

Final

Environmental Assessment for the Center for Cyber Security Studies



**United States Naval Academy,
Annapolis, Maryland**



April 2015



FINAL
ENVIRONMENTAL ASSESSMENT
FOR THE
CENTER FOR CYBER SECURITY STUDIES
(MILCON P621)
UNITED STATES NAVAL ACADEMY, ANNAPOLIS, MARYLAND

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United States Naval Academy, Annapolis, Maryland**

April 2015

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Action Proponent: Naval Support Activity Annapolis, United States Naval Academy

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Abstract

This Environmental Assessment (EA) has been prepared to evaluate the potential environmental impacts associated with constructing and operating a Center for Cyber Security Studies (CCSS) and parking garage at the United States Naval Academy (USNA) in Annapolis, Maryland. The Navy is proposing to provide dedicated and secure space for the new cyber curriculum at the USNA, inclusive of a supporting parking garage. The proposal includes constructing a new approximately 206,000 square foot building and multilevel concrete parking garage on the USNA installation. The building would alleviate existing academic mission space deficiencies in cyber-supporting academic programs, and the parking garage would replace parking that would be lost due to the construction of the CCSS building on an existing parking lot, provide additional parking for CCSS staff, and improve the existing parking deficit at the USNA. This EA has been prepared by the Navy in accordance with the National Environmental Policy Act (NEPA) of 1969 (42 United States Code §§ 4321–4370h); Council on Environmental Quality regulations (40 Code of Federal Regulations [CFR] Parts 1500–1508); the Navy’s procedures for implementing NEPA (32 CFR Part 775); and Chief of Naval Operations Instruction 5090.1D, Reference (c), Chapter 10. This EA concludes that impacts from the proposed action would not be significant.

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EXECUTIVE SUMMARY

This Environmental Assessment (EA) evaluates the potential direct, indirect, and cumulative environmental impacts that may result from the Department of the Navy (Navy) proposal to construct and operate a Center for Cyber Security Studies (CCSS) and parking garage at the United States Naval Academy (USNA), Annapolis, Maryland. On December 9, 2009, the USNA Superintendent established the Center for Cyber Security Studies as the Navy's sole undergraduate organization in cyber education and research. Its primary mission is to enhance the education of midshipmen in all areas of cyber warfare. In support of this mission, the USNA developed a five-year plan for the development and growth of the CCSS, and a curriculum plan for cyber instruction at the USNA. The proposed CCSS building would provide dedicated classrooms, laboratories, faculty offices, and secure project spaces for the new cyber curriculum. The proposed parking garage would offset the loss of parking for construction of the project, provide additional parking for CCSS staff, and improve the existing parking deficit at the USNA.

ES.1 Purpose of and Need for the Proposed Action

The purpose of the proposed action is to effectively implement the cyber curriculum by providing dedicated classrooms, laboratories, and secure project spaces, and meet associated parking requirements at the USNA. Construction of the CCSS building and parking garage is needed to address current shortfalls in academic instruction space to support the cyber education program and to replace parking that would be lost due to the proposed construction of the CCSS building on an existing parking lot, provide additional parking for cyber-related staff, and improve the existing parking deficit at the USNA.

The USNA currently has a shortfall in academic instruction space. A lack of applied instruction, or project-based learning (PBL) space, accounts for a significant portion of this shortage. PBL is particularly important in the cyber curriculum because it enables students to get hands on experience with the computer, electrical, and systems technology used to create cyber offensive and defensive strategies. In addition, adequate PBL space is a critical resource in supporting the USNA's requirement to graduate 65 percent of each class in a science-technology-engineering-mathematics (STEM) field.

Effective implementation of the cyber curriculum also demands secure project spaces. No existing building at the USNA includes a Sensitive Compartmented Information Facility (SCIF) for handling classified information. Without PBL spaces and a SCIF, a full offering in cyber curriculum is not possible, and midshipmen would receive primarily theoretical training.

ES.2 Proposed Action and Alternatives

The Navy is proposing to provide dedicated and secure space for the cyber curriculum at the USNA, inclusive of a supporting parking garage. An approximately 206,000 square foot (SF) multistory building would be constructed at the Lower Yard (the academic core of the USNA campus on the east side of College Creek) to house the CCSS as well as three existing academic departments that would comprise the focus of the cyber curriculum: Computer Sciences, Electrical and Computer Engineering, and Weapons and Systems Engineering. The CCSS building would contain classrooms, teaching and research laboratories, lecture halls, a SCIF, study rooms, offices, an observatory, and a rooftop multipurpose space. The number of midshipmen attending the USNA would not increase as a result of the proposed action, but 40 additional faculty and staff would be added to support the CCSS program. The staff growth is expected to be gradual or drawn from an existing regional pool.

