary equipment bridges over waterbodies is necessary for delivering and stringing out the new fiber optic cable in the telephone pole segment, the USMA at West Point would obtain NYSDEC's authorization for in-stream disturbances pursuant to Article 15 (Protection of Waters) of the New York State Environmental Conservation Law (NYSECL). The USMA at West Point would also obtain the USACE's authorization for the same activities pursuant to Section 404 of the Clean Water Act, as specifically identified under Nationwide Permit 33 (for temporary construction, access and dewatering). As required under the provisions of Nationwide Permit 33, the USMA at West Point's Preconstruction Notification filing to the USACE would include a restoration plan to repair any rutting or other disturbances resulting from Project construction access through waterbodies and wetlands, and the USMA at West Point would ensure that temporary access over waterbodies and/or through wetlands are installed, maintained, and removed after construction is completed.

Because the Project has been designed to avoid direct, in-stream trenching and disturbance of stream banks, stream bottoms, and stream flow, Nationwide Permit 12 (for utility line crossings) is not anticipated to be required. Finally, all crossings over, under, or though USACE-designated navigable waterways would require authorization under Section 10 of the Rivers and Harbors Act and the associated NYSDEC Section 401 Water Quality Certification. The USMA at West Point, Environmental Management Division would consult directly with the appropriate regulatory agencies to determine permit requirements, and would coordinate with these agencies to obtain all required environmental permits prior to initiation of construction of regulated activities.

In conclusion, as a result of the environmentally sensitive design of the Project with regard to waterbody crossings, acquisition and compliance with all required permits, and the implementation of BMPs during construction, construction impacts to surface waters would be minimized to a level that is not undue or significant.

3.2.3 Wetlands and Floodplains

3.2.3.1 Existing Environment

In 1993, the USACE, New York District mapped and described wetlands throughout the USMA at West Point. Based on this survey and subsequent field investigations, 300 distinct wetlands, covering approximately 1,085 acres, have been identified within the USMA at West Point property boundary (USMA 1998a). Based on a review of USMA-identified wetlands, National Wetland Inventory (NWI) maps (USDI, Fish and Wildlife Service [USFWS] 1990), and New York State Freshwater Wetlands maps (NYSDEC 1987), no state- or federally-mapped wetlands are located within or immediately adjacent to the segments of the OSCAR that involve earth disturbance for trenching in vegetated areas in the Main Post/Academic Area (i.e., between backbone cable line and the Post Laundry/Building 845, across Buffalo Soldier's field, and between Building 687/Cadet Uniform Factory and Building 329/Inspector General/Memorial Affairs). No wetlands extend onto the existing paved roadways at the USMA at West Point. Therefore, the portions along the proposed OSCAR installation routes that coincide with either in-street trench construction or stringing new cable through existing manholes and conduits would not directly affect any wetlands.

Eight USACE, NWI, and/or New York State Freshwater wetlands or wetland complexes are located along the portion of the OSCAR that would be aerially installed along existing telephone poles south of the U.S. Route 9W/NYS Route 218 intersection, as the cable route proceeds toward Camp Buckner (see Figure 3). Three of these eight wetlands are mapped and identified on New York State Freshwater Wetland maps. The total length of wetlands along this portion of the Project is approximately 3,231 feet (0.6 mile). Each of the eight wetlands is described below.

USMA-identified wetland D-65 is the northernmost wetland traversed by the Project, and is traversed by the existing telephone line right-of-way for approximately 131 feet (see Figure 3). NWI map information indicates that this wetland is predominantly a Palustrine Scrub Shrub (PSS) wetland, and its estimated size is less than 0.5 acre.

USMA-identified wetland B-65 is located just south of Highland Brook along the northernmost wetland traversed by the Project, and is traversed by the existing telephone line right-of-way for approximately 49 feet (see Figure 3). NWI map information indicates that this wetland is predominantly a Palustrine Forested (PFO) wetland; however, as a result of periodic vegetation maintenance within the existing right-of-way, the cover type of the wetland in the Project area/right-of-way is likely PSS or Palustrine Emergent (PEM). The estimated size of wetland B-65 is less the 0.5 acre.

USMA-identified wetland D-60 is located just south of wetland B-65 (described above), is traversed by the existing telephone line right-of-way for approximately 177 feet (see Figure 3), and its estimated size is between 1 and 3 acres.

USMA-identified wetland D-59 is located due east of Long Pond and is traversed by the existing telephone line right-of-way for approximately 174 feet (see Figure 3). NWI map information indicates that this wetland is predominantly a PEM wetland, and its estimated size is approximately 0.6 acre.

USMA-identified wetland A-50 is located south of Long Pond, and is associated with Range 10 Brook (previously described in Section 3.2.2). Wetland A-50 is traversed by the existing telephone line right-of-way for approximately 362 feet (see Figure 3). NWI map information indicates that this wetland is predominantly a PSS wetland, and its estimated size is approximately 4.6 acres.

USMA-identified wetland A-43, located on the southwestern tip of Long Pond, is associated with Long Pond Brook. This wetland is traversed by the existing telephone line right-of-way for approximately 72 feet (see Figure 3). Wetland A-43 is identified on New York State Freshwater Wetland maps as wetland PO-2. NWI map information indicates that this wetland is predominantly a PEM wetland containing areas of two different hydrologic regimes: seasonally flooded/saturated and semipermanently flooded. The estimated size of wetland A-43 is approximately 25 acres.

USMA-identified wetland A-35, located just north of Mine Torne Road, is associated with a tributary to Bayonet Course Brook. This wetland is traversed by the existing telephone line right-of-way for approximately 1,571 feet (see Figure 3). Wetland A-35 is identified on New York State Freshwater Wetland maps as wetland PO-3. NWI map information indicates that this wetland has two cover type classifications, PEM and PFO. However, as a result of periodic vegetation maintenance within the existing right-of-way, the cover type of the wetland in the Project area/right-of-way is more likely to be PEM or PSS. The estimated size of wetland A-35 is approximately 16 to 21 acres.

USMA-identified wetland A-34 is located between Camp Buckner and NYS Route 293 and is traversed by the existing telephone line right-of-way for approximately 695 feet (see Figure 3). This wetland is identified on New York State Freshwater Wetland maps as wetland PO-8. NWI map information indicates that this wetland complex has two cover type classifications, PEM and PFO. As a result of periodic vegetation maintenance within the existing right-of-way, the cover type of the wetland in the Project area/right-of-way is more likely to be PEM or PSS. The estimated size of wetland A-34 is approximately 37 to 40 acres.

Typical Vegetation Present in Wetlands at the USMA at West Point

Palustrine emergent wetlands at the USMA at West Point are typically dominated by sedges, rushes, smartweed (*Polygonum* spp.), common reed (*Phragmites australis*), and/or narrow-leaved cattail (*Typha angustifolia*), but also may contain a minor component of the same shrub species found in palustrine scrub-shrub wetlands (USACE 1993). Palustrine scrub-shrub wetlands at the USMA at West Point are typically dominated by a shrub layer that includes highbush blueberry, sweet pepperbush (*Clethra alnifolia*), steeplebush (*Spirea tomentosa*), and meadowsweet (*Spirea alba*), and herb species that include various sedges, rushes (*Uncus* spp.), and ferns (*Thelypteris* spp. and *Athyrium* spp.). Palustrine forested wetlands at the USMA at West Point are typically dominated by an overstory of broad-leaved deciduous tree species such as red maple (*Acer rubrum*) and yellow birch (*Betula alleghaniensis)*. Other less-dominant species found in palustrine forested wetlands include the shrub and herb species typically found in scrub-shrub wetland types. The vegetation along the existing utility right-of-way (where the new cable would be lashed to existing telephone poles) undergoes intermittent cutting and trimming as part of right-of-way maintenance activities, and is characterized primarily as emergent or scrub-shrub where these wetlands are crossed.

100-Year Floodplain

As depicted in Figure 3, the Project would cross a mapped 100-year floodplain associated with Popolopen Lake Outlet (Environmental Systems Research Institute [ESRI]/Federal Emergency Management Agency [FEMA] 2003).

3.2.3.2 Environmental Impacts

No wetlands would be affected by the CUITN component of the Project, based on the nature of the proposed modifications, which are limited to building interiors. In addition, based on map review, no wetlands would be directly affected by open trenching activities associated with the OSCAR portion of the Project. However, some disturbances to wetlands (as detailed below) may occur as a result of vehicle and equipment access (for material delivery and worker transportation) along the existing right-of-way south of the NYS Route 293/U.S. Route 9W intersection (i.e., extending toward Camp Buckner), where the new fiber optic cable would be aerially installed on existing telephone poles. The I3MP Project Manager would coordinate with personnel at the USMA at West

Point's Natural Resource Branch so that they have the opportunity to review plans and verify site conditions prior to construction. The USMA at West Point would attempt to avoid or minimize the amount of wetlands affected by the Project as much as practicable.

Based on map review, eight (8) wetlands or wetland complexes are located along a total of approximately 3,231 linear feet (0.6 mile) of the existing utility right-of-way where the new fiber optic cable would be lashed to existing telephone poles extending south to Camp Buckner. Additionally, the Project is located within the regulated 100-foot-wide buffer zone of three (3) New York State Freshwater Wetlands (NYS identification numbers PO-2, PO-3, and PO-8), as regulated by Article 24 of the NYSECL.

Although no trench excavation in these wetlands or the state-regulated 100-foot-wide buffer areas would be required to construct the Project, it is anticipated that the existing right-of-way would be used to provide construction equipment access to the work area during construction. For example, heavy-duty pick-up trucks, flatbed trailers, or other rubber-tired or tracked hauling vehicles or equipment would be required to transport large fiber optic cable spools to string the cable along the telephone line right-of-way. In addition, the existing right-of-way would provide access for workers to drive their vehicles between telephone poles, where they are not adjacent to roadways, as they manually affix the cable to the poles.

Minimal tree or shrub clearing, trimming, or removal might be necessary in wetlands to allow equipment and vehicle access along the right-of-way to install the new fiber optic cable. However, excessive rutting could result from use of rubber tired or tracked construction equipment and vehicles if wetland soils are saturated at the time of construction. The USMA at West Point would minimize the occurrence of heavy equipment traveling through wetlands that have very saturated or unstable soils, where practicable. If necessary, the USMA would require the construction contractor to place temporary equipment stabilization measures, such as construction mats, along the intended travel lane. In addition, the USMA would require the contractor to smooth out and restore any excessive rutting caused by construction following the completion of work.

These impacts are expected to be minor and temporary, limited to the pre-construction and construction period. No permanent dredging or filling of wetlands would occur as part of this Project.

If any wetlands are located sufficiently close and adjacent to the proposed trenching workspaces (such as along Storm King Highway/NYS Route 218 and near Highland Brook), they could potentially receive indirect sedimentation if excavated or stockpiled soils are not managed properly. To minimize potential erosion, the USMA at West Point would require its contractors to prepare a site-specific Erosion Control Plan for USMA at West Point review and approval prior to construction, and implement the specified erosion control measures during construction. This plan would include typical BMPs,

such as ensuring that spoil piles are placed well away from wetlands, and erecting sediment barriers to prevent "downhill migration" of soils into wetlands.

If required, the USMA at West Point would obtain NYSDEC's authorization for disturbances to New York State Freshwater Wetlands or their regulated buffers pursuant to Article 24 (Freshwater Wetlands) of the NYSECL. Similarly, if required, the USMA at West Point would obtain USACE's authorization for minor disturbances to wetlands and waterbodies during construction pursuant to Section 404 of the Clean Water Act. Specifically, the USMA would ensure that Project construction activities are conducted in accordance with USACE Nationwide Permit 33 (for temporary construction, access and dewatering). As required under the provisions of Nationwide Permit 33, the USMA at West Point's Preconstruction Notification filing to the USACE would include a restoration plan to repair any rutting or other disturbances resulting from Project construction access through wetlands. Therefore, implementation of best management practices and compliance with Article 24 and Section 404/NWP permit conditions would minimize potential impacts of Project construction on wetlands to a level that is not undue or significant.

In accordance with Executive Order 11990, Protection of Wetlands, the USMA at West Point has attempted to avoid impacts to wetlands to the extent practicable. Where total avoidance of wetlands may not be possible along the portion of the OSCAR where the new fiber optic cable would be aerially lashed to existing telephone poles, disturbance to wetlands will be limited to vehicle and equipment access activities. There will be no loss of any wetlands resulting from construction or operation of this Project.

Although the Project would cross a mapped 100-year floodplain associated with the Popolopen Lake Outlet, implementation of the Proposed Action would have no short- or long-term impacts on the flood storage capacity of the floodplain because no new aboveground structures would be constructed.

3.3 AIR RESOURCES

3.3.1 Affected Environment

The USMA at West Point is located in the southern portion of the Hudson Valley Air Quality Control Region, in the Lower Orange County Metropolitan Area (USMA 1998a). Southern Orange County is currently classified as an attainment area for all National Ambient Air Quality Standards (NAAQS) criteria pollutants (carbon monoxide, nitrogen dioxide, particulate matter, lead, and sulfur dioxide), except ozone (NYSDEC 1996a, NYSDEC 1996b). Southern Orange County is classified as a severe non-attainment area for ozone (NYSDEC 1996b).

There are several major stationary and mobile sources of air pollutant emissions present at the USMA at West Point property. Stationary sources include 10 gas-fired boilers, two incinerators, a restricted burn site, and nuclear, biological, and chemical training activities. Mobile sources include vehicular traffic, such as light-duty, gasoline-powered trucks and automobiles, heavy-duty diesel-powered vehicles, and aircraft (USMA 1998a). All major stationary and mobile sources of air pollutant emissions are in compliance with air quality standards.

3.3.2 Environmental Impacts

The Clean Air Act Amendments of 1990 (40 CFR 93.158) require that emissions associated with Federal Actions do not interfere with State Implementation Plans (SIPs) for achieving National Ambient Air Quality Standards of criteria pollutants that currently are in non-attainment. Because the Project would be implemented in the Hudson Valley Air Quality Control Region, which is classified as a severe non-attainment area for ozone, the USMA at West Point must evaluate direct and indirect emissions associated with any proposed actions and ensure these emissions conform to the SIP.

Direct emissions, defined as emissions that are directly associated with the Federal Action, would include long-term emissions generated by any new stationary emission source (such as a new power generating facility). No new stationary emissions sources would be constructed as part of this Project. In addition, direct emissions include temporary emissions, such as those that would be generated by Project construction equipment and contractor vehicles, particulate matter (PM) generated by soil and pavement disturbance during trench excavation, and volatile organic compound (VOC) emissions associated with repaving and/or patching asphalt roads after the new fiber optic cable is installed.

Indirect emissions, defined as emissions that occur in support of the Federal Action, would include any additional emissions generated by new or existing stationary emission sources that would serve the action. No increase in indirect emissions would occur as a result of the Project.

Before construction of the Project, the USMA at West Point would conduct an air quality conformity review to identify all temporary and long-term air emissions that would result from the Project. As part of this review, the USMA would estimate the types and quantity of priority pollutants generated by the Project, and would evaluate them in relation to SIP emission thresholds. The priority pollutants considered would include VOCs and nitrogen oxides (NO_x) – which combine in the atmosphere to produce ozone – and any other pertinent emissions.

The temporary and long-term emissions predicted to be generated by the Project would be compared with specific SIP emission thresholds for severe ozone non-attainment areas, and the USMA at West Point would determine whether this threshold would be exceeded as a result of implementing the Project. If thresholds would be exceeded, then

the USMA at West Point would propose and implement air emissions control measures during construction and/or curtailment of such activities of the operation of the Project, as necessary, to ensure that implementation of the Project would have no significant adverse impact on air quality.

3.4 VEGETATION AND WILDLIFE

3.4.1 Vegetation

3.4.1.1 Affected Environment

The Project area for the OSCAR consists primarily of paved roadways and parking areas, maintained lawn areas and landscaping, and scattered individual trees, including tree-lined roadways in the Main Post/Academic Area. In addition, along the segment of new cable to be installed on existing telephone poles toward Camp Buckner (south of U.S. Route 9W/NYS Route 218), the Project area is an existing, maintained utility line right-of-way primarily through forested areas.

Maintained lawns at the USMA at West Point Main Post/Academic Area originate predominantly from seed cultivars of Kentucky bluegrass (*Poa pratensis*), perennial ryegrass (*Lolium perenne L.*), and fine fescue (*Festuca sp.*), and minor amounts of other opportunistic grasses and forbs have also become established in maintained lawns over time. These areas are maintained by periodic mowing.

Individual shrubs and trees are scattered throughout the Main Post/Academic Area, and many trees line the roadways in this area. In addition, the USMA at West Point manages and protects certain trees that are considered specimen trees, historically important, or trees that line the roadside in the Main Post/Academic Area (Jones 2003).

The maintained utility right-of-way that provides the route for the new fiber optic cable south of U.S. Route 9W/NYS Route 218 (toward Camp Buckner) is characterized as open land, and is surrounded predominantly by an Appalachian oak-hickory forest community (USMA 1998a). Open uplands are characterized as having less than 25 percent canopy cover of trees, and are dominated by shrubs, herbs, and/or cryptogammic plants (e.g., mosses and lichens). The open land present along this existing right-of-way was created by anthropogenic forces, and would be expected to consist of species similar to those present in the adjacent, undisturbed forest. The Appalachian oak-hickory forest community typically contains greater than 60% tree canopy cover and is found in various forms on a wide range of sites and conditions throughout the USMA at West Point. Based on the proposed route's location along lower elevations in this portion of the USMA at West Point property, the forest community adjacent to the Project area would be expected to be dominated by northern red oak (*Quercus rubra*) and black oak (*Quercus veluntia*), with a well-developed understory of saplings and seedlings of the overstory species, as well as flowering dogwood (*Cornus florida*), witch hazel (*Hamamelis virginiana*), and shadbush (*Amelanchier* spp.) (USMA 1998a).

3.4.1.2 Environmental Impacts

No impact on vegetation would result from implementation of the CUITN component of the Project because it would be limited to the interiors of existing buildings. The USMA at West Point has designed the OSCAR component of the Project to minimize impacts to vegetation to the maximum extent practicable by selecting existing useable conduits to install the new fiber optic cable where possible, and by selecting areas within and adjacent to existing roadways for segments that require trench excavation to install the new cable lines. No new clearing of mature forested areas would be required to construct the Project. However, some minor, temporary impacts to vegetation would potentially result from construction of the OSCAR component of the Project.

Landscaping, maintained lawns, and roadside trees are an important component of the aesthetic setting at the USMA at West Point's Main Post/Academic Area. Short-term impacts of the Project on maintained vegetation would include construction disturbances associated with trench excavation and equipment workspace in maintained lawn areas in the Main Post/Academic Area. Areas where the proposed route would cross maintained vegetated areas include: along the entry path to Building 845/Post Laundry (park-like maintained grounds where removal of six ground shrubs and replacement following construction would be required), across the Buffalo Soldier's Athletic Field (maintained lawn), between Building 687/Cadet Uniform Factory and Building 329/Inspector General Memorial Affairs (maintained forest setting, but no tree clearing would be required or conducted), and a few other maintained lawn areas located between paved roadways. In addition, the new cable route extending southward from Washington Gate, along NYS Route 218/Storm King Highway, to the cable crossing of U.S. Route 9W/NYS Route 218, would be installed adjacent to the roadway, mostly in the road shoulder but also in a few maintained grassy roadside areas.

Restoration of maintained lawns, landscaping, and other maintained vegetated areas disturbed during construction would adhere to the USMA at West Point's contract specifications for seeding and lawn establishment (Jones 2003). These specifications provide instructions to the contractor on final grading, seedbed preparation and topsoil characteristics, timeframes for completion, acceptable seed cultivars and seeding methods, clean-up requirements, and follow-up criteria for judgment of the success of turf establishment (USMA 2002).

Of particular concern would be if the proposed trench excavation areas in the Main Post/Academic Area required clearing of individual trees or excavation within the drip-line of sensitive roadside trees, specimen trees, and/or historic trees. The USMA has designated certain individual trees growing at the USMA at West Point as specimen or historic trees, and also highly values roadside trees in the Main Post/Academic Area because of their contribution to aesthetics (Jones 2003). Clearing, or injury to the primary root zones of such trees could result in a permanent loss of an important individual tree or trees. The planned locations of the trenchlines required for installation

of the new fiber optic cable in the Main Post/Academic Area have avoided the need to clear existing trees. However, trench excavation in paved roadways could affect the root zones of roadside trees if sizable roots extend into the trench area to be excavated. Cuts or damage to the roots of trees can negatively affect their vigor and survival potential.