The parking garage is proposed to be a multilevel, concrete structure. Design and construction of both new facilities would implement practical energy efficient and sustainable solutions. The CCSS building,

in particular, would achieve, at a minimum, Leadership in Energy and Environmental Design (LEED) Silver certification.

Project construction would begin in 2015 with the parking garage. Construction of the CCSS building would begin in late 2016 after the parking garage is completed and would take approximately two years, finishing in late 2018.

This EA addresses two action alternatives for the CCSS building and three action alternatives for the parking garage, along with the No Action Alternative. Figure ES-1 depicts the locations of the CCSS building and parking garage alternatives. Table ES-1 compares Alternatives 1A and 1B, the action alternatives for the CCSS building, and Table ES-2 compares Alternatives 2A, 2B, and 2C, the action alternatives for the parking garage. The action alternatives evaluated in detail in this EA meet the stated purpose of and need for the proposed action, and are practical and feasible in accordance with the Council on Environmental Quality regulations (40 Code of Federal Regulations [CFR] § 1502.14) and Navy procedures for implementing the National Environmental Policy Act (32 CFR Part 775).

ES.2.1 Alternative 1A – Waffle Lot CCSS Building Alternative (Preferred)

Alternative 1A would involve constructing the CCSS building on an existing surface parking lot known as the Waffle Lot. This irregularly shaped site is between Nimitz Library (Building 589) and Rickover Hall (Building 590), overlooking College Creek. The parking lot is protected by a concrete seawall, and separated from the seawall by a sidewalk and an existing roadway (McNair Road). Development of the Waffle Lot would permanently displace 111 parking spaces currently used by faculty and academic staff.

Under Alternative 1A, the Waffle Lot would accommodate an approximately 206,000 SF building for the CCSS. The building would have a plinth (an elevated base story broader than the upper stories) plus five stories supported by a deep pile foundation. The footprint and massing of the building would have the same triangular configuration as the site.

ES.2.2 Alternative 1B – Alumni Hall Lot CCSS Building Alternative

Under Alternative 1B, the CCSS building would be constructed on a portion of an existing parking lot commonly referred to as the Alumni Hall Lot. This lot currently provides surface parking for faculty and staff. In addition, visitors use this lot when there is an event at Alumni Hall, which is to the north. The Alumni Hall Lot provides a total of 222 parking spaces. The site is divided into two parking lots: the “lower lot” adjacent to Decatur Road provides 147 parking spaces, and the “upper lot” adjacent to Nulton Road provides 75 spaces. The elevation of the upper lot is 7 feet higher than the lower lot. The Alumni Hall Lot consists of asphalt except at the southeast side, where there is a grassy area and stairs to Parker Road, which is approximately 5 feet higher in elevation than the lower lot.

Under Alternative 1B, development of the Alumni Hall Lot for the CCSS building would involve construction of a five-story, rectangular building on a deep pile foundation. The building would encompass the full extent of the lower lot to maximize the building size and provide 206,000 SF of space; however, 147 parking spaces would be permanently displaced.

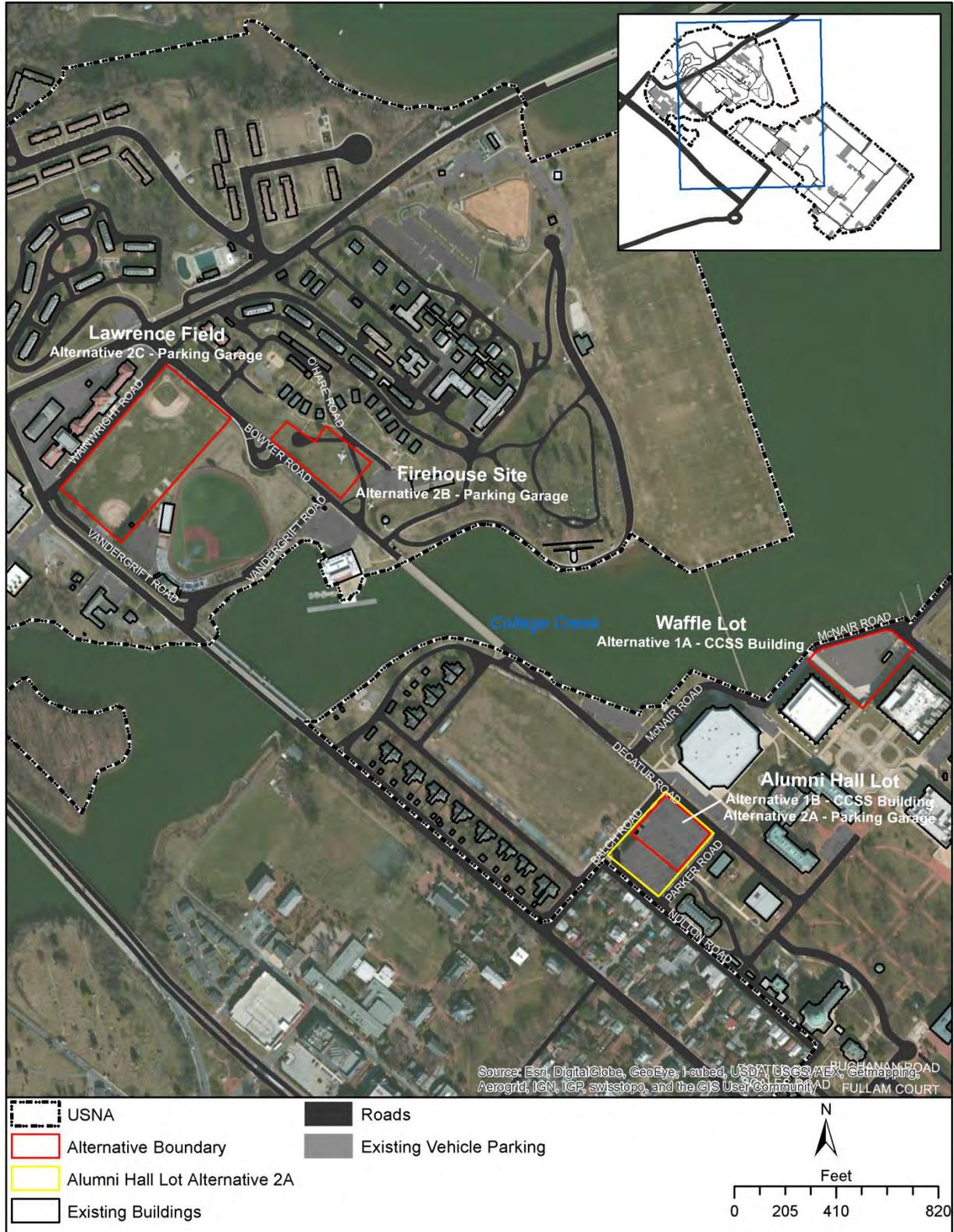


Figure ES-1. Proposed Action Alternatives

Table ES-1. Comparison of CCSS Building Alternatives		
Component	Alternative 1A – Waffle Lot	Alternative 1B – Alumni Hall Lot
Location	Lower Yard – Waterfront site on College Creek; between Nimitz Library and Rickover Hall	Lower Yard – South of Alumni Hall and southeast of Worden Field
Current Use	Surface parking lot (111 spaces)	Surface parking lot (147 spaces on lower lot; 75 on upper lot)
Building stories	Plinth plus five stories	Five stories
Configuration	Triangular mass rising from broad, triangular plinth (mirrors existing site configuration)	Single five-story rectangular massing encompassing lower lot (surface parking on upper lot after construction completed)

ES.2.3 Alternative 2A – Alumni Hall Lot Parking Garage Alternative (Preferred)

Development of the Alumni Hall Lot for a parking garage would involve constructing a two-level garage on the lower lot and incorporating surface parking at the upper lot into the structure. The parking garage would be an open parking structure of cast-in-place post-tensioned concrete and a deep foundation. Exterior cladding would consist of a system of perforated zinc panels to blend with surrounding architectural elements. The upper deck of the parking garage would be built at grade with, and connected to, the upper lot, which would be removed and rebuilt in the same footprint and at the same elevation as the existing surface lot. Access to both the upper lot and upper deck of the parking garage would be provided from both Balch and Parker Roads. The lower level of the parking garage would be accessed from Balch Road. One elevator and three sets of stairs would provide pedestrian access. Alternative 2A would provide a total of 378 parking spaces: 142 spaces on the lower level of the parking garage and 236 spaces on the upper level of the parking garage and the upper lot combined.

ES.2.4 Alternative 2B – Firehouse Site Parking Garage Alternative

Under Alternative 2B, the proposed parking garage would be constructed at the Firehouse Site. This site is located at the Upper Yard (base support and main housing area of the USNA campus on the west side of College Creek), adjacent to the USNA Fire Station (Building 446), a baseball field, and family housing. The Firehouse Site is maintained as open space. The majority of the site is covered in grass, but Circle Court and a portion of O’Hare Road pass through the site, and several dumpsters are located at the cul-de-sac terminating Circle Court. In addition, a decommissioned aircraft is on exhibit on the east side of the site.