Therefore, the USMA at West Point Agronomist would conduct a review of the Project trenching locations in the vicinity of designated specimen, historic, and roadside trees before construction. In the event that the proposed route is determined to present risk to a tree of concern, the Project planners would modify the trench line location/route where practicable to avoid adverse effects. Construction in the vicinity of designated trees and landscaped areas would adhere to the USMA at West Point's contract specifications for protection of trees and plant material (Jones 2003). Among other things, these specifications: require the contractor to preserve and protect the tops, trunk, and root systems of all trees designated on the construction plans; prescribe measures for pre-construction pruning, "tying in" limbs, armoring trunks, and erecting barricade fencing as a barrier to the designated root protection zone; and outline the proper methods of addressing accidental wounds to trunk and limbs, and cuts to roots (USMA 1998c).

Minor tree trimming or brush cutting may be required to permit construction along certain areas adjacent to NYS Route 218, between the Washington Gate and the crossing of U.S. Route 9W/NYS Route 218, if tree limbs or brush extends over or onto the road shoulder or construction areas. In addition, minor shrub or tree trimming or clearing may be required to permit construction equipment to access the existing telephone/utility right-of-way extending toward Camp Buckner (south of U.S. Route 9W/NYS Route 218), where the new cable would be lashed to existing telephone poles. If required for this purpose, such clearing and trimming would be consistent with routine standard procedures for vegetation maintenance currently used along the existing road and telephone line rights-of-way, and negligible additional impact to vegetation is anticipated.

3.4.2 Wildlife

3.4.2.1 Affected Environment

The USMA's Integrated Natural Resource Management Plan contains a list of 722 documented wildlife species observed on USMA property (USMA 1998a, Beemer 2003a). Rare, threatened, and endangered fish species of concern are discussed in Section 3.4.3.

Fish and other aquatic species have been surveyed on the USMA at West Point by the Adirondack Lakes Survey Corporation (1987), Cornell University (1988-95), USFWS (as part of a cooperative agreement), and the USMA's Natural Resources Branch (NRB) (USMA 1998a, Beemer 2003a). Based on these surveys, 38 species of fishes, 35 species of mollusks, and two (2) species of crayfish have been documented at the USMA at West Point (Beemer 2003a). Given the characteristics of the waterbodies traversed by the proposed Project alignment, species typically found in lotic habitats could potentially

occur in the vicinity of the Project area at some time in their life cycle. These species will likely include stocked recreational fish species such as rainbow trout (*Onchorynchus mykiss*) and brown trout (*Salmo trutta*) and other species such as eastern blacknose dace (*Rhinichthys atratulus*) and creek chub (*Semotilus atromaculatus*) (USMA 1998a).

Existing urban or developed, upland, and wetland communities in the vicinity of the proposed Project alignment include a wide variety of habitats suitable for a diverse group of migratory and resident aquatic and terrestrial wildlife, including mammals, birds, reptiles, amphibians, and invertebrates.

Forty-eight (48) species of mammals have been documented to date on the USMA at West Point (Beemer 2003a). The most common mammals likely to regularly occur in vicinity of the proposed Project area are those able to tolerate high levels of human activity found at the main cantonment area and vegetative habitats along the existing utility right-of-way. These may include large and medium sized mammals such as the coyote (*Canis latrans*), white-tailed deer (*Odocoileus virginianus*), opossum (*Didelphis virginianus*), raccoon (*Procyon lotor*), striped skunk (*Mephitis mephitis*), red fox (*Vulpes vulpes*), and gray fox (*Urocyon cinereoargenteus*). Small mammals such as the short-tailed shrew (*Blarina brevicauda*), starnose mole (*Condylura cristata*), little brown myotis (*Myotis lucifugus*), red bat (*Lasiurus borealis*), silver haired bat (*Lasionycteris noctivagans*), eastern chipmunk (*Tamias striatus*), gray squirrel (*Sciurus carolinensis*), red squirrel (*Tamiasciurus hudsonicus*), white-footed mouse (*Peromyscus leucopus*), meadow vole (*Microtus pennsylvanicus*), and eastern cottontail (*Sylvilagus floridanus*).

The USMA's NRB has conducted periodic bird surveys at West Point (USMA 1998a). Based on these surveys, and documentation of incidental sightings, 249 species of birds have been documented on the USMA at West Point. Some representative species of the habitats traversed by the proposed Project alignment include the killdeer (*Charadrius vociferous*), American robin (*Turdus migratorius*), red-tailed hawk (*Buteo jamaicensis*), ruby-throated hummingbird (*Archilochus colubris*), pileated woodpecker (*Dryocopus pileatus*), downy woodpecker (*Picoides pubescens*), eastern meadowlark (*Sturnella magna*), American crow (*Corvus brachyrhynchos*), blue jay (*Cyanocitta cristata*), red-eyed vireo (*Vireo olivaceus*), wood thrush (*Hylocichla mustelina*), European starling (*Sturnus vulgaris*), brown-headed cowbird (*Molothrus ater*), dark-eyed junco (*Junco hyemalis*), black-capped chickadee (*Parus atricapillus*), and house sparrow (*Passer domesticus*).

Herptile surveys have been conducted on the USMA at West Point by the NRB since the 1980s (USMA 1998a). Based on these surveys, and documentation of incidental sightings, 22 species of reptiles and 18 species of amphibians have been documented on the USMA at West Point (USMA 1998a, Beemer 2003a). Approximately 100 species of dragonflies and damselflies, 76 species of butterflies, and 234 species of moths, have also been documented on the USMA at West Point (USMA 1998a, Beemer 2003a).

3.4.2.2 Environmental Impacts

No trenching in streams or drainages would be required to install the OSCAR component of the Project. Therefore, temporary impacts to aquatic species resulting from in-stream excavation would be avoided. In addition, standard erosion control BMPs would be implemented during construction activities near and adjacent to streams, including installation of sediment barriers, to minimize any potential soil erosion and subsequent sedimentation into streams.

No permanent habitat conversion would occur under the proposed Project (see Section 3.4). Construction and maintenance of the Project would result in minor and temporary alteration of terrestrial and wetland wildlife habitat, as well as direct impact on wildlife such as disturbance, displacement, and mortality. These potential impacts are described below.

More mobile species, such as large- to medium-sized mammals and birds, would be temporarily displaced from the construction zone and escape to similar habitats nearby. Some wildlife displaced by construction activities would occupy adjacent undisturbed habitats during construction and would likely return to the newly disturbed area soon after completion of construction and restoration of vegetation. Temporary effects due to routine maintenance activities would not be significant because the proposed Project would be constructed entirely within areas that are currently under a routine maintenance schedule.

Direct effects due to construction and maintenance activities could include mortality of individuals of less mobile species, such as burrowing small mammals, reptiles, and amphibians, as well the destruction of bird nests located within construction equipment travel lanes or in trees or shrubs that would need to be trimmed or cleared, for example, along NYS Route 218 as well as the existing telephone utility right-of-way. Direct mortality of immobile or slow-moving species could be primarily caused by the movement and compaction of earth caused by construction equipment traveling across terrestrial habitat. This potential effect would be less pronounced in the Main Post/Academic Area and along NYS Route 218, due to the currently developed nature and lower abundance of wildlife in these areas. Although a greater abundance of wildlife is likely to be present along the telephone pole right-of-way between the intersection of NYS Route 218 and U.S. Route 9W, mortality of individuals would be limited because of the limited level of construction disturbance proposed (i.e., minor vehicular/equipment traffic and the manual lashing of new fiber optic cable lines to existing telephone poles). Therefore, the Project is not anticipated to result in significant impacts on populations of affected less mobile species and breeding birds.

3.4.3 Rare, Threatened and Endangered Species

3.4.3.1 Affected Environment

The USMA NRB indicates 123 special status species have been documented on USMA property. This includes 31 state-listed endangered or threatened or special concern vertebrates; 14 rare or otherwise noteworthy odonates (dragonflies and damselflies), 14 rare butterflies (eight [8] in New York State and six [6] regionally), two (2) moths listed as rare in New York State, and 62 rare plants (Beemer 2003a). Pursuant to AR 200-3 and the Endangered Species Act (ESA) of 1973, the Biological Survey Unit of the New York State Museum conducted a survey of threatened and endangered fauna and flora on the USMA in 1991 and 1992 (Biological Survey 1993). The survey concluded that no federally-listed species were permanent residents of, or breed on, the USMA at West Point. The federally- and state-listed bald eagle (*Haliaeetus leucocephalus*) is a visitor at the USMA at West Point, but is not known use the USMA at West Point's property for breeding. One federally- and state-listed endangered species, the shortnose sturgeon (*Acipenser brevirostrum*), is known to occur in the Hudson River immediately adjacent to the USMA at West Point (USMA 1998a). However, construction of the Project is not anticipated to directly or indirectly affect the Hudson River or the shortnose sturgeon.

<u>Bald Eagle</u>

The bald eagle (*Haliaeetus leucocephalus*) is a federally- and state-listed threatened species that has been known to use the USMA at West Point and Constitution Island as winter habitat. To ensure compliance with applicable endangered species regulations, the USMA has coordinated with the NYSDEC and USFWS to develop a programmatic endangered species management plan for the bald eagle (Beemer 2002a). The programmatic management plan requires that the USMA consult informally and formally with USFWS pursuant to Section 7 of the ESA, and the NYSDEC pursuant to the NYSECL, regarding any USMA construction activity that may disrupt bald eagle activity at USMA.

<u>Timber Rattlesnake</u>

The timber rattlesnake (*Crotalus horridus*) is a state-listed threatened species that is known to occur on the USMA at West Point. Little was known about the timber rattlesnake population on the USMA at West Point prior to 1994. At that time, a three-year radiotelemetry study was initiated to investigate their population size, seasonal ranges, and habitat use, as summarized by Stechert (1997). The study identified three populations that use the USMA property and are associated with three historic den sites that are located on the USMA. Two of the den sites are located in south-central portion and one in the northeastern portion of the USMA Reservation (Stechert 1995). Additionally, timber rattlesnakes from a den located on Harriman State Park were found on USMA property (Stechert 1997).

Plant Species

An inventory of rare plants on USMA at West Point was conducted during 2000 (Barbour 2001). Based on this survey, 66 special status plant species are present at USMA at West Point. Of these, 30 are state-listed endangered or threatened species (Pray 2004).

A Geographic Information System (GIS) was used to analyze the location of the Project construction areas in relation to the USMA at West point's database of known locations of rare plant populations at the USMA at West Point. The specific Project areas reviewed consisted of all of the areas that would be subject to trench excavation. In addition, the entire length of the telephone pole right-of-way where the new fiber optic cable would be lashed to existing telephone poles was reviewed using the GIS, because vehicle or equipment access paths would potentially be used or created in these unpaved areas.

Based on this analysis, six (6) known populations of rare plant species are located within 500 feet of the segments of fiber optic cable that would be installed via trenching and via aerial lashing to telephone poles. In addition, three (3) rare plant species populations fall just outside the 500-foot buffer/analysis zone, but were also considered because they are associated with wetlands or open water areas that are hydrologically connected to waters extending into the 500-foot Project buffer/review zone.

The six (6) populations of rare plants that are known to occur within 500 feet of the Project involve three different species, including:

- A total of four (4) locations of the rare yellow harlequin (*Corydalis flavula*), including two (2) locations near Thayer/Williams roads, one (1) location on the hillside adjacent to Cullum Road, and one (1) location on the hillside west of the NYS Route 218/U.S. Route 9W intersection;
- One location of the rare Emmon's sedge (*Carex albicans var. emmonsii*) on the hillside west of the NYS Route 218/U.S. Route 9W intersection; and,
- One (1) location of the rare Dutchman's breeches (*Dicentra cucullaria*) on the hillside west of the NYS Route 218/U.S. Route 9W intersection.

The three (3) rare or state-listed threatened plant species populations that fall just outside the 500-foot buffer/analysis zone, but were also considered because they are associated with wetlands or open water areas that are hydrologically connected to the 500-foot buffer zone, include:

- One (1) location of the rare Bush's sedge (*Carex bushii*) at the northwest corner of Camp Buckner (but this population has not been found for several years and probably is no longer extant);
- Populations of the state-listed threatened pond weed (*Potomageton pulcher*) have been known to occur at several locations within Long Pond (Deschenes and Pray 2003); and,
- One location of the rare purple milkweed (*Asclepias purpurascens*) in the vicinity of the southern end of Long Pond. Purple milkweed is typically found along power line rights-of-way on the USMA (USMA 1998a).

3.4.3.2 Environmental Impacts

No permanent habitat conversion would occur under the proposed Project (see Section 3.4). Impacts to resident and transient state-listed endangered, threatened and special concern wildlife species would be similar to those described for other wildlife (see Section 3.4.2.1). Impacts and impact avoidance measures for specific wildlife and plant species are discussed in the following paragraphs.

Bald Eagle

In accordance with relevant provisions identified in the programmatic *Endangered Species Management Plan for the Bald Eagle* (*Haliaeetus leucocephalus) on the Properties of the United States Military Academy* (Beemer 2002a), the USMA would consult with the USFWS and the NYSDEC if USMA activities would affect the bald eagle or its habitat. Although the bald eagle is a frequent winter visitor to the reservation and Constitutional Island, the USMA at West Point does not anticipate that Project implementation would adversely affect the bald eagle because no tree clearing or habitat alteration would occur. Therefore, the USMA at West Point has determined that no consultation with the USFWS is necessary pursuant to this Project.

Timber Rattlesnake

Potential timber rattlesnake den or basking/gestation habitat has not been identified as occurring within the Project area (Stechert 1995, Stechert 1997). Therefore, construction of the proposed Project would result in no direct impacts to this habitat, although transient timber rattlesnakes may be impacted if they attempt to traverse active construction areas or travel lanes.

According to Section 11-0535 of the NYSECL, the taking, importation, transportation, possession or sale of endangered or threatened species of wildlife is prohibited, except under license or permit from the NYSDEC. To mitigate potential impacts to the timber rattlesnake during construction of the proposed Project, USMA would monitor the impacted areas for timber rattlesnake activity when construction is scheduled between April 1 and September 30. In the event of a timber rattlesnake encounter, USMA has a verbal agreement with the NYSDEC to move timber rattlesnakes to a suitable, off-site rookery, den, or foraging habitat (Beemer 2002b). This verbal agreement identifies Jim Beemer, Natural Resource Biologist, USMA, as the person that would be notified in case of an encounter and the person that would handle and translocate individual timber rattlesnakes. USMA has agreed to develop written standard operating procedures for timber rattlesnake encounters during construction of the Project.

Plant Species

A total of six (6) known populations of rare plant species are located within 500 feet of the segments of fiber optic cable that would be installed via trenching and via aerial lashing to telephone poles Project. In addition, three (3) rare or state-listed threatened plant species populations fall just outside the 500-foot buffer/analysis zone, and are associated with wetlands or open water areas that are hydrologically connected to waters extending into the 500-foot Project buffer/review zone.

Yellow Harlequin

Yellow harlequin prefers rich, rocky woodlands and are typically found on south- or east-facing slopes or burned ridgetops. Three of the four known locations of yellow harlequin are located in areas where the Project trenching activities would be within roadways in the Main Post/Academic Area. Because no disturbance of vegetation or slopes adjacent to Williams Road, or Cullum or Clinton roads would occur during in-street trenching, these three rare plant populations are not anticipated to be affected. The fourth location of yellow harlequin occurs on a slope that is at least 200 feet from the Project trenching locations, and is physically separated from it by two paved roadways. Therefore, the known populations of yellow harlequin would not be disturbed by construction or operation of the Project.

Emmon's Sedge

Emmon's sedge prefers rich, wooded slopes that contain sugar maple and associated trees. The known population of Emmon's sedge occurs on a slope that is at least 200 feet from the Project trenching locations, and is physically separated from it by two paved roadways. Therefore, the known population of Emmon's sedge would not be disturbed by construction or operation of the Project.

Dutchman's Breeches

Dutchman's breeches prefers rich, moist woods, and shaded ledges, and is typically found in the mountains, on a northern slope or shaded bank that has remained undisturbed for long periods of time. The known population of Dutchman's breeches occurs on a slope that is at least 200 feet from the Project trenching locations, and is physically separated from it by two paved roadways. Therefore, the known population of Dutchman's breeches would not be disturbed by construction or operation of the Project.

Bush's Sedge

Bush's sedge prefers wet meadows, usually with calcareous or clayey soils. The Bush's sedge found at the Camp Buckner site was growing on fill soil material near the edge of a wetland, which is not the preferred habitat for this species. Rare plant surveys have been

unable to locate any remaining individuals of Bush's sedge at this location since 1994; therefore, the USMA at West Point's Natural Resources Branch biologists expect that this population is probably extirpated from this location. In addition, this site is located more than 500 feet from the telephone right-of-way and paved roadways at Camp Buckner, where Project construction activities, consisting primarily of vehicle and equipment access, would be confined to the right-of-way or existing roads. This plant tends to prefer wetland habitats, and if present within a wetland along the telephone pole right-of-way, it would receive protection from direct and indirect impacts through best management practices that would be implemented for the protection of wetlands (see Section 3.2.3.2).

Pond Weed

Pond weed prefers moderately deep, still or slow waters and is sometimes found with submerged floating plants. This known population is located in Long Pond more than 1,000 feet from the existing utility line right-of-way. This plant tends to prefer wetland habitats, and if present within a wetland along the telephone pole right-of-way, it would receive protection from direct and indirect impacts through best management practices that would be implemented for the protection of wetlands (see Section 3.2.3.2).

Purple Milkweed

Purple milkweed prefers tall meadow or brushy cleared land that is moderately or intermittently wet. This plant is adapted to a certain amount of disturbance to maintain its preferred habitat. Accordingly, three populations of this plant have been found along utility line rights-of-way at the USMA at West Point. The only location where the proposed Project would be likely to encounter purple milkweed is the utility right-of-way on the southern shore of Long Pond (Deschenes and Pray 2003). Because the Project would not involve soil excavation, removal, or extensive soil or vegetation disturbance in this area (possibly only minor vehicular travel along the existing right-of-way), adverse impacts to this species, if present, are not anticipated.

Summary

In summary, through a combination of Project avoidance, the completion of a pre-construction surveys, the monitoring for timber rattlesnake during construction, the implementation of best management practices, and the use of protection measures if needed during construction, construction and operation of the Project would not jeopardize the continued existence of any federally-listed or state-listed endangered, threatened, or rare/special status plant species.

3.5 CULTURAL RESOURCES

A wide variety of cultural resources have been identified for the USMA at West Point, including buildings, structures, districts, objects, and sites. These cultural resources can be divided into three broad, inter-related categories: architectural resources, archaeological sites, and cultural landscapes. Architectural and archaeological resources are discussed below. Cultural landscapes are discussed in Section 3.6 (Visual Resources and Aesthetics).

3.5.1 Architectural Resources

3.5.1.1 Affected Environment

Architectural resources at the USMA at West Point have undergone extensive investigation, including, but not limited to, the initial nomination of the USMA at West Point NHLD in 1960, a comprehensive Historic American Buildings Survey/Historic American Engineering Record Survey (HABS/HAER) architectural inventory and assessment of the USMA built environment in 1984, with subsequent revision and amendments in 1998, and a revised NHLD nomination submission in the year 2003 to update the number of properties within the NHLD, and determine contributing and non-contributing properties to the NHLD (Tompkins et al. 1984, Nolte and Cinquino 1998, and Prior et al. 2000, as cited in Geo-Marine, Inc. 2001).

The boundaries of the NHLD are particularly important to understanding the nature of architectural resources within the USMA at West Point. The NHLD boundaries enclose an area of approximately 2,500 acres, including the Main Post/Academic Area and Constitution Island (Geo-Marine, Inc. 2001). More than 600 buildings or structures are located within the NHLD at the USMA at West Point, although these buildings or structures have not yet undergone conclusive evaluations to determine whether they are eligible for listing on the NRHP (Geo-Marine, Inc. 2001). However, during additional investigations as part of a revised nomination of the NHLD at the USMA at West Point (Prior et al. 2000), 328 of these more than 600 buildings and structures were identified as contributing elements to the NHLD, and therefore potentially eligible for the NRHP, although these buildings or structures have not yet undergone conclusive evaluations to determine whether they are eligible for listing on the NRHP (Geo-Marine, Inc. 2001).

Of the 40 buildings included in the Project, 29 buildings that are located within the Main Post/Academic Area have been identified as contributing, or potentially contributing, elements to the NHLD, and are therefore potentially eligible for the NRHP (Geo-Marine, Inc. 2001) (see Table 3). Three additional buildings that are located within Camp Buckner, outside of the NHLD boundaries, have also been identified as potentially eligible for the NRHP (Salo et al. 2002) (see Table 3). The remaining eight buildings included in the Project have not been identified as contributing, or potentially contributing elements to the NHLD and/or have not been identified as potentially eligible for the NRHP.

In addition to investigations to determine whether buildings or structures were contributing or non-contributing elements to the NHLD, 227 buildings or structures within the USMA at West Point, including the Main Post/Academic Area and outlying areas, were inventoried as part of a HABS/HAER survey conducted by the USDI, National Park Service (NPS) (Tompkins et al. 1984). The purpose of this survey was to develop a database of historic structures for use in developing an installation-wide historic preservation program and a historic structure maintenance plan, to facilitate compliance by the USMA at West Point with federal and state historic preservation legislation, and to identify historic structures at the USMA that are of national significance for inclusion in the Library of Congress's permanent HABS/HAER collection (Tompkins et al. 1984).

Of the 40 buildings included in the Project, 37 buildings have been inventoried as part of the HABS/HAER survey, and 18 of these 37 buildings have been identified as having national significance under HABS/HAER categories I or II (Tompkins et al. 1984) (see Table 3). Another nine of the 37 buildings have been identified as having local significance under HABS/HAER category III, and another ten of the 37 buildings have been identified as non-intrusive buildings having no national or local significance at the time of the HABS/HAER survey under HABS/HAER category IV (Tompkins et al. 1984) (see Table 3). The remaining three buildings included in the Project have not been inventoried as part of a HABS/HAER survey.

In addition to the 40 buildings included in the Project that have been identified above as architectural resources, four additional structures located within the Project area have also been identified as architectural resources. These four additional structures consist of Washington and Thayer gates, the Washington Road culvert, and the pedestrian bridge at Building 667.

The Project alignment will pass through Thayer and Washington gates, two of the three main access points to the Main Post/Academic Area, which are located to the south and north of the Main Post/Academic area, respectively. Thayer Gate is considered to be the main gate at the USMA at West Point, and is the official entrance for visitors to the USMA at West Point. The architecture of Thayer Gate is dramatic, and was designed to convey the national significance of the mission of the USMA at West Point (Collaborative, Inc. et al. undated). Thayer Gate contains two buildings that have been inventoried as part of the HABS/HAER survey: Building 608-Thayer Gate Sentry

Station, a Category III structure; and Building 610-Thayer Gate Public Toilet, a Category III structure (Tompkins et al. 1984). The USMA at West Point is currently performing a NRHP eligibility determination for the Thayer Gate, as a component of another project. The results of this determination (still pending) will determine whether Thayer Gate is eligible for the NRHP and/or is a contributing element to the NHLD.

Table 3. Architectural Significance of Buildings Receiving I3MP Upgrades as Part of Proposed Project.

Building Number	Building Name	Current Building Use/Purpose	Recommended as NRHP-Eligible	Recommended as a Contributing Element to the West Point NHLD	HABS/HAER Inventoried Structure
Tier 1 Buildings					
600	Taylor Hall	Post Headquarters, Administration	Yes	Yes	Yes (Category I, w/ HABS Level II documentation as NY-5708-22)
601	Thayer Hall	Academic Classrooms	Yes	Yes	Yes (Category I, w/ HABS Level II documentation as NY-5708-23)
626	Finance/Housing	Administration, General Purpose	Yes	Yes	Yes (Category II, w/ HABS Level II documentation as NY-5708-47)
667A & B	Directorate of Housing and Public Works	Administration, Logistical Support	Yes	Yes	Yes (Category III)
745A & B	Washington Hall	Cadet Mess, Corps of Cadets Headquarters, Administration, Academic Classrooms	Yes	Yes	Yes (Category II, w/ HABS Level II documentation as NY-5708-44)
756	Bradley Barracks/Cadet Dorm	Cadet Barracks	Yes	Yes	Yes (Category III)
845	Post Laundry	Logistical Support	Yes	Yes	Yes (Category IV)
1630	Communication Building	Administration/Communication for Range Areas	No	No	Yes (Category IV)
2101	Spellman Hall	Information Procurement Center	No	No	Yes (Category IV)
Tier 2 Buildings					
329	Inspector General/Memorial Affairs	Administration, General Purpose	Yes	Yes	Yes (Category III)
602	Grants Hall/Barracks	Academic Classrooms	Yes	Yes	Yes (Category II, w/ HABS Level II documentation as NY-5708-26)
606	Admissions/Health Clinic	Administration, General Purpose	Yes	Yes	Yes (Category III)
607	Lincoln Hall	Academic Classrooms	Yes	Yes	No
609	Turbine Lab	Academic Classrooms	Yes	Yes	Yes (Category IV)
616	Provost Marshal Office	Administration, General Purpose	No	No	No

Table 3. Architectural Significance of Buildings Receiving I3MP Upgrades as Part of Proposed Project (continued).

Building Number	Building Name	Current Building Use/Purpose	Recommended as NRHP-Eligible	Recommended as a Contributing Element to the West Point NHLD	HABS/HAER Inventoried Structure
Tier 2 Buildings (continued)					
621	1/1 Infantry Headquarters	Emergency Operations Command, Administration	No	No	Yes (Category IV)
622	Post Services	Administration, General Purpose	Yes	Yes	Yes (Category II, w/ HABS Level II documentation as NY-5708-46)
639	Office of the Directorate of Intercollegiate Athletics	Administration, General Purpose	Yes	Yes	Yes (Category II)
655	Eisenhower Hall / Benny's Lounge	Multipurpose (Theater, Public Events and Activities)	No	No	Yes (Category III)
681	Garrison Headquarters	Administration, General Purpose	Yes	Yes	Yes (Category II)
687	Cadet Uniform Factory	Textile/Clothing Fabrication and Repair	Yes	Yes	Yes (Category II)
722	The Cadet Chapel	Chapel	Yes	Yes	Yes (Category I, w/ HABS Level II documentation as NY-5708-20)
727	Arvin Gym	Physical Fitness Center	Yes	Yes	Yes (Category II, w/ HABS Level II documentation as NY-5708-43)
735	Scott Barracks/Cadet Dorm	Cadet Barracks	Yes	Yes	Yes (Category II, w/ HABS Level II documentation as NY-5708-45)
738	Sherman Barracks/Cadet Dorm	Cadet Barracks	Yes	Yes	Yes (Category III)
740	Lee Barracks/Cadet Dorm	Cadet Barracks	Yes	Yes	Yes (Category III)
745C	Eisenhower Barracks	Cadet Barracks	Yes	Yes	Yes (Category II, w/ HABS Level II documentation as NY-5708-44)

Table 3. Architectural Significance of Buildings Receiving I3MP Upgrades as Part of Proposed Project (continued).

Building Number	Building Name	Current Building Use/Purpose	Recommended as NRHP-Eligible	Recommended as a Contributing Element to the West Point NHLD	HABS/HAER Inventoried Structure
Tier 2 Buildings (continued)					
745D	MacArthur Barracks (Long)	Cadet Barracks	Yes	Yes	Yes (Category II, w/ HABS Level II documentation as NY-5708-44)
745E	MacArthur Barracks (Short)	Cadet Barracks	Yes	Yes	Yes (Category II, w/ HABS Level II documentation as NY-5708-44)
747	Nininger Hall	Administration, General Purpose	Yes	Yes	Yes (Category I, w/ HABS Level II documentation as NY-5708-8)
751	Pershing Barracks/Cadet Dorms	Cadet Barracks	Yes	Yes	Yes (Category I, w/ HABS Level II documentation as NY-5708-15)
752	Mahan Hall	Academic Classrooms	Potentially	Potentially	Yes (Category III)
753	Bartlett Hall	Academic Classrooms	Yes	Yes	Yes (Category I, w/ HABS Level II documentation as NY-5708-25)
757	Cadet Library	Technical Library	Yes	Yes	Yes (Category III)
900	Keller Hospital	Medical Center/Hospital	No	No	Yes (Category IV)
1403	Range Control	Administration, Logistical Support	No	No	No
1548	Camp Buckner Headquarters	Headquarters, Administration, Logistical Support	No	No	Yes (Category IV)
1580	Camp Buckner Superintendent's Quarters/Commander's Cottage	Headquarters, Administration	Potentially	No	Yes (Category IV)
1666	"Snake Pit"	Cadet Field Training, Administration, Logistical Support	Potentially	No	Yes (Category IV)
1670	Highland Warrior	Cadet Field Training, Administration, Logistical Support	Potentially	No	Yes (Category IV)

Source: Tompkins et al. 1984, Geo-Marine, Inc. 2001, Salo et al. 2002, USMA 2003a.

Washington Gate is the second most active gate at the USMA at West Point, and provides many visitors with their first impression of the USMA at West Point, although it is located in the industrial portion of the Main Post/Academic Area and is considered to be the "back door" of the USMA at West Point. The architecture of Washington Gate is greatly reduced in scale in comparison to Thayer Gate, but also conveys the national significance of the mission of the USMA at West Point using form and material (Collaborative, Inc. et al. undated). Washington Gate contains two buildings that have been inventoried as part of the HABS/HAER survey: Building 711-Washington Gate Sentry Station, a Category III structure; and Building 729-Washington Gate Public Toilet, a Category IV structure (Tompkins et al. 1984). Washington Gate, including Buildings 711 and 729, is individually eligible for the NRHP as an historic property, and also is a contributing element to the NHLD.

The Washington Road culvert, located in the vicinity of the Project area, has been recommended as a structure that is a contributing element to the NHLD at West Point, and therefore has been recommended as eligible for the NRHP (Nolte and Cinquino 2000, as cited in Geo-Marine, Inc. 2001). The pedestrian bridge at Building 667, located within the Project area, has also been recommended as a structure that is a contributing element to the NHLD at West Point, and therefore has been recommended as eligible for the NRHP (Nolte and Cinquino 2000, as cited Geo-Marine, Inc. 2001).

3.5.1.2 Environmental Impacts

Based on a review of the available documentation summarizing known architectural resources for the USMA at West Point, the proposed Project's various components (installation of single fiber optic cable underground, along existing telephone lines, and through existing conduits within and between the Main Post/Academic Area and Camp Buckner, and upgrading existing telecommunications systems in Building 600-Taylor Hall in the Main Post/Academic Area) are located in areas that are known to contain previously identified architectural resources, or will be installed within historic structures. An Effects Determination study was conducted to identify those architectural resources that would be within the Area of Potential Effect (APE) for the Project, and to assess the impacts on those architectural resources.

Results of the Effects Determination study indicated that the Project would not affect the historic fabric of 31 of the 40 structures included in the Project, and would have no adverse effects on these 31 structures, because installation of the Project would utilize existing or adjacent telecommunications conduits and pathways that have either been previously altered by telecommunications systems or have been concealed by late 20th century materials (The Louis Berger Group, Inc. 2004). In addition, the Project would not affect the historic fabric of Building 757 (Cadet Library), which has been recommended as eligible for the NRHP and a contributing element of the NHLD at the USMA at West Point, and would have no adverse effect on this structure, because installation of the Project would be through an existing manhole, and no new penetrations

of the historic fabric of Building 757 (Cadet Library) would be incurred by installation of the Project (Cubbison 2004).

The Project would affect the historic fabric of the remaining eight structures included in the Project, primarily where the new telecommunications system will enter these buildings (Table 4) (The Louis Berger Group, Inc. 2004). All of these eight buildings have been recommended as eligible, or potentially eligible, for the NRHP, and seven of these eight buildings have also been recommended as contributing, or potentially contributing, elements to the NHLD at the USMA at West Point (the eighth building, Building 1580 [Camp Buckner Superintendent's Quarters/Commander's Cottage] is located outside of the NHLD at the USMA at West Point) (Geo-Marine, Inc. 2001, Salo et al. 2002, USMA 2003a). However, the Project is not expected to result in adverse effects to these eight remaining structures, as discussed below.

No adverse effects by the Project are anticipated for five of the eight buildings that have been recommended as eligible or potentially eligible for the NRHP (Building 667 A & B, Building 845, Building 622, Building 735, and Building 752) (see Table 4) (Cubbison 2004). Although the Project has the potential to result in adverse effects on the remaining three buildings that have been recommended as eligible or potentially eligible for the NRHP (Building 600, Building 329, and Building 1580) (see Table 4), mitigation measures have been developed to ensure that the Project would have no adverse effects on these three buildings.

The Project would affect the historic fabric of Building 600 (Taylor Hall), with the installation of the new telecommunications system on the interior walls of the Superintendent's Conference Room, including new outlets and millwork (The Louis Berger Group, Inc. 2004). However, the Project would have no adverse effects on the interior design elements or features of the Superintendent's Conference Room that contribute to the NRHP-eligibility of Building 600 (Taylor Hall), because the new millwork associated with the installed equipment on the south wall of the Superintendent's Conference Room would match the design, size, texture, color, finish, and workmanship of the existing millwork on the south wall, and would not extend beyond the frame of the doorway on the south wall (The Louis Berger Group, Inc. 2004). To further avoid adverse effects of the Project on the interior design elements or features of the Superintendent's Conference Room that contribute to the building's NRHP-eligibility, no alterations or changes, or penetrations of any kind, including new outlets, would be permitted higher than 9 feet on the walls of the room, or within the vaulted ceilings of the room (Cubbison 2003c).

The Project would affect the historic fabric of Building 329 (Inspector General/Memorial Affairs), with the installation of the new telecommunications system on the interior walls of the building (The Louis Berger Group, Inc. 2004). However, the Project would have no adverse effects on the interior design elements or features that contribute to the NRHP-eligibility of Building 329 (Inspector General/Memorial Affairs), because

installation of the Project would not alter or change the Tudor Revival architectural characteristics of the structure (The Louis Berger Group, Inc. 2004).

The Project would affect the historic fabric of Building 1580 (Camp Buckner Superintendent's Quarters/Commander's Cottage), with the installation of the new telecommunications system on the interior walls of the building (The Louis Berger Group, Inc. 2004). However, the Project would have no adverse effects on the NRHP-eligibility on Building 1580 (Camp Buckner Superintendent's Quarters/Commander's Cottage), because installation of the Project would not alter the historical appearance and significant architectural elements that make this structure eligible for the NRHP (The Louis Berger Group, Inc. 2004).

Table 4. Eight Buildings with Historic Fabric Affected by the Proposed Project.

Building Number	Building Name	Recommended as NRHP-Eligible	Adverse Effect on NRHP-Eligibility	Recommended as a Contributing Element to the West Point NHLD	Adverse Effect on Status as a Contributing Element to the West Point NHLD
Tier 1 Buildings					
600	Taylor Hall	Yes	No	Yes	No
667A & B	Directorate of Housing and Public Works	Yes	No	Yes	No
845	Post Laundry	Yes	No	Yes	No
Tier 2 Buildings					
329	Inspector General/ Memorial Affairs	Yes	No	Yes	No
622	Post Services	Yes	No	Yes	No
735	Scott Barracks/ Cadet Dorm	Yes	No	Yes	No
752	Mahan Hall	Potentially	No	Potentially	No
1580	Camp Buckner Superintendent's Quarters/ Commander's Cottage	Potentially	No	No	No

Source: Tompkins et al. 1984, Geo-Marine, Inc. 2001, Salo et al. 2002, The Louis Berger Group, Inc. 2004, USMA 2003, Cubbison 2004.

The Project would not have an adverse effect on six of the seven structures that have been recommended as contributing, or potentially contributing, elements to the NHLD at the USMA at West Point, because installation of the Project would not diminish the characteristics of design, workmanship, materials, and association that contribute to the

significance of the NHLD at the USMA at West Point (see Table 4) (The Louis Berger Group, Inc. 2004). No adverse effects by the Project are anticipated for the seventh structure, the USMA at West Point (Building 845 [Post Laundry]), which has been recommended as a contributing element to the NHLD (Cubbison 2004). As noted above, the eighth building, Building 1580 [Camp Buckner Superintendent's Quarters/Commander's Cottage] is located outside of the NHLD at the USMA at West Point.

The USMA at West Point has initiated consultation with the New York State Office of Parks, Recreation, and Historic Preservation (NYSOPRHP) regarding the Project (Cubbison 2003d). As part of this initial consultation, an Effects Determination study was forwarded to the NYSOPRHP for review, comments, and formal Effects Determination by the NYSOPRHP. The formal Effects Determination by the NYSOPRHP will identify the potential effects of the Project on architectural resources within the APE, and the need for any additional investigations or mitigation measures to avoid potential impacts to architectural resources in the APE for the Project. To avoid adverse effects on architectural resources in the APE, the USMA will perform Phase I Cultural Resource Surveys at specific locations within the Project area that contain significant architectural resources (Cubbison 2004), and will implement mitigation measures to ensure that the Project will have no adverse effects on Building 600, Building 329, and Building 1580. The USMA will also perform additional investigations or mitigation measures for the Project as recommended by the NYSOPRHP, and coordinate with the NYSOPRHP to implement pertinent recommendations from the State Historic Preservation Officer (SHPO) to reduce Project impacts to less than significant for any architectural resources in the Project area.

In addition to the results of the Effects Determination study, the USMA at West Point has determined that the Project would have no significant adverse effects on cultural resources associated with Thayer or Washington gates because the Project would be installed within the existing roadways of Thayer and Washington roads, respectively. The USMA at West Point has also determined that the Project would have no significant adverse effects on the Washington Road Culvert and the Pedestrian Bridge at Building at 667, because the Project would be installed within existing conduits and along existing telecommunications pathways in the vicinity of the Washington Road Culvert and the Pedestrian Bridge at Building 667.

The USMA at West Point would coordinate with the NYSOPRHP for review and comment on these determinations, including a request for a formal Effects Determination by the NYSOPRHP on the effects of the Project on Thayer and Washington Gates, the Washington Road Culvert, and the Pedestrian Bridge at Building 667. The formal Effects Determination by the NYSOPRHP would identify the potential effects of the Project on these four additional architectural resources within the APE, and the need for any investigations or mitigation measures to avoid potential impacts to these four additional architectural resources in the APE for the Project. The USMA would perform these investigations or mitigation measures for the Project, and coordinate with the

NYSOPRHP to implement pertinent recommendations from the SHPO to reduce Project impacts to less than significant for these four additional architectural resources in the Project area.

3.5.2 Archaeological Resources

3.5.2.1 Affected Environment

A number of archaeological excavations and surveys have been conducted within the boundaries of the USMA at West Point, including, but not limited to, investigations in the 1920s, 1930s, 1960s, and 1970s, by both vocational and academic individuals and institutions (Geo-Marine, Inc. 2001). From the 1980s through the present, a series of formal cultural resource investigations have been completed at various Project-specific locations within the USMA at West Point, including investigations for the Stony Lonesome II Housing Facility, the Queensboro Iron Works, the USMA Timber Harvesting program, the Perimeter Security Fence Project, the Stony Lonesome Water Tank, and various other construction Projects, as well as predictive model testing at a variety of locations within the USMA at West Point by the State University of New York at Albany (Geo-Marine, Inc. 2001). As a result of these archaeological investigations, more than 150 archaeological sites have been identified within the USMA at West Point (Geo-Marine, Inc. 2001). Prehistoric archaeological site types span the range of prehistoric time periods from the Archaic (ca. 9,000 before present [B.P.] to 3,700 B.P.) to the Woodland Period (terminating ca. 1600 A.D.). Historic archaeological site types include 18th and 19th century historic residential, military, and industrial sites.