Alternative 2B would involve construction of a four-level parking garage with 536 spaces. This alternative would use the maximum footprint available on the site. The garage would be designed as an open parking structure with a precast concrete superstructure and deep pile foundation. It would be entered from the south, on Bowyer Road. The top deck of parking would be 23 feet above Bowyer Road. The ground level of the garage would require flood-proofing measures to address routine flooding and standing water at the site.

ES.2.5 Alternative 2C – Lawrence Field Parking Garage Alternative

Alternative 2C would involve constructing the parking garage at Lawrence Field, which consists of two baseball/softball fields used by midshipmen and non-USNA recreational leagues. Lawrence Field is located at the Upper Yard outside of USNA’s fenced perimeter. The site is southeast of Halligan Hall (Building 181); Bishop Stadium is to the southeast.

Implementation of Alternative 2C would involve developing the entire extent of Lawrence Field with a two-level garage with 584 parking spaces at grade level and the ball fields relocated to the upper level. The second level would be 12.5 feet above the first level. The parking garage would be designed as an open parking structure with a deep pile foundation and cast-in-place concrete superstructure to structurally support the elevated ball fields. It would incorporate a green roof system capable of supporting traditional athletic field turf for the playing fields on the upper deck. Access to the ball fields would be provided by elevators and stairs. Parking entrances would be located on Bowyer Road and on Vandergrift Road to satisfy the antiterrorism/force protection requirements for standoff distance from Halligan Hall.

Component	Alternative 2A – Alumni Hall Lot	Alternative 2B – Firehouse Site	Alternative 2C – Lawrence Field
Location	Lower Yard – South of Alumni Hall and southeast of Worden Field	Upper Yard – Bowyer Road, adjacent to USNA Fire Station, a baseball field, and family housing	Upper Yard – Wainwright Road, between Halligan Hall and Bishop Stadium
Current Use	Surface parking lot (147 spaces on lower lot; 75 on upper lot)	Undeveloped: maintained grass, Circle Court, segment of O’Hare Road, and site of several dumpsters and a static aircraft display	Two baseball/softball fields
Number of levels	2	4	2
Estimated number of parking spaces	378 (142 on lower garage level and 236 on upper garage level and upper lot)	536	584
Construction	Concrete open parking structure	Precast concrete open parking structure	Cast-in-place concrete open parking structure; ball fields relocated to top level of garage

ES.2.6 No Action Alternative

Under the No Action Alternative, a building for the CCSS and a parking garage would not be constructed at the USNA. The cyber curriculum would continue to exist, but the new cyber mission requirement would not be properly supported. Additionally, academic space deficiencies would continue under the No Action Alternative, as would unsafe PBL work-around solutions. Without the necessary space, the USNA’s academic mission and capability to meet Naval requirements in both cyber security and STEM would be jeopardized.

The No Action Alternative is not considered a reasonable alternative because it does not meet the purpose of and need for the proposed action. However, it does provide a measure of baseline conditions against which the impacts of the proposed action can be compared.

ES.3 Summary of Environmental Consequences of the Action Alternatives

A summary of environmental consequences for the alternatives analyzed in this EA is provided in Table ES-3. Temporary impacts to land use, noise, and transportation would occur as a result of the proposed action, regardless of the combination of CCSS building alternative and parking garage alternative that may be implemented. The proposed action alternatives would have minor, long-term impacts on transportation. Other long-term impacts would also occur, but vary by action alternative. One CCSS building alternative (Alternative 1A) and one parking garage alternative (Alternative 2B) each would have long-term impacts to water resources. Minor, long-term impacts to noise levels would occur with implementation of Alternative 2B or 2C. Long-term impacts to cultural resources, specifically historic resources of the built environment, would occur under Alternatives 1B, 2B, and 2C. Not all impacts to historic built resources from Alternative 1A can be determined at this time due to insufficient design information. With the use of Best Management Practices (BMPs), and avoidance, minimization, and mitigation measures, none of the impacts associated with any of the alternatives for the proposed action would be significant.

Table ES-3. Summary of Environmental Consequences						
Resource Area	Alternative 1A – Waffle Lot CCSS Building	Alternative 1B – Alumni Hall Lot CCSS Building	Alternative 2A – Alumni Hall Lot Parking Garage	Alternative 2B – Firehouse Site Parking Garage	Alternative 2C – Lawrence Field Parking Garage	No Action Alternative
Geology, Topography, and Soils	<ul style="list-style-type: none"> No significant impacts to geology or topography Short-term impacts associated with clearing, grading, compaction, and potential erosion and sedimentation of exposed soils 1.4 acres of land disturbed Appropriate BMPs would be implemented during construction activities 	<ul style="list-style-type: none"> Similar to Alternative 1A 1.1 acres of land disturbed Appropriate BMPs would be implemented during construction activities 	<ul style="list-style-type: none"> Similar to Alternative 1A 1.9 acres of land disturbed Appropriate BMPs would be implemented during construction activities 	<ul style="list-style-type: none"> Similar to Alternative 1A 1.2 acres of land disturbed Appropriate BMPs would be implemented during construction activities 	<ul style="list-style-type: none"> Similar to Alternative 1A 2.7 acres of land disturbed Appropriate BMPs would be implemented during construction activities 	<ul style="list-style-type: none"> No change to geology, topography, and soils would occur

Table ES-3. Summary of Environmental Consequences

Resource Area	Alternative 1A – Waffle Lot CCSS Building	Alternative 1B – Alumni Hall Lot CCSS Building	Alternative 2A – Alumni Hall Lot Parking Garage	Alternative 2B – Firehouse Site Parking Garage	Alternative 2C – Lawrence Field Parking Garage	No Action Alternative
Water Resources	<ul style="list-style-type: none"> • No significant impact to surface waters, groundwater, or coastal zone resources are anticipated • Impact to floodplain capacity; however, proposed design would minimize these impacts • Operational impacts would be negligible 	<ul style="list-style-type: none"> • Similar to Alternative 1A; however, no impact to floodplains as the alternative site is outside the 100-year floodplain 	<ul style="list-style-type: none"> • Similar to Alternative 1B 	<ul style="list-style-type: none"> • No direct impact to surface waters; however, on-site run-off from increase in impervious surfaces would be managed under a stormwater management plan • Impacts to floodplains, groundwater, and coastal zone resources are the same as Alternative 1A 	<ul style="list-style-type: none"> • Similar to Alternative 1B 	<ul style="list-style-type: none"> • No change to water resources would occur
Biological Resources	<ul style="list-style-type: none"> • No significant impact to vegetation or submerged aquatic vegetation • No significant impacts to wildlife, migratory birds, or wildlife habitat are anticipated • No anticipated impacts to federally or state listed threatened, endangered, or candidate species 	<ul style="list-style-type: none"> • Similar to Alternative 1A 	<ul style="list-style-type: none"> • Similar to Alternative 1A 	<ul style="list-style-type: none"> • Similar to Alternative 1A 	<ul style="list-style-type: none"> • Similar to Alternative 1A 	<ul style="list-style-type: none"> • No change to biological resources would occur

Table ES-3. Summary of Environmental Consequences						
Resource Area	Alternative 1A – Waffle Lot CCSS Building	Alternative 1B – Alumni Hall Lot CCSS Building	Alternative 2A – Alumni Hall Lot Parking Garage	Alternative 2B – Firehouse Site Parking Garage	Alternative 2C – Lawrence Field Parking Garage	No Action Alternative
Land Use	<ul style="list-style-type: none"> • Temporary impacts during construction • Consistent with current land use categorization - “training support” 	<ul style="list-style-type: none"> • Similar to Alternative 1A 	<ul style="list-style-type: none"> • Temporary impacts during construction • Consistent with current land use categorization - “base support” 	<ul style="list-style-type: none"> • Temporary impacts during construction • Consistent with current land use categorization – “sailor and family support” 	<ul style="list-style-type: none"> • Similar to Alternative 1A 	<ul style="list-style-type: none"> • No impact to land use
Air Quality	<ul style="list-style-type: none"> • Estimated emissions generated by construction activities of the CCSS building at the Waffle Lot in combination with Alternative 2A, 2B, or 2C would be well below significance thresholds • Emissions from operations would not be significant 	<ul style="list-style-type: none"> • Estimated emissions generated by construction activities of the CCSS building at the Alumni Hall Lot in combination with Alternative 2B or 2C would be well below significance thresholds • Emissions from operations would not be significant 	<ul style="list-style-type: none"> • See Alternatives 1A and 1B 	<ul style="list-style-type: none"> • See Alternatives 1A and 1B 	<ul style="list-style-type: none"> • See Alternatives 1A and 1B 	<ul style="list-style-type: none"> • No impact to air quality would occur