Several cultural resource management plans have been completed for the USMA at West Point. These include the comprehensive HABS/HAER survey (Tompkins et al. 1984); a survey of family housing quarters that included preservation standards and guidelines (Mariani and Associates, Architects 1987); and a historic resources management plan, that included locations of prehistoric and historic properties, drawings, and preservation and maintenance guidelines for maintaining significant properties, and was completed in association with the Advisory Council on Historic Preservation (ACHP) (USMA 1988). A preservation plan for Revolutionary War Period sites located near the Stony Lonesome II Housing Facility also included preservation plans for maintaining Redoubts 1 and 2 (Benton 1995), and a historic building survey for the Queensboro Iron Works also included a management plan for maintenance (Benton 1995). A management plan for cultural resources, including prehistoric and historic archaeological resources within the USMA at West Point boundaries, was completed in 1995 (Collaborative, Inc. et al. undated, Loechl et al. 2001, Geo-Marine, Inc. 2001), and included a predictive model identifying areas of high, medium, and low archaeological sensitivity for the USMA at West Point.

Most recently, the USMA at West Point has developed an Integrated Cultural Resources Management Plan (ICRMP) (Geo-Marine, Inc. 2001). The ICRMP establishes an installation-specific cultural resource management program to allow the USMA at West

Point to integrate the management of its cultural resources within mission activities, including processes for the ongoing identification and protection of archaeological and architectural resources and historic landscapes, for external consultation and coordination with non-installation regulatory agencies and other interested parties, and for implementation of standard operating procedures for cultural resources actions (Geo-Marine, Inc. 2001). The ICRMP is also designed for use with the USMA at West Point's Installation Design Guide, Historic Landscape Management Plan, and zone management system to further protect the USMA at West Point's cultural resources (Collaborative, Inc. et al. undated, Loechl et al. 2001, Geo-Marine, Inc. 2001).

3.5.2.2 Environmental Impacts

Based on a review of the available documentation summarizing known archaeological resources for the USMA at West Point, some portions of the proposed Project's various components, specifically where single fiber optic cable would be installed underground within the Main Post/Academic Area, are located in areas that are known to contain previously identified archaeological resources, or in areas that are moderately to highly sensitive for containing previously unidentified archaeological resources. The USMA at West Point contracted for an Effects Determination study to identify those previously recorded archaeological resources, and areas that may be sensitive for containing previously unidentified archaeological resources, that would be within the APE for the Project. The Effects Determination study included background research, site file searches, and a pedestrian/walkover reconnaissance (The Louis Berger Group, Inc. 2004).

Results of the Effects Determination study indicated that ten previously identified prehistoric archaeological sites are located within 650 feet (200 meters) of the Project's various components. These ten prehistoric archaeological sites date from the Archaic through the Woodland cultural periods, and include a rockshelter, single- and multi-component camps, and lithic/artifact scatters (The Louis Berger Group, Inc. 2004). Results of the Effects Determination study further indicated that additional portions of the proposed Project's various components are located in areas that have been assessed as having low, moderate, and high sensitivity for containing previously unidentified prehistoric and historic archaeological resources, specifically within the Main Post/Academic Area where the single fiber optic cable will be installed underground (The Louis Berger Group, Inc. 2004).

Additional subsurface archaeological investigations have been recommended where possible for those portions of the Project that would be installed underground in areas with moderate to high archaeological sensitivity and limited prior ground disturbance (The Louis Berger Group, Inc. 2004). Archaeological monitoring during construction of the Project has been recommended for those portions of the Project that would be installed underground in areas with moderate to high archaeological sensitivity where subsurface archaeological investigations cannot be conducted (e.g., existing roadways, manhole locations), and in areas with low to moderate archaeological sensitivity (The Louis Berger Group, Inc. 2004).

The USMA at West Point has initiated consultation with the NYSOPRHP regarding the Project (Cubbison 2003d). As part of this initial consultation, an Effects Determination study was forwarded to the NYSOPRHP for review and comment, including a formal Effects Determination by the NYSOPRHP. The formal Effects Determination by the NYSOPRHP will identify the potential effects of the Project on archaeological resources within the APE, and the need for any additional investigations or mitigation measures to avoid potential impacts to archaeological resources in the APE for the Project.

During the review and comment period for the Draft EA for the Project, the NYSOPRHP indicated that performance of a Phase I archaeological survey would be expected for those portions of the Project that would be installed underground in areas with moderate to high archaeological sensitivity and limited prior ground disturbance (Adams 2004, The Louis Berger Group, Inc. 2004). To avoid adverse effects on archaeological resources in the APE for the Project, the USMA will perform Phase I Archaeological Surveys at specific locations within the Project area that are considered sensitive for archaeological resources, and will perform monitoring by a professionally qualified archaeologist at specific locations within the Project area where excavation and trenching activities would occur during construction (Cubbison 2004). The USMA would also perform additional investigations or mitigation measures for the Project as recommended by the NYSOPRHP, and coordinate with the NYSOPRHP to implement pertinent recommendations from the SHPO to reduce Project impacts to less than significant for any archaeological resources in the Project area.

3.6 VISUAL RESOURCES AND AESTHETICS

3.6.1 Affected Environment

The various visual resources associated with the USMA at West Point have been identified for their contributions to landscapes of historical, architectural, aesthetic, and natural significance. These visual resources and aesthetics include historic landscapes associated with the NHLD at the USMA at West Point. This includes landscapes associated with a variety of individual historic structures that are either nominated individually for the NRHP or have been identified as contributing elements to the NHLD, such as the buildings and properties adjacent to Washington Gate, Stony Lonesome Gate, and the main entrance to the Main Post/Academic Area at Thayer Gate, along the Hudson River frontage and shoreline, and the viewsheds from these buildings, properties, and installation entrances; aesthetic landscapes associated with a variety of communities within the Main Post/Academic Area of the USMA at West Point; and natural landscapes associated with the Hudson Highlands Scenic Area of Statewide Significance (HHSASS). The USMA at West Point has developed a number of management plans that identify and protect the visual resources and aesthetics associated with these landscapes, including the Historic Landscape Management Plan for the U.S. Military Academy at West Point, the United States Military Academy Installation Design Guide, and the Identification and

Analysis of the Historic Built Environment and Viewsheds, Cadet Zone (Loechl et al. 2001, Collaborative, Inc. et al. et al. undated, Halin et al. 2003).

Visual resources that are related to historic landscapes within the NHLD at the USMA at West Point include the entire NHLD, as well as select component landscapes within the NHLD. Landscapes within the entire NHLD at the USMA at West Point are divided into four categories: roads and roadways, views, athletic fields, and the waterfront. The Project would be located within two of the four categories: roads and roadways, and views from various points within the NHLD at the USMA at West Point. First, the Project will traverse portions of Washington and Cullum roads, which have been identified as historic roadways within the Main Post/Academic Area of the USMA at West Point, and are considered significant because of their historical importance in facilitating the circulation of traffic around the Main Post/Academic Area, as well as their importance to the experience of the natural and cultural landscapes associated with the USMA at West Point (Loechl et al. 2001). Second, the Project also will be located within the visual resources of the historic landscapes associated with the view from Fort Putnam that extends southeast, encompassing portions of academic buildings within the Cadet Center Community, and the view from a point on Stony Lonesome Road, between Building 750-Jewish Chapel and Building 727-Arvin Gymnasium that extends northwest, encompassing portions of family housing within the Merritt Road Community and portions of administrative buildings within the Central Support Community (Loechl et al. 2001).

Visual resources and aesthetics that are related to select component landscapes within the NHLD at the USMA at West Point are considered historic feature landscapes. The Project will be located within, or visible from, three of the six historic feature landscapes that have been identified for the USMA at West Point: the Academic Area, the Plain, and the West Point Cemetery. These three historic feature landscapes are discussed in greater detail in the *Historic Landscape Management Plan for the U.S. Military Academy at West Point, New York* (Loechl et al. 2001).

In addition to the historic visual resources and aesthetics that are related to select component landscapes within the NHLD at the USMA at West Point, the Main Post/Academic Area of the USMA at West Point contains four historic housing areas that are also considered historic feature landscapes. The Project is located within, or within view of, two of these four historic housing areas: the Professor's Row Housing Area and the southern edge of the Lee Housing Area (Loechl et al. 2001). These two additional historic feature landscapes are also discussed in greater detail in the *Historic Landscape Management Plan for the U.S. Military Academy at West Point, New York* (Loechl et al. 2001).

Visual resources and aesthetics at the USMA at West Point are also related to aesthetic landscapes associated with the five gates at the USMA at West Point, and 22 small and compact communities within the Main Post/Academic Area. The aesthetic landscapes of these gates and communities have been established or defined over time based on use,

architecture, or topography, resulting in individualized visual characteristics or features that contribute to the unique aesthetic landscapes of each gate and/or community (Collaborative, Inc. et al., et al. undated). The Project will be located within, and pass through, two of the five gates: Thayer Gate and Washington Gate, which are located to the south and north of the Main Post/Academic Area, respectively. The Project will be located within, or in view of, 13 of the 22 communities: the Pershing Center Community, the Buffalo Soldier's Field Community, the Cadet Center Community, the Central Support Community, the Dunover Court Community, the Merritt Road Community, the Biddle Loop Community, the Grey Ghost Community, the Lee Community, the Band Quarters Community, the North Support Community, the Washington Gate Industrial Community, and the Recreational Support Community. The individual visual resources and aesthetics associated with these two gates and these 13 communities are discussed in greater detail in the *United States Military Academy Installation Design Guide* (Collaborative, Inc. et al., et al. undated).

Additional analysis of the historic landscapes of the Cadet Center Community by the USMA at West Point identified a total of 18 historic views that are specifically associated with the Cadet Center Community, and that are considered eligible for the NRHP (Halin et al. 2003). The locations of various portions of the Project are visible from nine of these 18 historic views: View 1: from Garrison across the Hudson River to West Point; View 4: from Fort Putnam; View 5: from the Cadet Chapel; View 11: south down Cullum Road towards the Cadet Library; View 12: northern terminus of the Thayer Pedestrian Walk looking east; View 13: looking northeast and southeast along the Diagonal Walk; View 15: front of Washington Hall looking northeast across the Parade Ground; View 16: north and south along Thayer Road in the Academic Area; and View 18: west along Brewerton Road to the Cadet Chapel (Halin et al. 2003). One portion of the Project will be located within one of these nine historic views (View 11: south down Cullum Road towards the Cadet Library) due to the installation of the OSCAR component of the Project within the footprint of Cullum Road extending east from approximately Building 757-Cadet Library to Building 609-Turbine Lab. This view is discussed in greater detail in the *Identification and Analysis of the Historic Built Environment and Viewsheds, Cadet Zone, United States Military Academy at West Point, New York* (Halin et al. 2003), as well as in the *Historic Landscape Management Plan for the U.S. Military Academy at West Point, New York* (Loechl et al. 2001).

Visual resources and aesthetics associated with the Project are also related to cultural landscapes outside of the NHLD at the USMA at West Point, where portions of the Project will be installed within Camp Buckner. The cultural landscape of Camp Buckner has undergone evaluation as a historic military landscape, and has been found to comprehensively express trends in architectural styles and construction materials associated with the World War II-era (Salo et al. 2002). This cultural landscape is discussed in greater detail in the *Inventory of Buildings and Structures, Camp Buckner, United States Military Academy, New York* (Salo et al. 2002).

In addition to the visual resources that are associated with historic, architectural, and aesthetic landscapes of structures and communities, the Project is also located within the

HHSASS, which is a designated coastal zone containing visual resources that are associated with the natural environment surrounding the USMA at West Point (New York State Department of State [NYSDOS] 1981, NYSDOS 1993). The Project is located within four subunits of the HHSASS: the Contemporary West Point Military Academy Subunit, the West Point Military Academy Subunit, the Hudson Highland Subunit, and the Highland Falls Subunit (NYSDOS 1993). The Project is also within exterior views from seven additional subunits of the HHSASS: the Storm King Subunit, the Manitou Marsh Subunit, the Garrison Landing Subunit, the Garrison Four Corners Subunit, the Constitution Marsh Subunit, the Constitution Island Subunit, and the Cold Spring Subunit (NYSDOS 1993). The individual visual resources and aesthetics associated with these 11 subunits of the HHSASS are discussed in greater detail in *Scenic Areas of Statewide Significance* (NYSDOS 1993).

3.6.2 Environmental Impacts

Based on a review of the available documentation summarizing the wide variety of cultural and natural landscapes at the USMA at West Point, the proposed Project's various components (installation of single fiber optic cable underground, along existing telephone lines, and through existing conduits within and between the Main Post/Academic Area and Camp Buckner, and upgrading existing telecommunications systems in Building 600-Taylor Hall in the Main Post/Academic Area) are located in areas that are known to contain significant visual resources and aesthetic qualities. Because these significant visual resources and aesthetic qualities are closely associated with the built environment of the USMA at West Point, the Project has the potential to negatively affect these visual resources and aesthetic qualities.

As a result of careful design of the Project, potential temporary and permanent adverse effects to visual resources and aesthetic qualities associated with the cultural and natural landscapes have been avoided by installing exterior portions of the Project along utility corridors to the maximum extent possible, including underground routes and conduits primarily beneath roads at the USMA at West Point that are accessed by manholes, and aboveground routes along existing utility pole lines. Where existing utility corridors could not be utilized, specifically where underground routes and conduits are too congested with existing utilities, exterior portions of the Project would be installed within, or immediately adjacent to, existing roads and sidewalks.

Although Project construction activities, including trenching and/or boring, would have a temporary adverse effect on the visual resources and aesthetics associated with the Project area, road surfaces and shoulders would be restored to pre-construction conditions, and sidewalks would be either restored to pre-construction conditions or would not be impacted by boring beneath these sidewalks. Therefore, installation of exterior portions of the Project are not expected to create any new or significant additional permanent adverse effects on the visual resources and aesthetics associated with the Project area, including visual resources associated with the NHLD at the USMA at West Point, individual structures that are nominated for the NRHP or considered contributing elements to the NHLD at the USMA at West Point, historic feature

landscapes and aesthetic landscapes associated with various communities within the Main Post/Academic area, cultural landscapes associated with Camp Buckner, or natural landscapes associated with the HHSASS, due to the use of existing utility corridors, post-installation restoration, and/or boring techniques.

Similarly, as a result of careful design of the Project, potential temporary and permanent adverse effects to visual resources and aesthetic qualities associated with the exteriors and interiors of the built environment of the USMA at West Point have been reduced or avoided to the maximum extent possible for 39 of the 40 buildings associated the Project by penetrating the exterior of these buildings through existing conduits, primarily existing manholes adjacent to these buildings, and by installing interior portions of the Project within existing telecommunication conduits and closets of each building. Therefore, penetration of the exterior of these buildings and installation of interior portions of the Project are not expected to create any new or significant additional temporary or permanent adverse effects on the visual resources and aesthetics associated with these 39 buildings associated with the Project due to the use of existing exterior and interior telecommunication conduits, pathways, and closets.

That portion of the Project that will involve the upgrade of the telecommunications system of the remaining building, Building 600/Taylor Hall, including the redesign and/or installation of new telecommunications equipment and capabilities in the Superintendent's Conference Room, would require the installation of new telecommunications conduits, closets, and equipment within the interior of the building to house the upgraded telecommunications system. Upon successful cutover to the new voice and data networks, abandoned telecommunications cable would be removed from Building 600/Taylor Hall. Because Building 600/Taylor Hall has been recommended as eligible for the NRHP, and a contributing element to the NHLD at the USMA at West Point, installation of the Project within the interior, of this building has the potential to result in a permanent adverse effect on the visual resources and aesthetics of this structure.

As stated in Section 3.5.1.2 (Cultural Resources/Environmental Impacts), the USMA at West Point contracted for an Effects Determination study to identify those cultural resources that would be within the APE for the Project. This Effects Determination study included the potential effects of the Project on visual resources and aesthetics as they relate to the built environment and cultural landscapes of the USMA at West Point, including potential changes to the interior of Building 600/Taylor Hall that may result from the Project. Results of the Effects Determination study indicated that installation of the above-ground and subsurface components of the Project would not result in permanent adverse effects on visual resources associated with the built environment within the NHLD at the USMA at West Point or on historic viewsheds associated with the Main Post/Academic Area at the USMA at West Point (The Louis Berger Group, Inc. 2004).

Results of the Effects Determination study also indicated that installation of various components of the Project would not have permanent adverse effects on visual resources associated with 32 of the 40 buildings included in the Project (The Louis Berger Group, Inc. 2004). However, the Project would affect the historic fabric of the remaining eight structures included in the Project, primarily where the new telecommunications system will enter these buildings (see Table 4) (The Louis Berger Group, Inc. 2004). The historic fabric of these eight buildings includes exterior and interior surfaces, and the Project has the potential to affect visual resources associated with the exterior and interior design elements or features of these eight buildings.

Results of the Effects Determination study indicated that the impacts of the Project on the historic fabric of seven of the above-mentioned eight buildings would not result in adverse effects on their status as contributing elements to the NHLD at the USMA at West Point (The Louis Berger Group, Inc. 2004), and no adverse effects to visual resources associated with the interior or exterior of these seven buildings are anticipated. The eighth building, Building 1580 [Camp Buckner Superintendent's Quarters/ Commander's Cottage] is located outside of the NHLD at the USMA at West Point) (Geo-Marine, Inc. 2001, Salo et al. 2002, USMA 2003a).

As noted above, the Project would have an adverse effect on the NRHP-eligibility of one of these eight buildings (Building 600 Taylor Hall), with the installation of the new telecommunications system on the interior walls of the Superintendent's Conference Room, including new outlets and millwork (The Louis Berger Group, Inc. 2004). However, the Project has been designed to incorporate equipment, materials, and locations that will avoid permanent adverse effects on visual impacts associated with interior design elements or features within the Superintendent's Conference Room in Building 600/Taylor Hall to the maximum extent possible.

Specific measures to avoid the adverse effects of the installation of the Project on visual resources associated with interior design elements or features within the Superintendent's Conference Room, in Building 600/Taylor Hall include ensuring that the new millwork associated with the installed equipment on the south wall of the Superintendent's Conference Room would match the design, size, texture, color, finish, and workmanship of the existing millwork on the south wall, and ensuring that the new millwork would not extend beyond the frame of the doorway on the south wall (The Louis Berger Group, Inc. 2004). To further avoid adverse effects of the Project on visual resources associated with the interior design elements or features of the Superintendent's Conference Room that contribute to the building's NRHP-eligibility, no alterations or changes, or penetrations of any kind, including new outlets, would be permitted higher than 9 feet on the walls of the room, or within the vaulted ceilings of the room (Cubbison 2003c). As a result of these design measures, the Project may ultimately result in a permanent beneficial effect on the aesthetics of the Superintendent's Room because the existing telecommunications system is prominently visible on the floor and wall surfaces of the room, resulting in a room filled with intrusive visual features such as wall conduits, electrical cords, and

stand-alone communications equipment, that currently have a significant, adverse effect on the overall intended grandeur of the room's original design.

The USMA at West Point has initiated consultation with the NYSOPRHP regarding the Project. As part of this initial consultation, an Effects Determination study was forwarded to the NYSOPRHP for review and comment, including a formal Effects Determination by the NYSOPRHP. The formal Effects Determination by the NYSOPRHP will identify the potential effects of the Project on visual resources within the APE, and the need for any additional investigations or mitigation measures to avoid potential adverse impacts to visual resources and aesthetics as they relate to the built environment and cultural landscapes of the USMA at West Point. The USMA would perform these additional investigations or mitigation measures, and coordinate with the NYSOPRHP to implement pertinent recommendations from the SHPO to reduce any potential adverse impacts from the Project to less than significant.

As stated in Section 3.12, Coastal Zone, the USMA at West Point will prepare a separate coastal zone consistency document for review and comment by the NYSDOS. This document will allow the NYSDOS to identify any potential concerns regarding the effects of the Project on those visual resources and aesthetic qualities associated with the HHSASS. The USMA would coordinate with the NYSDOS to address any concerns, and implement pertinent recommendations from the NYSDOS to reduce any potential adverse impacts from the Project on those visual resources and aesthetic qualities associated with the HHSASS.

3.7 PUBLIC HEALTH AND SAFETY

3.7.1 Affected Environment

The USMA at West Point operates and maintains a full array of public health and safety programs that serve the USMA at West Point community, including medical services at Keller Army Community Hospital, emergency medical response and transport teams, fire protection provided by three fire stations on the installation, and security services (military police). In addition, the USMA at West Point provides and operates the installation's potable water supply system, wastewater treatment system, pest management programs, and solid waste collection, all of which contribute to public health and safety. (See Section 3.11 for more detailed discussion of utilities and infrastructure.)

The USMA at West Point maintains and operates the Keller Army Community Hospital (Building 900), located on Washington Road. The only access to the hospital is via Washington Road, and open trench excavation in the paved roadway is required to install the new fiber optic cable in this area. This is a 65-bed facility that houses a surgical unit, an obstetric unit, an intensive-care unit, a helipad, and numerous outpatient clinics. The hospital-operated Acute Care Clinic oversees an ambulance service for those who need immediate transport, and when injured individuals require emergency medical evacuation

to another facility, the USMA at West Point utilizes a trained medical evacuation unit and an associated emergency helicopter landing zone at the terminus of Worth Place. The landing zone supports intermittent operations of two flights per month or approximately two hours of operation per month.

The USMA at West Point maintains and operates three fire stations: the West Point Fire Station (Building 721) on Washington Road; the Stony Lonesome Fire Station (Building 1203) along the Stony Lonesome Access Road, and the Academy Fire Station, located at Camp Buckner on NYS Route 293 (USMA 1998a, Cubbison 2003a). Numerous buildings in the Main Post/Academic Area maintain a system of fire alarm pull stations that communicate directly with the fire stations, and the various building occupants conduct periodic fire drills. The USMA at West Point also maintains emergency exits, exit signs, and emergency lighting in the appropriate buildings in the Main Post/ Academic Area in case of power outages to ensure safe evacuation of USMA students, personnel, and support staff.

The Provost Marshal's Office at the USMA at West Point provides 24-hour military police support that includes foot and motor patrols, traffic control services, and general security services. The USMA military police conduct routine patrols of the Main Post/Academic Area.

Other public safety and security measures include physical barriers at the formal entrances to the Main Post/Academic Area, including security gates, pullover areas, and Jersey barriers at the Thayer, Stony Lonesome, and Washington gates. In large part, these physical barriers control vehicular access to the Main Post/Academic Area by restricting it to these formal entrances. The Lee and Wilson gates contain similar physical barriers to control vehicular access to the Main Post/Academic Area, although these gates are currently closed to both vehicular and pedestrian traffic.

3.7.2 Environmental Impacts

The majority of the proposed open trench excavation for installation of the new fiber optic cable at the USMA at West Point would be located under the pavement of various existing roads in the Main Post/Academic Area. Construction would require excavation of an approximately 3-foot-deep, minimum 2- to 3-foot-wide trench in these roadways, plus additional space for operation of construction equipment. Lane closures or road closures would be required where construction is in progress to allow installation of the trenched portions of the OSCAR component of the Project.

An almost continuous line of in-street trench excavation would extend approximately 3,000 feet (0.6 mile) along Washington Road, between Washington Gate and Lee Road. This segment constitutes the only vehicular access route to the Keller Army Community Hospital. A trench also would be excavated in the paved roadway along one of the hospital's three driveway entrances, to extend the new cable from Washington Road into the hospital. Temporary disruption of access to the hospital as a result of trenching and

construction activities could impede emergency transport vehicles to or from the hospital, with negative effects on this aspect of public health and safety at the USMA at West Point. To minimize these potential impacts, the USMA would ensure that construction moves quickly through this area, and the USMA Directorate of Housing and Public Works (DHPW) would ensure that the schedule for construction activities is coordinated with the schedule for other Main Post/Academic Area events. In addition, effective traffic control measures would be implemented to provide a safe driving environment during the in-street construction period (as described in more detail in Section 3.9). In addition, the USMA at West Point would require its contractors to ensure that at least one lane of the roadway remains open at all times on critical access routes to the hospital, and at no time shall be completely obstructed.

No open trench excavation would be required along the driveways or roadways in front of any of the fire stations at the USMA at West Point. However, the extensive amount of trench excavation along Main Post/Academic Area roadways could cause traffic delays or require road closings and detours. Construction-related traffic congestion and unexpected road closings could lengthen the USMA fire station's response times for fire, medical, and other emergencies, both for the West Point Fire Station (Building 721) on Washington Road, and for any outlying stations called to assist with emergencies in the Main Post/Academic Area. In addition, military police patrols and emergency response vehicles rely on use of the roadways, and the traffic congestion and road closures also could negatively affect their response times. Therefore, to reduce the potential for negative effects of in-street construction on emergency response services, the USMA would coordinate closely with the emergency response staff at the USMA at West Point, including fire, emergency medical, and military police branches. The USMA Project planners would coordinate with these groups well in advance, and then daily during construction, to communicate the schedule and logistics of planned construction in roadways, including the locations and timing of any required road closures and detours. The USMA Project planners also would coordinate with emergency response staff to identify and resolve any concerns regarding the construction plan in specific locations of the USMA at West Point. With implementation of these proactive measures, negative impacts to emergency response services at the USMA at West Point would be minimized or avoided.

An extensive system of sidewalks exists at the Main Post/Academic Area, and several sidewalk crossings would be required where the new fiber optic cable is planned for trenched installation. To the extent possible, the USMA at West Point would utilize boring construction techniques to install the new cable under the sidewalks, thereby avoiding direct disturbance of the sidewalk surface and pedestrian traffic. Effective signage would be erected to alert pedestrians of nearby construction work, both near sidewalk crossings and where in-street construction is close to sidewalks. Pedestrian traffic would be controlled in and near all construction areas where open trenches and heavy equipment are present. With implementation of these safety measures, the Project would protect pedestrians from construction dangers.

As part of the CUITN component of the Project, several new telecommunications closets would be constructed in Taylor Hall (Building 600). Taylor Hall, a significant historic and architectural resource at the USMA at West Point, is a stone building that does not currently have a fire sprinkler system. Upon preliminary review of the design plans for the new telecommunications closets, the USMA Fire Department raised concerns regarding fire safety. In particular, issues centered on the amount of heat that would be emitted by the new fiber optic cable in the closets and the opinion that there would be insufficient outside ventilation in the closets, resulting in the potential for creating a fire hazard in Taylor Hall. Fire hazards in Taylor Hall would not only be a public health and safety issue, but also presents the risk of loss or damage to a cultural/historic/architectural resource at the USMA at West Point. Therefore, the USMA Project planning team is working to develop acceptable alternative designs to ensure adequate ventilation is installed at each new telecommunications closet and subsequently avoid creation of a potential public safety hazard in Taylor Hall.

3.8 NOISE

3.8.1 Affected Environment

Noise is generally defined as unwanted sound. The day-night noise level (L_{dn}) is the most widely used descriptor of community noise levels. The unit of measure of the L_{dn} is the A-weighted decibel (dBA), which closely approximates the frequency responses of human hearing. The primary source of noise at the developed areas at the USMA at West Point is vehicular traffic on roadways in the Main Post/Academic Area. The main roadways at the USMA at West Point support traffic 24 hours per day and generate a level of noise typical for an urban area. Noise level measurements have not been obtained in the Project area. In lieu of field measurements, the noise levels at the USMA at West Point can be approximate based on existing land uses. The USEPA (1974) document "Protective Noise Levels" lists typical day-night levels for various outdoor locations. Mean outdoor day-night sound levels characteristic of the more heavily used areas of the Main Post/Academic Area are likely to range from 60 to 80 dBA (USEPA 1974).

3.8.2 Environmental Impacts

The Proposed Action would not involve the construction and operation of permanent noise-generating facilities. However, Project construction activities would generate a temporary and localized increase in noise, such as from the use of jackhammers, excavating equipment, and paving equipment for cable installation via trenching. Due to the linear nature of the Project, these noise sources would be transient, moving along the trench line as work is completed. Accordingly, the duration of increased noise in any one location would be very short-term, compared to the entire construction timeframe. During construction, there would be a short-term, minor elevation in noise levels in the immediate vicinity of the areas requiring trenching, due to the operation of construction equipment and an associated increase in contractor vehicles and traffic.

External or exterior construction noise would be mitigated by limiting construction activities to daylight hours on weekdays and conducting the majority of heavy construction activities during periods when school is not in session and fewer cadets are present on-base (i.e., mid-June to mid-August). The USMA would require its construction contractor to limit the noise levels associated with construction to 80 dBA at 33 feet (10 meters) from construction operations. Equipment operation noise would be minimized by requiring the construction contractors to use equipment that meets specific noise standards.

Therefore, implementation of the Project is expected to result in only minimal and short-term increases in noise levels, limited to the period of active construction, and no long-term impacts on noise levels.

3.9 TRAFFIC AND TRANSPORTATION

3.9.1 Affected Environment

The USMA at West Point essentially functions as a small, independent city. Due in part to the topographic setting at the USMA at West Point, the roadways in the Main Post/Academic Area are critical to effective traffic circulation, and are important to the overall functioning of many aspects if this "small city." People live, work, and go to school on-base, and many military and civilian citizens who reside off-base commute to work or school at the USMA at West Point. A moderate level of commercial traffic, including truck traffic, utilizes the roadways of the Main Post/Academic Area to deliver supplies and serve the various operational needs of the USMA at West Point. Tourism attracts visitors year-round, as the USMA at West Point is the third most visited site in New York State (behind only Niagara Falls and the Empire State Building). Football games and other athletic events attract visitors to the USMA at West Point, as well. Emergency response services (fire, medical, military police) require unimpeded vehicular access to on-base areas in the event of emergencies (see Section 3.7 for more detail on public heath and safety).

Direct access to the Main Post/Academic Area is provided through four gates: the Thayer, Stony Lonesome, Washington, and Lee gates. Thayer Gate is the main entrance and provides access from the south via U.S. Route 9W/NYS Route 218. Stony Lonesome Gate is located on the south-central edge of the Main Post/Academic Area and provides access from the west and south via U.S. Route 9W/NYS Route 218. Washington Gate, considered the "back entrance," is located in the northwest edge of the Main Post/Academic Area and provides access from the north via NYS Route 218. Lee Gate is located on the north edge of the Main Post/Academic Area and has been used for access from the north via NYS Route 218, although this gate is currently closed to vehicular traffic. A fifth gate, Wilson Gate, is located just west of the Thayer Gate and has been permanently closed to vehicular traffic. The heaviest traffic volumes at the open gates occur during rush hours, between 6:30 and 8:00 AM and between 4:00 and

5:00 PM. Approximately 1,400 vehicles enter the Main Post Academic Area during the morning rush hour period (USMA 1985).

The existing road network at the USMA at West Point's Main Post/Academic Area is shown on Figure 4. The basic layout is a curved double spine, following different contours of topography, connecting Thayer Gate on the south and Washington Gate on the northwest. The more heavily used transportation route is the upper-level spine, which consists of Thayer Road, Mills Road, Merritt Road, and Washington Road. Merritt Road is parallel to Washington Road between its intersection with Mills Road and the "5-point" intersection on Washington Road (see Figure 4). Connecting to this spine, the Stony Lonesome Road intersects Mills Road and provides access to the Stony Lonesome Residential and Community Centers and Michie/Hollender Athletic Complex, as well as connection to U.S. Route 9W and NYS Route 218 through the Stony Lonesome Gate. The lower spine is at the level of the Plain and consists of Thayer Road, Cullum Road, and Washington Road.

Other important roads in the Main Post/Academic Area include Lee Road, Cullum Road, and Williams Road (USMA 1998b). Lee Road connects the Lee Gate to Washington Road, which provides easy access to either of the two spine transportation routes in the Main Post/Academic Area. However, since the Lee Gate has been closed, it is now used primarily by local traffic associated with the Lee Housing area. Cullum Road loops around the Plain at the northeastern point of the Main Post/Academic Area, and represents the only vehicular connection between Thayer Road and Washington Road on the lower spine's roadways. Williams Road is parallel to, and on the Hudson River side of, Thayer Road, and provides access to the railroad station and the waterfront.

NYS Route 293 is the major east-west road traversing the installation, and provides access to outlying range areas and camps, including Camp Buckner. All roads at the USMA at West Point are paved or otherwise hard-surfaced, with designed drainage. In all, there are approximately 16 miles of paved secondary roads at the USMA at West Point. There are also approximately 60 miles of unimproved roads that provide access to all of the training areas and ranges (USMA 1998a).

3.9.2 Environmental Impacts

The primary transportation impact concerns are associated with the open trench installation of the fiber optic lines associated with the OSCAR component of the Project alongside, within, and crossing roadways in the Main Post/Academic Area. Construction of the CUITN component of the Project would have no noticeable impact on traffic and transportation at the USMA at West Point.

Figure 4. Roads and Gates at Main Post Area at USMA at West Point

Construction of the OSCAR component of the Project could temporarily hinder the smooth flow of traffic at the USMA at West Point, particularly in the locations that require fiber optic cable installation via trench excavation within and under the paved roadways in the Main Post/Academic Area.

In-street trenching of important primary transportation roadways in the Main Post/Academic Area would be required to install the new fiber optic cable in the following locations (note: this list proceeds counter clockwise from the southeast portion of the USMA at West Point, near Thayer Gate):

- Thayer Road, from the Pershing Center, through Thayer Gate, to the intersection with Mills Road;
- Williams Road, from the intersection with Thayer and Mills roads to the intersection with Thayer Road near Taylor Hall (Building 600);
- Thayer Road near Taylor Hall (Building 600) to the beginning of Cullum Road near the Turbine Lab (Building 609);
- The possible "optional" new cable installation under Cullum Road;
- Mills Road, from the access road to the Cadet Chapel (Building 722) to the "Y" intersection of Mills and Washington roads;
- Washington Road, a distance of approximately 300 feet through the "5-Point" intersection with Buckner Hill (which connects to Merritt Road), Biddle Loop, and the access road to buildings 683 (Post Exchange), 695 (Self Help Center), and 697 (Cemetery Maintenance Building); and,
- Washington Road, from Lee Road to (and through) the Washington Gate, past the Keller Army Community Hospital, West Point Elementary School, West Point Community Center, Post Laundry, and other buildings of industrial use.

A total length of 17,501 feet (3.3 miles) of in-street construction would be required to implement the Proposed Action. In-street construction would involve the excavation of a trench approximately 3 feet deep and a minimum of 2 feet wide in asphalt or concrete roadways. Due to the presence of numerous other utilities under the roadways, trenches may be larger in some locations. Workspace for construction equipment such as trenching machines and/or backhoes, dump trucks, cable-laying equipment, and paving equipment would also be required adjacent to the trench line, either on or adjacent to the roadways, depending on available space. Following installation of the new fiber optic cable and conduit, the trench would be backfilled and the surface re-paved with asphalt, concrete, or cobblestone to match the original material. Single lane closures, and possibly entire road closures and detours, would be required to construct the in-street trenched segments. As a result, potential impacts to traffic flow could occur during construction. Areas of particular sensitivity are on the high-use, primary roadways listed above, and include the base entry points at Thayer Gate and Washington Gate. If required, lengthy traffic delays associated with in-street construction could create a moderate to severe short-term impact on traffic in the Main Post/Academic Area.

In particular, total closure of the "Y" intersection and the "5-Point" intersection (shown on Figure 4), if required during construction, would cause acute, short-term negative effects on traffic flow throughout the Main Post/Academic Area. This is due to the critical position of these intersections in the roadway network at the USMA at West Point. Washington, Cullum, and Mills roads are the primary vehicular circulation paths through the Main Post/Academic Area, and blocking of any one of these roads would put a significant stress on the remaining two roads. These intersections are critical linkages for traffic throughout the Main Post/Academic Area, and there are a lack of existing, adequately sized alternative roads that can effectively support traffic diverted from these areas.

In particular, closing off Washington Road at either the "Y" or the "5-Point" intersections would effectively cut off internal vehicular access between the north and south halves of the Main Post/Academic Area. Truck traffic that serves the Cadet Zone is currently routed almost exclusively along Washington Road, and could not realistically be internally rerouted around the "5-Point" intersection because adjacent roads are too narrow and residential to accommodate truck traffic. Although this situation is similar for the "Y" intersection, the impact of road closure would be slightly less acute because truck traffic could be rerouted along Ruger Road.

To reduce the extent and severity of traffic impacts along Washington Road, the USMA at West Point has modified the Project plans to eliminate approximately 1,050 linear feet of previously planned in-street trenching from the "Y" intersection along Washington Road, eastward to the intersection of Washington, Parke, Jefferson, and Ruger roads. Although the existing conduits under Washington Road in this segment have minimal space to accommodate the new fiber optic cable, the USMA at West Point has configured the Project design to enable the new cable installation in these existing conduits in this 1,050-foot segment. As a result, potential severe traffic impacts at the "Y" intersection would be reduced.

In order to minimize traffic-related impacts associated with in-street trench excavation and construction throughout the Main Post/Academic Area, the USMA would develop and implement a detailed construction logistics plan that specifically addresses traffic control and circulation issues. Prior to commencement of construction, Project planners would coordinate with and solicit input from the various departments at the USMA at West Point, including military police, fire department, medical emergency response groups, DHPW, 1/1 Infantry, and transportation and safety departments to develop as comprehensive a plan as possible.

In addition, Project planners would coordinate with appropriate groups and individuals to avoid scheduling potentially disruptive construction activities when large events, such as USMA at West Point graduation week (end of May), home football games or other intercollegiate athletic events, are scheduled.

Impact minimization measures would include constructing the in-street trenched segments during the summer months (i.e., from June to August) when cadets are not present in the Main Post/Academic Area. If necessary, construction periods would be altered to complete in-street construction in particularly sensitive or high-traffic areas during night hours, avoiding periods of intensive daily traffic use. Construction activities would be confined to a single lane of roadway where possible, allowing traffic to continue in both directions through the remaining open lane, under flagman control. Temporary traffic control devices such as signs, traffic cones, high visibility ribbons, flags, lighted barricades, steel plates, temporary asphalt pavements, and temporary fencing also would be used where necessary to maintain traffic safety during construction. In addition, the USMA would post daily traffic updates regarding the construction locations on its website, which has a section specifically devoted to traffic reporting on the installation. The USMA at West Point would closely monitor construction progress and plans to ensure that critical roadways are not obstructed during rush hours or other scheduled high-traffic periods.

Trenched installation for the new cable segment along New York State Route 218, beginning just outside of Washington Gate, would be situated adjacent to the highway pavement. Although in-street disturbances to paved surfaces would be avoided in this segment, traffic safety could be compromised along this higher-speed roadway during construction periods, due to the presence of construction equipment working on, or adjacent to, the road or road shoulder. To minimize potential traffic safety issues, the USMA at West Point would obtain authorization from the New York State Department of Transportation (NYSDOT) to construct in the right-of-way of NYS Route 218. In conjunction with this process, the USMA would consult with the NYSDOT and incorporate any required traffic control and safety measures, which could include the use of flag persons, signage, or placement of cones or Jersey barriers, into its construction plan.

Where the new cable crosses NYS Route 218 just outside Washington Gate, the new cable and conduit would be installed using subsurface boring construction techniques, thereby avoiding “open cuts” of paved highway surfaces and associated traffic disturbances. Similarly, where the new cable crosses the on-ramp and highway at the highway interchange between NYS Route 218, U.S. Route 9W, and NYS Route 293, the new cable and conduit would be installed using “jacking” techniques to hydraulically “push” a steel pipe conduit under the roadway, thereby avoiding “open cuts” of paved highway surfaces and associated traffic disturbances.

In summary, traffic impacts have the potential to be acute and severe during the construction period at certain in-street trenching locations. These impacts would be short-term and localized, limited to the period of construction and repaving in the specific areas of active construction. The USMA would develop a detailed construction logistics plan and would implement a number of measures, as described in this section, to minimize traffic impacts. With the implementation of these measures, the impacts resulting from construction should not be undue or significantly adverse. Following construction,

operation of the Project would have no long-term impact on traffic and transportation at the USMA at West Point.

3.10 WASTES AND HAZARDOUS MATERIALS

3.10.1 Affected Environment

Academic, military, and athletic activities at the USMA at West Point generate ordinary, non-hazardous solid waste in the amount of approximately 26 tons per day. Collected waste is either recycled or brought to the USMA at West Point Transfer Station at Range 3 prior to being disposed of off-site at an approved waste disposal site.