Table ES-3. Summary of Environmental Consequences						
Resource Area	Alternative 1A – Waffle Lot CCSS Building	Alternative 1B – Alumni Hall Lot CCSS Building	Alternative 2A – Alumni Hall Lot Parking Garage	Alternative 2B – Firehouse Site Parking Garage	Alternative 2C – Lawrence Field Parking Garage	No Action Alternative
Noise	<ul style="list-style-type: none"> • Minor, short-term impacts from land clearing, excavation, and other construction equipment • Significant short-term impact from pile driving; however, noise attenuation measures would minimize this impact • No significant impact to noise from operations 	<ul style="list-style-type: none"> • Similar to Alternative 1A; however, fewer piles are required and temporary impact duration would be shorter than that of Alternative 1A 	<ul style="list-style-type: none"> • Similar to Alternative 1A; however, fewer piles are required and temporary impact duration would be shorter than that of Alternative 1A 	<ul style="list-style-type: none"> • Minor, short-term impacts from land clearing, excavation, and other construction equipment • Significant short-term impact from pile driving; noise attenuation measures would minimize this impact • Minor, long-term impact from traffic noise 	<ul style="list-style-type: none"> • Similar to Alternative 2B 	<ul style="list-style-type: none"> • No change to existing noise conditions would occur
Transportation	<ul style="list-style-type: none"> • Temporary traffic impacts during construction • Minor increase in traffic under operations • Minor beneficial impacts to existing pedestrian routes after construction 	<ul style="list-style-type: none"> • Similar to Alternative 1A 	<ul style="list-style-type: none"> • Temporary traffic and parking impacts during construction • Minor increase in traffic under operations • No impacts to pedestrian access after construction 	<ul style="list-style-type: none"> • Temporary traffic impacts during construction • Minor increase in traffic under operations • Impacts to pedestrian access (increased walking distance) 	<ul style="list-style-type: none"> • Similar to Alternative 2B 	<ul style="list-style-type: none"> • No impact to transportation

Table ES-3. Summary of Environmental Consequences						
Resource Area	Alternative 1A – Waffle Lot CCSS Building	Alternative 1B – Alumni Hall Lot CCSS Building	Alternative 2A – Alumni Hall Lot Parking Garage	Alternative 2B – Firehouse Site Parking Garage	Alternative 2C – Lawrence Field Parking Garage	No Action Alternative
Infrastructure and Utilities	<ul style="list-style-type: none"> No significant impacts to water supply, wastewater, electrical supply, fiber optic/ telecommunications, natural gas, or solid waste Existing switchgear and generator would be relocated and a small section of the existing waterline would be rerouted around the proposed switchgear and generator site 	<ul style="list-style-type: none"> Similar to Alternative 1A Water service lines would be rerouted; existing transformer and switch would need to be upgraded 	<ul style="list-style-type: none"> Similar to Alternative 1B 	<ul style="list-style-type: none"> Similar to Alternative 1A Existing water main would be relocated; upgrades to electrical system may be required 	<ul style="list-style-type: none"> Similar to Alternative 1A Existing water main, sewer line, storm drain, and electrical lines would be relocated; upgrades to electrical system may be required 	<ul style="list-style-type: none"> No change to infrastructure and utilities

Table ES-3. Summary of Environmental Consequences						
Resource Area	Alternative 1A – Waffle Lot CCSS Building	Alternative 1B – Alumni Hall Lot CCSS Building	Alternative 2A – Alumni Hall Lot Parking Garage	Alternative 2B – Firehouse Site Parking Garage	Alternative 2C – Lawrence Field Parking Garage	No Action Alternative
Cultural Resources	<ul style="list-style-type: none"> • No Effect to archaeological resources • Insufficient design information available to make a determination of effect on the USNA historic district and the Ferry Point Farm at this time • The Navy developed a Programmatic Agreement (PA) to assess effects • PA includes mitigation measures in case of an Adverse Effect 	<ul style="list-style-type: none"> • No Effect to archaeological resources • Adverse Effect (visual) to the integrity of the USNA historic district, the Colonial Annapolis Historic District, and the Peggy Stewart House • No Effect to the other historic properties in the APE 	<ul style="list-style-type: none"> • No Effect to archaeological resources • No Adverse Effect to the USNA historic district or the Colonial Annapolis Historic District • No Effect to the other historic properties in the APE 	<ul style="list-style-type: none"> • No Effect to archaeological resources • Adverse Effect to the USNA historic district – demolition of contributing features and diminished integrity from new visual elements in setting • No Adverse Effect to the Colonial Annapolis Historic District • No Effect to the other historic properties in the APE 	<ul style="list-style-type: none"> • No Effect to archaeological resources • Adverse Effect (visual) to the integrity of the USNA historic district • No Adverse Effect to the Colonial Annapolis Historic District • No Effect to the other historic properties in the APE 	<ul style="list-style-type: none"> • No Effect to cultural resources