No National Priorities List sites or other sites currently subject to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) are located at the USMA at West Point (USEPA 2003b, USEPA 2003c). Although unexploded ordnance (UXO) is a hazard within an inactive artillery impact area along the northwest boundary of the Main Post/Academic Area, and within areas in the ranges, training areas, and dud zones west of the Main Post/Academic Area, UXO is not anticipated to occur in the Project area. Similarly, there are no known areas of contamination along the engineered designed routes at the USMA at West Point (USMA 2003e). Therefore, there would be a low potential for encountering hazardous materials associated with potential UXO or contaminated areas during Project construction.

Asbestos and lead paint may be present in some of the areas of the buildings that would receive interior upgrades as part of the CUITN component of the Project, based on the range of ages and construction materials used in these buildings.

The USMA at West Point is listed as a large quantity generator of hazardous waste, and a United States Mint facility located adjacent to West Point also reports hazardous waste handling activities (USEPA 2003d). Various hazardous materials are currently used and/or present at the USMA at West Point. Activities and departments that generate hazardous, toxic, and/or infectious wastes include: the Keller Army Community Hospital, automotive repair shops, pest control activities, the Department of Chemistry, the Photography Laboratory, the West Point Elementary School, and the USMA Band. In addition, radiological wastes are generated in the Nuclear Laboratory in the Department of Physics (USMA 1998b).

These substances are handled in accordance with USEPA regulations, stored and handled according to the USMA at West Point health and safety plan, and monitored on a regular basis. The USMA at West Point currently uses a contracted waste hauler to dispose of these wastes at state-licensed off-site disposal facilities (USMA 1998b). Any hazardous material spills that occur on USMA at West Point are reported, contained, and remediated in accordance with the USMA at West Point's *Installation Spill Contingency Plan* (USMA 1996).

3.10.2 Environmental Impacts

Construction of the Project would temporarily generate various typical solid demolition and construction debris that would be minor compared to the total amount of solid waste generated per year at USMA at West Point. Some of the types of solid waste that would be generated during construction would include asphalt, concrete, empty wooden or plastic supply spools from fiber optic cable, and packing materials associated with construction materials and supplies, such as cardboard, plastics, and metals. Recyclable wastes such as cardboard would be separated and recycled to the extent possible. All non-hazardous wastes that cannot be recycled would be disposed at an approved waste facility. The USMA at West Point would develop a Construction and Demolition Waste Management Plan that would address the temporary storage of demolition and construction debris at on-site industrial receptacles, and the periodic collection and disposal of this debris off-site at an approved waste disposal site. Implementation of the Proposed Action would therefore result in a minor, temporary increase in the generation and disposal of waste material.

Construction activities would involve the transport, temporary storage, and use of typical hazardous construction materials, which could include lubricants, solvents, sealants, adhesives, and petroleum products. The transport, use, and temporary storage of potentially hazardous materials would comply with proper handling and reporting procedures identified in the USMA at West Point's *Installation Spill Contingency Plan* (USMA 1996). All hazardous materials that are transported as part of this Project would be accompanied by a written inventory and Material Safety Data Sheets (MSDS), as required. Through the implementation of these procedures, the transport, temporary storage, and use of typical hazardous construction materials for this Project would not present a significant increased risk to human health or safety.

Asbestos and lead paint may be present in some of the areas of the buildings that would receive interior upgrades as part of the CUITN component of the Project. Therefore, prior to construction, each building scheduled for CUITN upgrades would be inspected by USEPA-certified inspectors for the presence of asbestos and lead. If asbestos or lead is present and would be disturbed by construction activities, then these materials would be handled in accordance with the Occupational Safety and Health Administration (OSHA) and USEPA regulations and policies.

Routine operation and maintenance activities associated with the Project would not generate an increase in the amount of ordinary, non-hazardous solid waste compared to the current conditions.

3.11 UTILITIES AND INFRASTRUCTURE

3.11.1 Affected Environment

The types of utilities and infrastructure addressed in this section consist of potable water, sanitary sewer, stormwater drainage, electricity, heating and cooling, and telecommunications systems at the USMA at West Point.

Potable Water

The Project would traverse two streams (Cascade Brook and Highland Brook) that are used as public water supply sources for the Village of Highland Falls. The water supply intakes are located approximately 1 mile downstream of where the proposed Project crosses these streams. The new fiber optic cable would be installed via trench excavation across both of these streams, but would be installed such that there would be no in-stream disturbance, or disturbance to the stream banks, bottom, or obstruction of flow, during or after construction. In addition, two water supply intakes that serve the USMA at West Point are located in Long Pond, approximately 500 feet northeast of the location where the intermittent stream, Range 10 Brook, discharges into Long Pond. In this portion of the Project area, the new fiber optic cable would be installed across Range 10 Brook by aerially lashing it to existing telephone poles. As a result of the selected construction techniques and other measures the USMA at West Point would implement (as described in Section 3.2.2), no adverse impacts to these potable water supplies are expected to result from the Project. Please refer to Section 3.2.2, Surface Water Resources, for a more detailed discussion of impacts and impact minimization measures related to crossing streams associated with these potable water supplies.

Potable water for supplying the Main Post/Academic Area of the USMA at West Point is obtained from the Popolopen and Queensboro watersheds (USMA 1998b). Raw water is transported to the Main Post/Academic Area via two 20-inch-diameter water lines; one line delivers the raw water directly to the Stony Lonesome Treatment Plant, and the other line deposits the raw water in the Lusk Reservoir for storage and treatment by the Lusk Treatment Plant. After treatment, the water is distributed throughout the Main Post/Academic Area through a network of 4- to 24-inch-diameter buried water mains. Pressure is maintained with the assistance of water tanks situated at the higher elevations on the installation. Based on 1998 projections, it is estimated that the average daily treated water demand in the Main Post/Academic Area is currently approximately 3 million gallons per day (mgd) (USMA 1998b). This demand is well within the capacity of the two treatment plants in the Main Post/Academic Area (USMA 1998b).

Water for Camp Buckner is obtained directly from Popolopen Lake, and is treated by the Camp Buckner Water Treatment Plant. After treatment, the water is distributed to both Camp Buckner and Camp Natural Bridge through approximately 3.6 miles of 8-inch-diameter buried water lines and two storage tanks. The water treatment capacity at the treatment plant is 0.41 mgd, and, together with the water storage tanks, is adequate to

supply enough potable water for 1,000 personnel at these seasonal-use camps (USMA 1998b).

Sanitary Sewer

Sanitary sewer lines are separate from the storm water drainage system in the Main Post/Academic Area of the USMA at West Point. The sanitary sewer system consists of buried sewer collection and main lines, pumping stations, and the Target Hill Secondary Treatment Plant. Secondary treated wastewater is discharged to the Hudson River. Based on 1998 projections, it is estimated that the daily sanitary sewer system demand in the Main Post/Academic Area is currently approximately 2 mgd (USMA 1998b), and is being met by the existing system.

Camp Buckner's sanitary sewer needs are served by a buried wastewater collection system, pumping stations, and an aeration-type secondary treatment plant. This plant operates on a seasonal basis to treat wastewater from both Camp Buckner and Camp Natural Bridge during summer months, and has a treatment capacity of 0.25 mgd. Secondary treated wastewater is discharged to Popolopen Lake.

Stormwater Drainage

Stormwater drainage for the Main Post/Academic Area is accommodated through open ditches, vegetated swales, paved open channels, and buried stormwater pipes (USMA 1998b). Stormwater drainage is generally directed via gravity flow to discharge to the Hudson River.

Stormwater drainage at Camp Buckner consists of a network of natural swales, man-made ditches, and road culverts that discharge directly into Popolopen and Stillwell lakes (USMA 1998b).

Electricity

Electricity at the USMA at West Point Main Post/Academic Area is supplied by a combination of power purchased from Orange and Rockland Utilities, Inc. (O&R) and power generated onsite by the USMA power plants (USMA 1998b). Electricity is distributed through the Main Post/Academic Area via the Main Power Plant and several substations, through a combination of buried lines and overhead pole lines. Distribution is accomplished using 4.16 kilovolt (Kv) and 13.2 Kv lines. Electric lines serving the majority of the Main Post/Academic Area are primarily buried underground (USMA 1998b). Overhead electric power lines are present only in the Pershing Center, the Stony Lonesome area, and other rugged terrain areas.

Camp Buckner's electricity needs are supplied by O&R, which transmits electricity to the camp through overhead lines connected to a substation located at the intersection of NYS Route 293 and Mine Road (USMA 1998b).

Heating and Cooling

As part of the USMA at West Point's initiatives to comply with Executive Orders 13123 and 13212 (to reduce the use of petroleum fuel, utilize more efficient sources of energy, and utilize energy more efficiently), the USMA at West Point converted all of its fuel oil boilers to natural gas boilers, and no longer uses any fuel oil to operate its boilers (Cubbison 2003b).

Heat for most of the buildings in the Main Post/Academic Area is provided by a Central Plant (Building 604) that consists of three natural gas boilers and three steam turbine-driven generators. Another plant is located in the Post Laundry (Building 845), which consists of a natural gas fired steam plant that serves the needs of the Post Laundry, Keller Army Community Hospital, and several other surrounding buildings.

Steam for centrally heated buildings is distributed under pressure through piping in a combination of underground tunnels and directly buried piping throughout the Main Post/Academic Area (USMA 1998b). Where buildings are out of the range of the steam distribution system, they are heated by individual steam, hot water, or air systems.

Natural gas from Central Hudson Gas & Electric Company serves the central and individual building needs at the USMA at West Point, through buried natural gas lines measuring 6 inches in diameter and smaller (USMA 1998b). Natural gas is used for cooking, domestic hot water generation, and residential comfort heating, and to supply the Post Laundry plant.

There is no centralized cooling system at the USMA at West Point. Air conditioned buildings utilize local electric or steam absorption cooling systems (USMA 1998b).

Telecommunications

Telecommunication services at USMA at West Point include telephone, fire alarm, security, and cable television services, and connect to the various buildings via copper line and multi-mode fiber optic cable.

The USMA at West Point utilizes a telephone communication system digital switch system that was installed in 1986. This system is located in the third basement of Taylor Hall (Building 600) and has the capacity for 30,000 lines (USMA 1998b). This system provides internal administrative telephone services at the USMA at West Point, and also supports direct interface with digital carrier systems (USMA 1998b). It also includes a 48-strand fiber optic cable and 400 pair copper cable extension to provide service to Camp Buckner, with lateral connectivity for range telephone communications (USMA 1998b). The digital electronic and telephone system can accommodate connections of personal computers and other terminals, and allow simultaneous transmission of voice

and data. In addition, point-to-point or dial-up video teleconferencing is available through a Picture-Tel system.

Telecommunication services at Camp Buckner are considered antiquated and in need of upgrade (STV Incorporated 2003). Telephone lines that connect alarm systems at the camp to the Battalion headquarters have caused numerous false alarms due to deteriorating lines (STV Incorporated 2003).

Cable television is provided through three services; two of which are government-owned and operated, and the other is operated by the local cable company (USMA 1998b).

3.11.2 Environmental Impacts

The primary impacts to utilities and infrastructure would result from temporary interruptions of telecommunications services in buildings to accommodate interior cable installation (as part of the CUITN); and potential damage to buried utility lines that exist in the vicinity of the locations where cable would be installed via trench excavation (as part of the OSCAR).

Impacts resulting from the CUITN component of the Project would likely be limited to short-term interruptions of telecommunications service in individual buildings as the new, upgraded fiber optic cable is installed, tested, and commissioned. These impacts may be experienced as a nuisance to individual users working within the buildings. However, the work would be properly coordinated to ensure that any interruptions are short-term, and USMA would notify building occupants in advance of scheduled service interruptions. Following completion, there would be a beneficial, long-term impact on the USMA's telecommunications system and service to individual buildings, because it would be upgraded as a result of the Project.

Infrastructure for numerous utility systems is currently located under and adjacent to many of the existing roadways throughout the Main Post/Academic Area at the USMA at West Point. Construction of the OSCAR component of the Project has the potential to inadvertently damage and/or interrupt one or more utility services, particularly where new trench excavation is required to install the new fiber optic cable under roadways that already contain several buried utility lines. This potential is greatest along the roadways at the Main Post/Academic Area because of the congested nature of buried utilities in many locations. This potential is reduced at Camp Buckner because the new cable would be aerially installed on existing telephone poles at the camp, rather than via trenching.

Depending on the type of utility disrupted and the affected uses, inadvertent damage or severing of existing utility lines could be experienced as a minor, short-term nuisance (such as the temporary interruption of telephone service to a USMA housing area), or a longer-term, more serious risk (such as damage to a water main that supplies hydrants, if it occurs at the same time as a large fire event).

To minimize the probability of damage or disruption to utility services during construction of the OSCAR component of the Project, the Project planners are preparing detailed cable routing plans, with careful analysis and consideration of existing utility locations. The USMA at West Point DHPW would provide its contractor with these plans, as well as detailed as-built drawings depicting the locations, depths, and configurations of the existing buried utilities at the USMA at West Point. In addition, before trench excavation begins in each area, the USMA at West Point's DHPW, Utilities and Facilities Division (U&FD) office would issue a "Dig Safe" permit and would locate and physically mark (e.g., on the pavement) all underground utility locations, to prevent damage during construction of the Project (USMA 2003a).

The U&FD would obtain all necessary digging permits and rights-of-way required by various departments at the USMA at West Point, local or state authorities, and private companies (USMA 2003a). The USMA and its contractor also would coordinate in advance with companies and authorities that operate the existing utilities, to notify them of construction schedules and locations, solicit input, invite a representative of the company or authority to be present during excavation, and allow proactive contingency planning in the event of inadvertent damage. Where warranted, the construction contractor would utilize manual excavation methods (i.e., manually shovel) instead of heavy equipment in congested areas where the risk of damage to nearby utility lines is determined to be high. With implementation of these measures, the potential impacts to existing buried utility lines would be reduced to levels similar to those for most standard in-street utility construction projects in urban areas.

Following completion of the OSCAR construction, there would be a beneficial, long-term impact on the USMA's telecommunications system, because it would be upgraded as a result of the Project.

3.12 COASTAL ZONE

Affected Environment

The USMA at West Point is located within a state-designated coastal zone management area associated with the Hudson River, and is included in the HHSASS (NYSDOS 1981, NYSDOS 1993). Proposed Federal development projects located in the designated coastal zone, such as the proposed Project, must be evaluated for consistency with NYSDOS Coastal Management Program (CMP) State Coastal Policies (Ketcham 1999). There are a total of 44 NYSDOS CMP State Coastal Policies addressing issues related to development, fish and wildlife resources, flooding and erosion hazards, public access, recreation, historic and scenic resources, agricultural lands, energy and ice management, and water and air resources in state-designated coastal zone areas (NYSDOS 2002). Pursuant to 15 CFR Part 930.34(b), the USMA must notify the NYSDOS CMP of Project conformance with State Coastal Policies at least 90 days prior to Project implementation.

3.12.2 Environmental Impacts

As detailed in Sections 3.1 through 3.11 of this EA, implementation of the Project would be consistent with NYSDOS State Coastal Policies. In accordance with 15 CFR Part 930.34(b), the USMA would consult with the NYSDOS, prepare appropriate documentation of the Project's consistency with the CMP State Coastal Policies, and submit this documentation to the NYSDOS for review and concurrence at least 90 days before the start of Project construction. The USMA would coordinate with the NYSDOS during its review of the submitted documentation to ensure that construction and operation of the Project would have no undue adverse impact on the HHSASS or New York State coastal zone resources.

3.13 REASONABLY FORESEEABLE FUTURE ACTIONS AND CUMULATIVE IMPACTS

At this time, the USMA at West Point is simultaneously undertaking planning for, or construction of, various new projects, improvements or expansions, or maintenance measures. Cumulative impacts are effects resulting from a Proposed Action when they are combined with the impacts of other projects in a particular place at a particular time. The effects of minor-impact individual projects, when combined, can have an incrementally greater detrimental effect on the environment. In order to appropriately assess the cumulative impacts of a Proposed Action, the impacts of separate, unrelated projects must be considered. Therefore, this section outlines the USMA at West Point's reasonably foreseeable future actions (RFFAs), and the cumulative impacts of the proposed Project in conjunction with these future actions, which are planned for similar locations and implementation timeframes.

3.13.1 Reasonably Foreseeable Future Actions

The USMA at West Point is planning several projects as part of continuing initiatives recognizing the need for increased security measures that would continue to protect the residents and facilities from outside threats, including unauthorized access by individuals or vehicles. In addition, the USMA is planning new or expanded construction to renovate, modernize, consolidate, and/or rehabilitate its facilities and systems. Each of these additional actions would be implemented between 2003 and 2008. The following section describes RFFAs that relate to the proposed Project in terms of construction timeframe or proximity to the Project. The locations of these future actions are shown on Figure 5.

<u>Security Upgrades to Gates</u>

The USMA at West Point is considering implementing security upgrades to the Thayer, Washington, and Stony Lonesome gates at the USMA at West Point in Fiscal Year (FY) 2004. As of October 2003, the 10% Concept Design was being developed for this project. Preliminary design concepts for the security upgrades include construction of wider traffic lanes, permanent traffic control measures (such as traffic arms and signage),

Figure 5. Location of Reasonably Foreseeable Future Actions in the Vicinity of the Project at the USMA at West Point, New York.

changes in the locations and sizes of designated vehicle search areas and parking areas, enhanced personnel work stations, ballistic resistant gatehouses and security boxes, and installation of permanent lighting, deployable vehicle barrier systems, and additional security cameras.

Additional Security Upgrades

Currently, the USMA is conducting a study for construction of a perimeter security fence around approximately 2,500 acres that constitute the USMA Main Post/Academic Area, the most intensively developed area at the USMA at West Point.

Additional security upgrades that are being considered include replacement of the existing, permanently installed bollards and attached chain in selected locations within the Cadet Zone, with new bollards that would accommodate being locked. In addition, the USMA at West Point is considering the installation of mylar film or plastic layering on windows to prevent the shattering of windows throughout the Cadet Zone in the event of an explosive detonation.

New Library and Learning Center

The USMA at West Point is proposing a variety of modernization activities as part of a general improvement of the Cadet Zone area that would allow the USMA at West Point to better fulfill its primary mission. The primary mission of the USMA at West Point is to educate, train, and inspire the Corps of Cadets so that each graduate is a commissioned leader of character committed to the values of duty, honor, and country.

Proposed modernization activities include the construction of new facilities, the potential renovation or demolition of structures that no longer contribute to the USMA at West Point's mission, and general modernization of facilities and maintenance in the Cadet Zone.

The proposed construction of a new Cadet Library/Learning Center, Thomas Jefferson Hall, along with modifications to Bartlett (Science) Hall (Building 753) and the existing library (Building 757), are necessary to provide floor space for the modernization and expansion of information resources, teaching and research laboratories and classrooms, and support facilities. The new Cadet Library/Learning Center would become the most important academic facility, and the focus of information resources at the USMA at West Point. These modernization and expansion activities are needed to maintain the USMA at West Point's accreditation as a university.

The USMA at West Point is also considering the renovation or demolition of obsolete structures within the Cadet Zone, including barracks renovations, building upgrades, and the continuation of on-going maintenance projects. Implementation of these actions would fulfill current and future needs for library and learning space, update existing cadet facilities that are over 30 years old, and reduce or eliminate existing problems.

West Point Elementary School Classrooms Addition

The USMA at West Point is planning to add classroom space and certain other improvements at the West Point Elementary School (Building 705A). The proposed addition would total 7,500 square feet, and would contain six classrooms. In addition to classroom space to Building 705A, the project includes construction of a 152-space surface parking lot, new and modified sidewalk crossings on the east side of Barry Road, the creation of a bus staging area, the demolition of existing Building 1000, and the removal of two existing temporary modular classrooms located southeast of Building 705A. Construction is anticipated to start in the spring of 2004.

ODIA Housing at Worth Place

The USMA at West Point is planning to construct new family housing for the Directorate of Intercollegiate Athletics (ODIA) at Worth Place, across Washington Road from Keller Army Community Hospital. Currently, only the construction of one house is funded. Long-range plans call for the eventual construction of five (5) additional houses at Worth Place, but funding for these additional houses is uncertain at this time. The proposed house is an approximately 3,000-square-foot, two-story Colonial Revival style structure with four bedrooms and an unfinished basement. Construction is anticipated to start in the spring of 2004.