Table ES-3. Summary of Environmental Consequences						
Resource Area	Alternative 1A – Waffle Lot CCSS Building	Alternative 1B – Alumni Hall Lot CCSS Building	Alternative 2A – Alumni Hall Lot Parking Garage	Alternative 2B – Firehouse Site Parking Garage	Alternative 2C – Lawrence Field Parking Garage	No Action Alternative
Human Health and Safety	<ul style="list-style-type: none"> • Site security and worker and public safety would be managed in accordance with existing programs • Hazardous materials and wastes would be managed in accordance with existing plans and regulations • AT/FP features provided in compliance with AT/FP regulations, and physical security mitigation in accordance with Unified Facilities Criteria (UFC) 4-010-01 	<ul style="list-style-type: none"> • Same as Alternative 1A 	<ul style="list-style-type: none"> • Same as Alternative 1A; however, UFC 4-010-01 considers parking structures to be exempt from AT/FP provisions; modifications to existing buildings may be required to meet building standoff distances 	<ul style="list-style-type: none"> • Same as Alternative 2A 	<ul style="list-style-type: none"> • Same as Alternative 2A 	<ul style="list-style-type: none"> • Existing programs for public and worker safety and the management of hazardous materials and wastes would continue
Socioeconomic Resources	<ul style="list-style-type: none"> • No change in short- or long-term population • Short-term beneficial impact due to construction spending • Nominal long-term beneficial impact to payrolls due to additional staff 	<ul style="list-style-type: none"> • Similar to Alternative 1A 	<ul style="list-style-type: none"> • Similar to Alternative 1A 	<ul style="list-style-type: none"> • Similar to Alternative 1A 	<ul style="list-style-type: none"> • Similar to Alternative 1A 	<ul style="list-style-type: none"> • Existing socioeconomic conditions would continue

ES.4 Summary of Environmental Consequences of the No Action Alternative

Under the No Action Alternative, the Navy would not construct and operate a building to house the CCSS, and would not construct a parking garage. Therefore, no impacts to geology, topography, and soils; water resources; biological resources; land use; air quality; noise; transportation; infrastructure and utilities; cultural resources; human health and safety; or socioeconomics at USNA would be expected under the No Action Alternative. The No Action Alternative does not meet the purpose of and need for the proposed action. However, the No Action Alternative does serve as a baseline against which the impacts of the proposed action can be evaluated.

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Acronyms and Abbreviations

ACHP	Advisory Council on Historic Preservation	LOS	Level of Service
ACM	asbestos containing material	MBTA	Migratory Bird Treaty Act
APE	area of potential effects	MD	Maryland/Maryland State Route
AQCR	Air Quality Control Region	MDE	Maryland Department of the Environment
AT/FP	antiterrorism/force protection	MDNR	Maryland Department of Natural Resources
BGE	Baltimore Gas and Electric	mg/km	milligrams per kilogram
BMPs	Best Management Practices	MGD	million gallons per day
CAA	Clean Air Act	MHT	Maryland Historical Trust
CCSS	Center for Cyber Security Studies	MSAT(s)	Mobile Source Air Toxic(s)
CEQ	Council on Environmental Quality	NAAA	United States Naval Academy Alumni Association
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act	NAAQS	National Ambient Air Quality Standards
CFR	Code of Federal Regulations	NAF	Naval Academy Foundation
CO	carbon monoxide	NAVFAC	Naval Facilities Engineering Command
CWA	Clean Water Act	NEPA	National Environmental Policy Act
CZMA	Coastal Zone Management Act	NETR	Nationwide Environmental Title Research
CZMP	Coastal Zone Management Program	NEX	Navy Exchange
dB	decibels	NHL	National Historic Landmark
dba	A-weighted decibels	NHPA	National Historic Preservation Act
DoD	Department of Defense	NO ₂	nitrogen dioxide
DoN	Department of the Navy	NO _x	nitrogen oxides
EA	Environmental Assessment	NOAA	National Oceanic and Atmospheric Administration
EIS	Environmental Impact Statement	NPDES	National Pollutant Discharge Elimination System
EO	Executive Order	NRCS	Natural Resources Conservation Service
ESA	Endangered Species Act	NRHP	National Register of Historic Places
ESCP	Erosion and Sediment Control Plan	NSA	Naval Support Activity
FONSI	Finding of No Significant Impact	OPNAVINST	Chief of Naval Operations Instruction
FY	fiscal year	OSHA	Occupational Safety and Health Administration
gpd	gallons per day	PA	Programmatic Agreement
HAP(s)	hazardous air pollutant(s)		
ICP	Integrated Contingency Plan		
ICRMP	Integrated Cultural Resources Management Plan		
LEED	Leadership in Energy and Environmental Design		