Masonry Wall Repairs Along Washington Road

Several portions of historic retaining walls within the Washington Road corridor have deteriorated over time, and are in need of routine maintenance and repair, including repointing. This project was initiated in the summer of 2002, and is intended to continue as a recurring maintenance project at the USMA. To date, this project has performed necessary repointing and reconstruction of deteriorated walls, and replaced concrete at the top of the walls with limestone capstones.

Rehabilitation of Old Cadet Chapel (Building 689)

The Old Cadet Chapel (Building 689) is scheduled to receive routine maintenance and restoration, as necessary. Preliminary investigations into water infiltration problems at the Old Cadet Chapel are scheduled to occur in FY 2004.

Annual Road Repaving

The USMA at West Point routinely repaves a number of roads on the installation each year. The FY 2004 repaving projects include (counter clockwise beginning at the southwest side of the Main Post/Academic Area, as shown on Figure 5): Firehouse and Commissary Service Road, Stony Lonesome Road and Howze Road, parking lots “F” and “J”, sidewalks and Swift Road near the Buffalo Soldier Field, Ernst Road in the

vicinity of the sailing center and South Dock, DeRussy Road and parking lot, driveway at officers' family housing, Pitcher and Howard Roads to the North Dock, access roads to the cemetery, Old Brick Housing service road, Bailey Loop, the helicopter landing pad, Garrard Road and parking lot, and the parking lot and loading area at General Storehouse Building 917. Outside of the Main Post/Academic Area, Range 11 Road and Range 4–8 Road are also scheduled to be repaved in FY 2004.

HVAC Installation in Catholic Chapel (Building 699)

The USMA is planning to install a HVAC system into the Catholic Chapel (Building 699). This project has been previously reviewed and determined by the USMA to have No Adverse Effect upon the historic property, and the NYSOPRHP SHPO has provided concurrence with this determination. This project has progressed to the 90% design stage to date, and construction is planned for FY 2004 or 2005, subject to the availability of funds.

Modernization of Washington Road Firehouse (Building 721)

In accordance with a scope of work dated July 9, 2001, the USMA at West Point's DHPW intends to perform exterior and interior renovations, including the construction of a second floor addition, to the Washington Road Firehouse (Building 721). This building was constructed in 1939, and is considered to be a contributing element to the USMA NHLD. An EA and Historic Documentation are planned for this project in FY 2005; construction is currently planned for FY 2006.

3.13.2 Recently Completed Actions

Routine Cemetery Maintenance

Repaving of the road within the Post Cemetery occurred in the fall of 2003. Some new West Point standard streetlights were also added to augment lighting within the immediate vicinity of the Old Cadet Chapel.

Self Help Center (Building 695)

Repairs to the roof of the Self Help Center (Building 695) and the adjacent Washington Road retaining wall were completed in the fall of 2003. These efforts were performed on a priority basis due to active development of leaks in the roof and an actively failing retaining wall. A separate project to perform more substantial repairs, including construction of a new storage structure adjacent to the building, will occur in the spring of 2004.

Demolition of Old Range Control Maintenance Facility and Old PX Warehouse (Building 801)

Demolition of the Old Range Control Maintenance Facility and Old PX Warehouse (both comprising Building 801), non-historic properties, occurred in the fall of 2003.

Repairs to Historic Cemetery Gates

Work is currently in progress on repairs to the historic Post Cemetery gates, and was scheduled to be completed in January 2004.

3.13.3 Cumulative Impacts

This section provides a summary of cumulative impacts associated with the Project in relation to other RFFAs and recently completed projects in the vicinity of the USMA at West Point. This section addresses only those resources subject to cumulative effects, whereas "no effect" issues are not addressed.

Natural Resources

The implementation of RFFAs and recently completed projects in the vicinity of the Project area would involve earth disturbances associated with soil excavation, demolition, and construction activities in numerous locations at the USMA at West Point. Minor erosion and sedimentation from each of these projects, when added together, could result in potentially greater cumulative soil erosion/sedimentation impacts to waterbodies and wetlands. Cumulatively, these effects could adversely impact users of these waterbodies and wetlands, because the watersheds surrounding the USMA at West Point serve as sources of public potable water supplies and habitat for fish and wildlife, including rare, threatened, and endangered species.

However, the use of site-specific erosion control measures and BMPs during construction, and the restoration of all areas of disturbed soils immediately following earth disturbances resulting from implementation of the Project and RFFAs, would minimize the potential for erosion and sedimentation effects to a level that would not be undue or significant.

The use and transportation of hazardous materials used by construction equipment involved in the Project and RFFAs could increase the cumulative potential for inadvertent spills to occur. Hazardous material spills could pollute groundwater or surface waters, and could also adversely affect human health. Cumulatively, however, these potential impacts would be reduced to a level that is not undue or significant by handling all such hazardous materials in accordance with the applicable health and safety plans and the USMA at West Point's *Installation Spill Contingency Plan* (USMA 1996).

Air Quality

The implementation of the Project and past, present, and RFFAs in the Project area likely would have temporary adverse direct and indirect impacts on air quality at the USMA at West Point. All actions may result in increased direct emissions of exhaust and fugitive dust from construction machinery and activities. However, temporary construction emissions generally would be minor and confined primarily to individual project sites. Cumulatively, these temporary emissions of NAAQS criteria pollutants likely would not exceed SIP emission thresholds at the USMA at West Point, and would conform to the SIP. However, because the Project is located in a non-attainment area for priority pollutants (VOCs and NO_x), the USMA at West Point will perform a general conformity review of the Project and RFFAs to determine if priority pollutants will fall within statutory limits during and after construction. Furthermore, the USMA at West Point will implement air emissions control measures during construction of the Project, as necessary, to ensure that implementation of the Project would have no significant adverse impact on air quality.

Cultural Resources

The implementation of the Project and RFFAs are not likely to result in adverse impacts on significant cultural resources at the USMA at West Point. In accordance with the USMA at West Point's *Integrated Cultural Resources Management Plan*, before implementing each major project, the USMA at West Point would complete all applicable aspects, evaluations, and action items prescribed in this plan. By definition, this plan requires the integration of cultural resources assessment and management into the routine activities, processes, and planning of activities at the USMA at West Point. Therefore, implementation of the *Integrated Cultural Resources Management Plan* would ensure that cultural resources are protected and properly managed for this Project and all RFFAs.

Visual Resources

The USMA at West Point is committed to maintaining the visual integrity of visual resources associated with historic, cultural, and natural landscapes at the USMA at West Point. Accordingly, the USMA at West Point's *Integrated Cultural Resources Management Plan* and *Historic Landscape Management Plan for the United States Military Academy at West Point, New York*, are integral to evaluating and planning projects and activities that have the potential to adversely affect visual resources at the USMA at West Point installation, and would be adhered to for each individual project, as applicable. Therefore, no significant cumulative impacts to visual resources are anticipated to result from implementation of the Project and RFFAs at the USMA at West Point.

Developed Land Resources

Implementation of the Project and RFFAs would not result in adverse impacts on existing or planned land uses at the USMA at West Point. The Project, in addition to the other RFFAs noted in Section 3.13.1 and shown on Figure 5, are designed to improve existing facilities within the context of existing land use development patterns. Therefore, beneficial cumulative impacts on land use are anticipated. All of the RFFAs described in Section 3.13.1 are planned and located in areas designated for these types of land use, consistent with the *USMA Master Plan for the Year 2007* (USMA 1998b). Therefore, no adverse cumulative impacts on existing or future land uses are anticipated.

Noise

Implementation of the Project and RFFAs would have temporary, direct, and indirect, adverse impacts on noise at the USMA at West Point. These actions would result in increased noise levels during construction and any required blasting activities, particularly if the Project and certain RFFAs are under construction simultaneously in areas adjacent to where people are intensively engaged in academic, recreational, or residential activities. Cumulative noise impacts would be kept to a level that is not undue through the careful coordination and logistical support of all construction activities by the USMA at West Point's DHPW and other involved USMA departments.

Traffic and Transportation

Implementation of the Project and RFFAs has the potential to result in temporary moderate to severe adverse effects on traffic circulation at the USMA at West Point, if certain RFFAs (such as repaving of roads, security upgrades to the gates, and some of the proposed new construction and demolition) are constructed simultaneously with, and in areas adjacent to, the Project. The traffic controls that are required during construction of the Project and several of the RFFAs (i.e., as needed to permit in-street construction or the transportation of construction materials and equipment) would temporarily slow, reroute, obstruct, or halt normal traffic flow in the Main Post/Academic Areas. However, this impact would be mitigated to a level that is not undue or significant through the careful coordination of the Project and RFFA construction locations and times, by the USMA at West Point's DHPW and other involved USMA departments. In addition, cumulative traffic impacts would be reduced by the implementation of approved traffic control practices similar to those described in Section 3.9.2.

Waste Generation and Disposal

Regarding the generation and disposal of waste material, the amount of solid waste generated cumulatively, from implementation of the Project in combination with other RFFAs, may result in a short-term increase in solid waste disposal needs for the USMA at West Point. Although the USMA at West Point utilizes off-site commercial solid waste disposal facilities at the Orange County sanitary landfill, landfill capacity is not

limitless; and many issues arise, on both a regional and society-wide basis, from the scarcity of, and planning for, solid waste disposal. In step with this issue, in early 2003, Orange County enacted a mandatory recycling program for its sanitary landfill that specifies 15 solid waste materials that must be separated from the general solid waste stream by each individual disposer/user, including institutions such as the USMA at West Point (Orange County 2003). Although there may be cumulative solid waste disposal impacts from the Project and RFFAs, the USMA at West Point is working to improve its waste disposal procedures to contribute to solutions to this larger regional, and national issue.

Utilities and Infrastructure

The implementation of the Project and RFFAs likely would have long-term beneficial impacts on the utility infrastructure at the USMA at West Point. The proposed Project would upgrade and improve the functioning of the telecommunications system at the USMA at West Point, without placing additional demand on the existing utilities. However, routine maintenance activities are planned to upgrade components of the sewage system, which would result in minor beneficial long-term impacts.

3.14 ADDITIONAL ENVIRONMENTAL CONSIDERATIONS

3.14.1 Possible Conflicts Between Proposed Action and Federal, Regional, State, and Local (including Indian Tribe) Land and Airspace Use Plans, Policies and Controls

In accordance with AR 200-2, Appendix D-7(c), this section of the EA addresses possible conflicts between the Proposed Action and Federal, regional, state, and local (including Indian tribe) land and airspace use plans, policies, and controls for the area concerned.

Implementation of the Proposed Action would be located entirely within the USMA at West Point installation boundary, and therefore primarily would require compliance with USMA at West Point land and airspace use plans, policies, and controls. Accordingly, design, implementation, restoration, and monitoring of the Proposed Action would be performed in accordance with all applicable USMA at West Point plans, policies, and controls, identified in Table 5, as specified in relevant sections of this EA as noted in the table.

Additionally, USMA at West Point policy requires compliance with applicable Federal, regional, and state regulations and permit requirements. Accordingly, if necessary, the USMA at West Point would obtain and comply with applicable permits identified in Table 6, as specified in relevant sections of this EA as noted in the table. Therefore, implementation of the Proposed Action would not result in conflicts with applicable Federal, regional, state, and local (including Indian tribe) land and airspace use plans, policies, and controls for the area concerned.

Table 5. Relevant Land and Airspace Use Plans, Policies, and Controls.

EA Section	Affected Resource	Plan, Policy, or Control	Regulatory Specification
3.1, 3.2	Soils, Surface Waters, Wetlands	Erosion Control Plan	USMA requires contractor to prepare and submit for approval prior to construction, and to implement during construction, a site-specific Erosion Control Plan to minimize potential soil erosion and subsequent sedimentation of surface waters and wetlands.
3.2	Wetlands	Executive Order 11990, Protection of Wetlands	Avoid, minimize impacts to wetlands. Mitigate for wetland loss (note: no loss of wetlands would result from Project).
3.4	Federal Threatened/ Endangered Species	Endangered Species Management Plan for the Bald Eagle on the Properties of the United States Military Academy	USMA would consult with the USFWS and the NYSDEC if USMA activities would affect the bald eagle or its habitat. (Note: the Project would not affect the bald eagle or habitat.)
3.4	State Threatened/ Endangered Species	Timber Rattlesnake Management Agreement	USMA has a verbal agreement with the NYSDEC allowing J. Beemer (USMA Natural Resource Biologist) to move timber rattlesnakes to a suitable, off-site rookery, den, or foraging habitat if rattlesnakes are at risk of injury in active construction or other areas.
3.5	Cultural Resources	Integrated Cultural Resources Management Plan, United States Military Academy, West Point, New York	Provides guidelines for the implementation of surveys to identify archaeological resources.
3.5 and 3.6	Cultural and Visual Resources	Historic Landscape Management Plan for the U.S. Military Academy at West Point, New York	Identified specific historic landscapes associated with the development of the USMA at West Point, and includes recommendations for preserving, restoring, improving, and maintaining these specific landscapes.
3.10	Wastes and Hazardous Materials	USMA at West Point's Installation Spill Contingency Plan	Identifies proper handling and reporting procedures for the transport, use, and temporary storage of potentially hazardous materials at the USMA at West Point
3.12	Coastal Zone	NYSDOS Coastal Management Program State Coastal Policies	Identifies NYSDOS State Coastal Policies applicable to Federal projects in the designated Coastal Zone of New York.

Source: Compiled by Northern Ecological Associates, Inc. 2003.

Table 6. Relevant Federal, Regional, and State Regulations and Permits.

EA Section	Affected Resource	Regulatory Authority	Permit Required
3.1	Soils	NYSDEC	Construction Activity SPDES Permit (disturbance of >1 acre of soils)
3.2	Surface Water	NYSDEC	Construction Activity SPDES Permit (disturbance of >1 acre of soils)
3.2	Surface Water	NYSDEC	Article 15 (Protection of Waters) of the NYSECL (installation of temporary equipment bridges over waterbodies)
3.2	Surface Water	USACE	Section 404 of the Clean Water Act, Nationwide Permit 33 (temporary construction, access and dewatering)
3.2	Surface Water	USACE	Section 10 of River and Harbors Act (installing utility line over, under, or through navigable waterways)
3.2	Surface Water	NYSDEC	Section 401 Water Quality Certification (required to permit USACE to issue permits under Section 404 and Section 10 permits)
3.2	Wetlands	NYSDEC	Article 24 (Freshwater Wetlands) of the NYSECL (installation of temporary access/equipment stabilization measures in wetlands)
3.2	Wetlands	USACE	Section 404 of the Clean Water Act, Nationwide Permit 33 (temporary construction, access and dewatering)
3.3	Air Quality	(Internal Documentation, USMA at West Point)	Air Conformity Analysis, Consistency with SIP in accordance with Clean Air Act Amendments of 1990 (temporary construction-phase air emissions)
3.5	Historic Architectural Resources	NYSOPRHP	Cultural Resources Effects Determination
3.5	Archaeological Resources	NYSOPRHP	Cultural Resources Effects Determination
3.6	Historic Landscapes	NYSOPRHP	Cultural Resources Effects Determination
3.9	Traffic and Transportation	NYSDOT	Authorization to work in or under State Route 218 and State Route 293 road rights-of-way.

Table 6. Relevant Federal, Regional, and State Regulations and Permits (continued).

EA Section	Affected Resource	Regulatory Authority	Permit Required
3.9	Traffic and Transportation	U.S. Department of Transportation	Authorization to work in or under U.S. Route 9W road right-of-way.
3.10	Wastes and Hazardous Materials	USEPA	USEPA-certified inspectors would inspect buildings scheduled for CUITN upgrades for the presence of asbestos and lead. If present, all applicable USEPA and OSHA policies and regulations would be followed during construction.
3.11	Utilities and Infrastructure	USMA at West Point DHPW, U&FD	Dig-Safe Permit (On-Post Areas)
3.12	Coastal Zone	NYSDOS	Coastal Zone Management Program Consistency Determination/Concurrence

Source: Compiled by Northern Ecological Associates, Inc. 2003.

3.14.2 Unavoidable Adverse Environmental Effects and Considerations That Offset Adverse Effects

In accordance with AR 200-2, Appendix D-7(d)(2), this section of the EA addresses adverse environmental effects that cannot be avoided should the Proposed Action be implemented.

Implementation of the Proposed Action would result in certain unavoidable adverse impacts on the environmental resources located within the Project area. Initial construction activities would primarily involve ground, pavement/roadway, sidewalk, and interior building disturbance to accommodate installation of fiber optic cable. Temporary and localized adverse effects that may occur during construction include: an increase in sedimentation into surface water resources during construction, emissions of PM generated by construction equipment and contractor vehicles and emissions of VOCs associated with repaving and/or patching asphalt roads, disturbance of existing vegetation, loss of less mobile wildlife, disruption of aesthetic and visual resources, an increase in traffic, alteration of normal traffic patterns affecting emergency response, increase in noise levels due to construction equipment, an increase in generation and disposal of non-hazardous and hazardous waste materials, and disruption of telecommunications services.

The implementation of the Proposed Action is expected to generate numerous long-term beneficial impacts that would offset temporary adverse environmental impacts. These long-term beneficial impacts include the convergence of voice, video, and data within a single fiber optic cable; use of a single-mode fiber optic cable to significantly improve telecommunications service by providing unlimited expanded bandwidths and allowing signal transmission at a speed of 1 gigabit per second for distances up to 50 miles before

a repeater is necessary; and use of the single-mode fiber optic cable to permit the future expansion of the telecommunication system to handle bi-directional television communication. Implementation of best management practices and compliance with environmental permit conditions would avoid or minimize temporary adverse environmental impacts to a level that is not undue or significant.

3.14.3 Energy Requirements and Conservation Potential of Various Alternatives and Mitigation Measures

In accordance with AR 200-2, Appendix D-7(e), this section of the EA addresses renewable and nonrenewable energy requirements associated with implementation of the Proposed Action and the potential to conserve energy resources through design and use of alternatives and mitigation measures.

Renewable energy resources would not be consumed to a significant extent during implementation and operation of the Proposed Action. Nonrenewable energy resources would be committed by the USMA at West Point and construction contractors to implement the Proposed Action. Nonrenewable energy resources committed include fossil fuels (gasoline, petroleum products, and lubricants) primarily consumed by construction equipment to install the fiber optic cable backbone for the OSCAR component of the Project, and electricity primarily consumed by power tools and equipment to construct telecommunications closets in Building 600/Taylor Hall for the CUITN component of the Project. Consumption of these nonrenewable energy resources have been minimized or conserved to the extent practicable through careful analysis and selection of the most efficient and cost effective major route alternative to utilize existing infrastructure to maximum extent practicable, and use of best management practices and site-specific construction techniques to avoid or minimize use of energy resources wherever practicable.

3.14.4 Irreversible and Irretrievable Commitment of Resources

In accordance with AR 200-2, Appendix D-7(f), this section of the EA addresses the irreversible or irretrievable commitment of materials and natural or depletable resources required as a result of implementation of the Proposed Action, and the potential to conserve such resources using various mitigation measures.

Irreversible and irretrievable resources would be committed by the USMA at West Point and construction contractors to implement the Proposed Action. Resources committed include labor costs for the planning phase; construction and mitigation materials and costs; natural resources such as soil, water, and air; energy resources such as fossil fuels (gasoline, petroleum products, and lubricants) and electricity; and, land and interior building space to accommodate fiber optic cable installation. Consumption of these resources have been minimized or conserved to the extent practicable through careful analysis and selection of the most efficient and cost effective major route alternative to utilize existing infrastructure to maximum extent practicable, and use of best management practices and site-specific construction techniques to avoid or minimize

direct and indirect impacts on natural and cultural resources. This planning effort in turn will result in avoidance or minimization of irreversible or irretrievable consumption of materials and depletable natural or cultural resources during implementation and operation of the Proposed Action.

Not all of these resources are irretrievable. The monies committed to implementation of the Proposed Action would be offset through savings in improvements in localized telecommunications service at the USMA at West Point; increase in breadth of voice, video, and data transfer and download capability; increase in speed of video and data transfer and download; and associated increase in efficiency and productivity of USMA at West Point personnel, staff, and Corps of Cadets in support of the legacy force, interim force, and the objective force.

3.14.6 Urban Quality, Historic and Cultural Resources, and the Design of the Built Environment, including Reuse and Conservation Potential of Various Alternatives and Mitigation Measures

In accordance with AR 200-2, Appendix D-7(g), this section of the EA addresses the effects of implementation of the Proposed Action on adjacent neighborhoods and the community at large, and reviews the reuse potential of existing building space and its time-use allocation of the built environment.

Implementation of the Proposed Action would result in primarily temporary use or disruption of the road and transportation network, building space, and telecommunications network at the USMA at West Point, and would not result in significant permanent adverse impacts to the surrounding community outside the USMA at West Point. Roads and transportation corridors temporarily affected by trenching to install the fiber optic cable and conduit for the OSCAR component of the Project would be restored to original or better condition by backfilling the trench, repaving roadways, reconstructing sidewalks, and revegetating disturbed soils and lands. Similarly, building space temporarily affected by fiber optic cable for the CUITN component of the Project and telecommunications closet installation in Building 600/Taylor Hall would be conserved by efficiently using existing wiring, conduits, telecommunication closets, or closet-like space to the maximum extent practicable. All temporary space used would be restored to its original or better condition to maximize reuse.

The built environment resulting from implementation of the Proposed Action would offer potential long-term reuse and conservation of resources through the improvement in localized telecommunications service at the USMA at West Point. The improved telecommunications service infrastructure would provide unlimited expanded bandwidths and allow signal transmission at a speed of 1 gigabit per second for distances up to 50 miles before a repeater is necessary, as well as permit the future expansion of the telecommunication system to handle bi-directional television communication. This improvement would be considered the primary, permanent telecommunications infrastructure at the USMA at West Point, and would subsequently result in a long-term increase in efficiency and productivity of USMA at West Point community at large

(personnel, staff, and Corps of Cadets) in support of the legacy force, interim force, and the objective force.

3.15 ENVIRONMENTAL JUSTICE

In accordance with Executive Order 12898 (dated February 11, 1994), Federal agencies are required to identify and address the potential for disproportionately high and adverse environmental and human health effects on minority and low-income populations, resulting from the agencies' programs, policies, and activities.

Only military housing exists within the USMA at West Point community. However, low-income housing is scattered throughout the Village of Highland Falls, with the nearest low-income housing community, Weyant Green, located adjacent to the USMA at West Point's South Post, off West Point Highway on Webb Lane. Weyant Green, owned by Quaker Hill Housing, consists of six buildings with a total of 51 housing units built in 1983 with funding from the U.S. Department of Housing and Urban Development.

Based on the information presented in Sections 3.1 through 3.14 of this EA, no significant or unacceptable adverse environmental or human health effects are expected to result from implementation of the Proposed Action. It is anticipated that implementation of the Proposed Action would not negatively affect the Weyant Green community as a result of increased traffic, noise, air pollution, or potential changes to visual quality because of its remote location relative to the Project area. Because implementation of the Project would not negatively impact this community, no disproportionately high and adverse impact to minority or low-income populations would occur.

4.0 SUMMARY OF CONCLUSIONS

4.1 PROPOSED ACTION

The Proposed Action consists of replacing the existing, copper line and multi-mode fiber optic cable telecommunications system at the USMA at West Point, with a single-mode fiber optic cable system, as required by a DA nationwide directive. This upgrade would involve installing new fiber optic cable lines outside of the USMA's buildings, either by stringing cable through existing conduits, fastening cable to existing utility poles, or, where existing conduits and utility poles are not available, installing new buried conduits and fiber optic cable. Additionally, this upgrade would involve upgrading telecommunications facilities inside the USMA's buildings, and installing new telecommunications closets and associated infrastructure in several buildings, including Taylor Hall (Building 600), a prominent and historically significant building at the USMA at West Point. The upgrades in Taylor Hall include renovation of the telecommunications and audio-visual equipment in the Superintendent's Conference Room.

4.2 ALTERNATIVES

Alternatives to the Proposed Action that were considered include: the No Action Alternative, one system alternative, various cable route alternatives, and several alternative installation and construction methods.

The No Action alternative was discounted as infeasible because it would not meet the terms and requirements of the DA nationwide directive that is the Purpose and Need for the Proposed Action. The single system alternative considered (wireless telecommunications system) was eliminated from further consideration because the U.S. Department of Defense and the DA do not regard wireless telecommunications systems to be feasible as primary systems, enterprise-wide, due to the uncertain security, reliability, and low cost-effectiveness to implement.

Various cable route location alternatives were considered in an attempt to reduce specific environmental impacts or resolve specific engineering or other concerns. These route alternatives were incorporated into the Proposed Action where beneficial. Finally, several alternative construction methods were considered to install the new fiber optic cable lines, including existing conduits, in-street trench excavation, off-street trench excavation, and different methods for crossings under streets, sidewalks, and streams. The most appropriate methods of construction (i.e., the method resulting in the least impact to identified resources and goals) were selected on a site-specific basis.

4.3 ANTICIPATED ENVIRONMENTAL EFFECTS

The principal direct and indirect environmental issues related to the implementation of the Proposed Action are summarized in this section.

Soil disturbance has the potential to result in soil erosion and/or sedimentation into waterbodies and wetlands resulting from trench excavation during the construction phase, and similar cumulative effects when combined with other USMA at West Point-sponsored RFFAs.

Based on map and aerial photograph review, the new fiber optic cable would involve a total of 11 crossings of surface waterbodies, including two waterbodies (Highland Brook and Cascade Brook) that serve as a potable water supply for the Village of Highland Falls. Although no in-stream trench excavation would be conducted as part of the Project, excavation of upland soils adjacent to waterbodies could contribute to erosion and sedimentation into the waterbodies.

Although no wetlands or state-regulated 100-foot-wide wetlands buffer zones would be directly affected by trench excavation activities associated with the Project, some disturbances to wetlands may occur as a result of vehicle and equipment access (for material delivery and worker transportation) through wetlands along the existing rights-of-way where the new fiber optic cable would be aerially installed on existing telephone poles.

The implementation of the Project and other USMA at West Point-sponsored RFFAs may result in increased direct emissions of exhaust and fugitive dust from construction machinery and activities. These impacts generally would be minor and confined primarily to individual project sites. Cumulatively, these emissions likely would have temporary adverse direct and indirect impacts on air quality at the USMA at West Point.

Although no timber rattlesnake habitats occur within the Project area and no habitat would be affected by the Project, transient timber rattlesnakes may be impacted if they attempt to traverse active construction areas or travel lanes.

The Project would affect the historic architectural fabric (interior design elements or features) of three buildings, Building 600 (Taylor Hall), Building 329 (Inspector General/Memorial Affairs), and Building 1580 (Camp Buckner Superintendent's Quarters/Commander's Cottage). These three buildings are considered eligible for the National Register of Historic Places and two (Building 600 and Building 329) are contributing elements of the National Historic Landmark District at the USMA at West Point. However, as a result of sensitive Project design and consultation with the NYSOPRHP, SHPO, these effects would not be adverse or significant.

Installation of the new fiber optic cable under the pavement of the Keller Army Community Hospital access road, driveways/parking areas surrounding the hospital, and

portions of Washington Road leading up to the hospital, could result in temporary disruptions of emergency access to the hospital as a result of trenching through pavement and other construction activities.

During construction, there would be a short-term, minor elevation in noise levels in the immediate vicinity of the areas requiring trenching, due to the operation of various construction equipment and an associated increase in contractor vehicles and traffic.

Construction of the Project could temporarily hinder the smooth flow of traffic at the USMA at West Point, particularly in the locations that require fiber optic cable installation via trench excavation within and under the paved roadways in the Main Post/Academic Area. In addition, traffic safety on the local roads within the USMA at West Point could be compromised. A total length of 17,501 feet (3.3 miles) of in-street construction would be required to complete the Project.

Traffic safety could be compromised during construction activities along the shoulder of New York State Route 218, due to the presence of construction equipment working on, or adjacent to, the road or road shoulder.

Construction of the Project would temporarily generate various typical solid demolition and construction debris, and would also involve the transport, temporary storage, and use of typical hazardous construction materials.

Construction of the portions of the Project that require trench excavation to install the new fiber optic cable has the potential to inadvertently damage existing buried utility infrastructure and/or interrupt one or more of the USMA at West Point's utility services, particularly where new trench excavation is required to install the new fiber optic cable under roadways that already contain several buried utility lines. This potential is greatest for construction areas within the Main Post/Academic Area of the USMA at West Point.

Several of these potential impacts would be mitigated by careful design, placement, and use of materials, and the use of good management practices and engineering controls. Mitigation measures must be addressed to diminish any potential significant adverse effects.

4.4 MITIGATION MEASURES

Mitigation measures would be employed to address impacts from implementation of the Proposed Action including:

1) Erosion and sedimentation controls would be used during construction in accordance with USMA at West Point and New York State Department of Environmental Conservation (NYSDEC) standards and specifications. The USMA at West Point would require its contractor to prepare and implement an Erosion Control Plan in compliance with NYSDEC's current stormwater management regulations, and this plan would be approved by the USMA at West Point before initiating construction activities.

2) Particular care and attention will be paid to ensure that erosion controls remain effective during construction activities in the vicinity of Highland Brook and Cascade Brook, which are used by the Village of Highland Falls as potable water supplies.

3) Prior to construction, the USMA at West Point would conduct a site verification survey that would allow the identification of all streams or drainages along the Project alignment, and allow determination and acquisition of all required stream crossing permits.

4) The USMA at West Point would require its construction contractor to obtain blasting permits if required, and to comply with all associated blasting safety provisions.

5) If a bridge must be installed to provide vehicle or equipment access across Range 10 Brook, particular care would be taken to ensure that sedimentation into the stream is minimized and the USMA at West Point's potable water supply in Long Pond remains unpolluted and water intakes remain functional. If any earth disturbance activities are required (e.g., for bridge installation and removal) in the vicinity of Range 10 Brook during a period when the stream is flowing, the USMA's Natural Resources Branch would be consulted and would provide recommendations on the use of specific BMPs during construction in this area.

6) To prevent rutting of wetlands (located along the existing telephone pole right-of-way) resulting from construction equipment and vehicles traveling along the right-of-way used by the Project, the USMA at West Point would minimize the frequency of heavy equipment traveling through wetlands that have very saturated or unstable soils, where practicable. If necessary, the USMA would require the construction contractor to place temporary equipment stabilization measures, such as construction mats, along the intended travel lane, and remove them when no longer needed. In addition, the USMA would require the contractor to smooth out and restore any excessive rutting caused by construction following the completion of work.

7) Because the Project is located in a non-attainment area for the priority air pollutant ozone, the USMA at West Point will perform a general conformity review of the Project and RFFAs to determine if priority pollutants emitted by construction equipment and activities will fall within statutory limits. Before construction of the Project, the USMA at West Point would conduct an air quality conformity review to identify all temporary and long-term air emissions that

would result from the Project, and would also consider this in relation to the cumulative air quality impacts resulting from other ongoing and future USMA at West Point projects. If established thresholds would be exceeded, then the USMA at West Point would propose and implement air emissions control measures during construction and/or curtail such activities, as necessary, to ensure that implementation of the Project would have no significant adverse impact on air quality.

8) USMA at West Point would monitor the Project construction areas for timber rattlesnake activity when construction is scheduled between April 1 and September 30. In the event a timber rattlesnake ventures into the workspace, a biologist at the USMA at West Point who is authorized by the NYSDEC to handle timber rattlesnakes would move the rattlesnake(s) to a suitable, off-site rookery, den, or foraging habitat for protection.

9) Project plans for upgrading the Superintendent's Conference Room of Building 600 (Taylor Hall) would be designed to avoid adverse effects on the interior design elements and features that contribute to the NRHP-eligibility of this building. New millwork that would be installed would match the design, size, texture, color, finish, and workmanship of the existing millwork in this room, and would not extend beyond the frame of the doorway on the south wall. No alterations or changes, or penetrations of any kind, including new outlets, would be permitted higher than 9 feet on the walls of the room, or within the vaulted ceilings of the room.

10) Project plans for installation of the Project in Building 329 (Inspector General/Memorial Affairs) would be designed to avoid adverse effects on the interior and exterior design elements and features that contribute to the NRHP-eligibility of this building. No alterations or changes would be made that alter or change the Tudor Revival architectural characteristics of Building 329.

11) Project plans for installation of the Project in Building 1580 (Camp Buckner Superintendent's Quarters/Commander's Cottage) would be designed to avoid adverse effects on the historical appearance and significant architectural elements that make this structure eligible for the NRHP.

12) To avoid adverse effects on archaeological and architectural resources in the Project area, the USMA at West Point will perform Phase I Cultural Resource Surveys at recommended locations within the Project area that contain significant known architectural resources or are considered sensitive for containing undiscovered archaeological resources. Before construction, additional subsurface archaeological investigations would be conducted where possible for portions of the Project requiring excavation in areas with moderate to high archaeological sensitivity and limited prior ground disturbance.

13) The USMA at West Point would conduct archaeological monitoring during construction of the Project in portions of the Project requiring excavation in areas with moderate to high archaeological sensitivity where subsurface archaeological investigations cannot be conducted before construction commences (e.g., existing

roadways, manhole locations), and in areas with low to moderate archaeological sensitivity.

14) The USMA at West Point would perform additional investigations or mitigation measures for the Project as recommended by the NYSOPRHP, and coordinate with the NYSOPRHP to implement pertinent recommendations from the SHPO to reduce Project impacts to less than significant for any architectural and archaeological resources in the Project area.

15) To ensure that the Project is consistent with the New York State CZMP, the USMA at West Point will prepare a separate coastal zone consistency document for review and comment by the NYSDOS, and would coordinate with the NYSDOS to address any concerns, and implement pertinent recommendations from the NYSDOS to assure consistency with all applicable policies of the CZMP.

16) To minimize temporary disruptions of emergency access to the Keller Army Community Hospital as a result of Project trenching and construction activities in the vicinity of the hospital, the USMA at West Point would ensure that construction moves quickly through this area, and at least one lane of the roadway remains open at all times on critical access routes to the hospital.

17) To reduce the potential for in-street construction to negatively affect emergency response services or response times, the USMA at West Point would coordinate closely with the emergency response staff at the USMA at West Point, including fire, emergency medical, and military police branches. The USMA Project planners would coordinate with these groups well in advance, and then daily during construction, to communicate the schedule and logistics of planned construction in roadways, including the locations and timing of any required road closures and detours. The USMA Project planners also would coordinate with emergency response staff to identify and resolve any concerns regarding the construction plan in specific locations of the USMA at West Point.

18) The USMA at West Point would utilize boring construction techniques to install the new cable under sidewalks, thereby avoiding direct disturbance of the sidewalk surface and pedestrian traffic. Effective signage would be erected to alert pedestrians of nearby construction work, both near sidewalk crossings and where in-street construction is close to sidewalks. Pedestrian traffic would be controlled in and near all construction areas where open trenches and heavy equipment are present.

19) To reduce the risk of fire in Taylor Hall (i.e., which could result in personal injuries and the loss of a significant historic resource), where necessary, the new telecommunications closets would be vented or would incorporate other fire prevention and reduction measures.

20) External and exterior construction noise would be mitigated by limiting construction activities to daylight hours on weekdays and conducting the majority of heavy construction activities during periods when school is not in session and

fewer cadets are present on-base (i.e., mid-June to mid-August). The USMA at West Point would require its construction contractor to limit the noise levels associated with construction to 80 dBA at 10 meters from construction operations.

21) To minimize traffic-related impacts associated with in-street trench excavation and construction throughout the Main Post/Academic Area, the USMA would develop and implement a detailed construction logistics plan that specifically addresses traffic control and circulation issues. Before construction commences, Project planners would coordinate with and solicit input from the various departments at the USMA at West Point, including military police, fire department, medical emergency response groups, Directorate of Housing and Public Works, 1/1 Infantry, and transportation and safety departments to develop as comprehensive a plan as possible. In addition, Project planners would coordinate with appropriate groups and individuals to avoid scheduling potentially disruptive construction activities when large events, such as USMA at West Point graduation week (end of May), home football games or other intercollegiate athletic events, are scheduled.

22) The USMA at West Point would implement the following additional traffic impact minimization measures. In-street trenched segments would be constructed during the summer months (i.e., from June to August) when cadets are not present in the Main Post/Academic Area. If necessary, construction periods would be altered to complete in-street construction in particularly sensitive or high-traffic areas during night hours, avoiding periods of intensive daily traffic use. Construction activities would be confined to a single lane of roadway where possible, allowing traffic to continue in both directions through the remaining open lane, under flagman control. Temporary traffic control devices such as signs, traffic cones, high visibility ribbons, flags, lighted barricades, steel plates, temporary asphalt pavements, and temporary fencing also would be used where necessary to maintain traffic safety during construction. In addition, the USMA at West Point would post daily traffic updates regarding the construction locations on its website, which has a section specifically devoted to traffic reporting on the installation. The USMA at West Point would closely monitor construction progress and plans to ensure that critical roadways are not obstructed during rush hours or other scheduled high-traffic periods.

23) To minimize potential traffic safety issues during construction activities along the shoulder of New York State Route 218, the USMA at West Point would obtain authorization from the NYSDOT to construct in the right-of-way of New York State Route 218. In conjunction with this process, the USMA would consult with the NYSDOT and incorporate any required traffic control and safety measures, which could include the use of flag persons, signage, or placement of cones or Jersey barriers, into its construction plan.

24) The USMA at West Point would develop a Construction and Demolition Waste Management Plan that would address the temporary storage of demolition and construction debris at on-site industrial receptacles, and the periodic collection and disposal of this debris off-site at an approved waste disposal site. The

transport, use, and temporary storage of potentially hazardous materials would comply with proper handling and reporting procedures identified in the USMA at West Point's *Installation Spill Contingency Plan*. All hazardous materials that are transported as part of this Project would be accompanied by a written inventory and MSDS, as required.

25) Prior to construction, each building scheduled for interior upgrades to its information infrastructure would be inspected by USEPA-certified inspectors for the presence of asbestos and lead. If asbestos or lead is present and would be disturbed by construction activities, then these materials would be handled in accordance with OSHA and USEPA regulations and policies.

26) To minimize the probability of damage or disruption to utility services during trench excavation required for the Project, the USMA at West Point DHPW would provide its contractor with detailed construction plans, and all other available information on the existing buried utilities at the USMA at West Point. Before trench excavation begins in each area, the USMA at West Point's DHPW, U&FD office would issue a "Dig Safe" permit and would locate and physically mark (e.g., on the pavement) all underground utility locations, to prevent damage during construction of the Project. The U&FD would obtain all necessary digging permits and rights-of-way required by various departments at the USMA at West Point, local or state authorities, and private companies. The USMA and its contractor also would coordinate in advance with companies and authorities that operate the existing utilities, to notify them of construction schedules and locations, solicit input, invite a representative of the company or authority to be present during excavation, and allow proactive contingency planning in the event of inadvertent damage. Where warranted, the construction contractor would utilize manual excavation methods (i.e., manually shovel) instead of heavy equipment in congested areas where the risk of damage to nearby utility lines is determined to be high.

4.5 CONCLUSION

Implementation of the mitigation measures identified would reduce the potential impacts of the Project, resulting in no significant adverse impacts to the environment. An Environmental Impact Statement is, therefore, not required.

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A comprehensive listing of agencies and persons who received the Draft and Final EA for review and comment is provided in Appendix A.

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APPENDIX A

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APPENDIX A

DISTRIBUTION LIST

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APPENDIX B

PUBLIC COMMENTS ON DRAFT EA

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Historic Preservation Field Services Bureau
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Bernadette Castro
Commissioner

February 25, 2004

Douglas R. Cubbison
Acting Cultural Resources Manager
Department of Housing and Public Works
Building 667, Ruger Road
United States Military Academy
West Point, NY 10996

Dear Mr. Cubbison:

Re: ARMY
Telecommunications Upgrades
USMA , West Point, Orange Co.
03PR05816

Thank you for forwarding the Draft Environmental Assessment for the proposed "Information Infrastructure Modernization Program" at the United States Military Academy. The State Historic Preservation Office has reviewed these new materials in accordance with the provisions of Section 106 of the National Historic Preservation Office.

At this time we have no substantive comments on the project and look forward to the final EA and the results of the Phase 1 Archeological survey that the Draft EA states will be undertaken.

Again, thank you for your submission. If you have any questions, or if I can be of any assistance, please call me at 9518) 237-8643, ext. 3271.

Sincerely,

Julian W. Adams

Julian W. Adams
Sr. Historic Sites Restoration Coordinator