PAH	polycyclic aromatic carbons	STEM	science-technology-engineering-mathematics
PBL	project-based learning	SVOC(s)	semi-volatile organic compound(s)
PCB	polychlorinated biphenyl(s)	TPH-DRO	Total Petroleum Hydrocarbons – Diesel Range Organics
PM _{2.5}	particulate matter with a diameter of 2.5 microns or less	TPH-GRO	Total Petroleum Hydrocarbons – Gasoline Range Organic
PM ₁₀	particulate matter with a diameter less than 10 microns	UFC	Unified Facilities Criteria
ppm	parts per million	ug/L	micrograms per liter
PSD	Prevention of Significant Deterioration	U.S.	United States
PWD	Public Works Department	USACE	U.S. Army Corps of Engineers
RCRA	Resource Conservation and Recovery Act	U.S.C.	U.S. Code
SAV	submerged aquatic vegetation	USEPA	U.S. Environmental Protection Agency
SCIF	Sensitive Compartmented Information Facility	USFWS	U.S. Fish and Wildlife Service
SF	square foot/feet	USNA	U.S. Naval Academy
SHPO	State Historic Preservation Office	VOC(s)	volatile organic compound(s)
SO ₂	sulfur dioxide	WTP	water treatment plant
		WWTP	wastewater treatment plant

1.0 PURPOSE AND NEED

1.1 INTRODUCTION

The Department of the Navy (DoN or Navy) proposes to construct and operate a new academic building to house the Center for Cyber Security Studies (CCSS) at the United States Naval Academy (USNA) in Annapolis, Maryland (Figure 1-1). The proposed CCSS building of approximately 206,000 square feet (SF) would provide dedicated classrooms, laboratories, faculty offices, and secure project spaces for the new cyber curriculum and alleviate existing academic mission space deficiencies in cyber-supporting academic programs. The proposed project also includes construction of a supporting parking garage.

This Environmental Assessment (EA) evaluates the potential environmental impacts that may result from the proposed construction and operation of the CCSS building and parking garage (the proposed action). The Navy has prepared this EA in accordance with the requirements of the National Environmental Policy Act (NEPA) of 1969 (42 United States Code [U.S.C.] § 4321 et seq.), Council on Environmental Quality (CEQ) regulations implementing NEPA (40 Code of Federal Regulations [CFR] Parts 1500–1508), DoN Procedures for Implementing NEPA (32 CFR Part 775), and the Chief of Naval Operations Instruction (OPNAVINST) 5090.1D, Reference (c), Chapter 10 (DoN 2014).

1.2 BACKGROUND

1.2.1 Cyber Security Studies

The newly defined domain of cyberspace presents unique and different challenges for Navy and United States (U.S.) Marine Corps operations. Cyberspace is a global domain within the information environment that consists of the interdependent network of information technology infrastructure, including the Internet, telecommunications networks, computer systems, and embedded processors and controllers (DoN 2009). Military objectives depend upon exercising “command and control over our [computer] networks with dynamic, real time defense and information assurance” through the use of a full spectrum of intelligence capabilities and information operations in the cyber domain (DoN 2010b). Future naval officers must be well-educated in cyber security to defend against today’s cyber threats.

On December 9, 2009, the Superintendent of the USNA established the Center for Cyber Security Studies. Its mission is to:

- Enhance the education of midshipmen in all areas of cyber warfare
- Facilitate the sharing of expertise and perspectives in cyber warfare from across the USNA
- Enhance interdisciplinary research in cyber warfare
- Disseminate information, harmonize efforts, and shape a common framework for cyber warfare related efforts at USNA

In support of these objectives, the USNA developed a five-year plan for the development and growth of the CCSS, and a curriculum plan for cyber instruction at the USNA. The CCSS curriculum plan includes two mandatory core courses that each member of the Brigade of Midshipmen would complete, development of an undergraduate degree in cyber operations, and new curricula in other departments with synergistic cyber-related material. In particular, advanced cyber courses would be offered in the computer science and information technology programs for select midshipmen in those majors (DoN 2013).

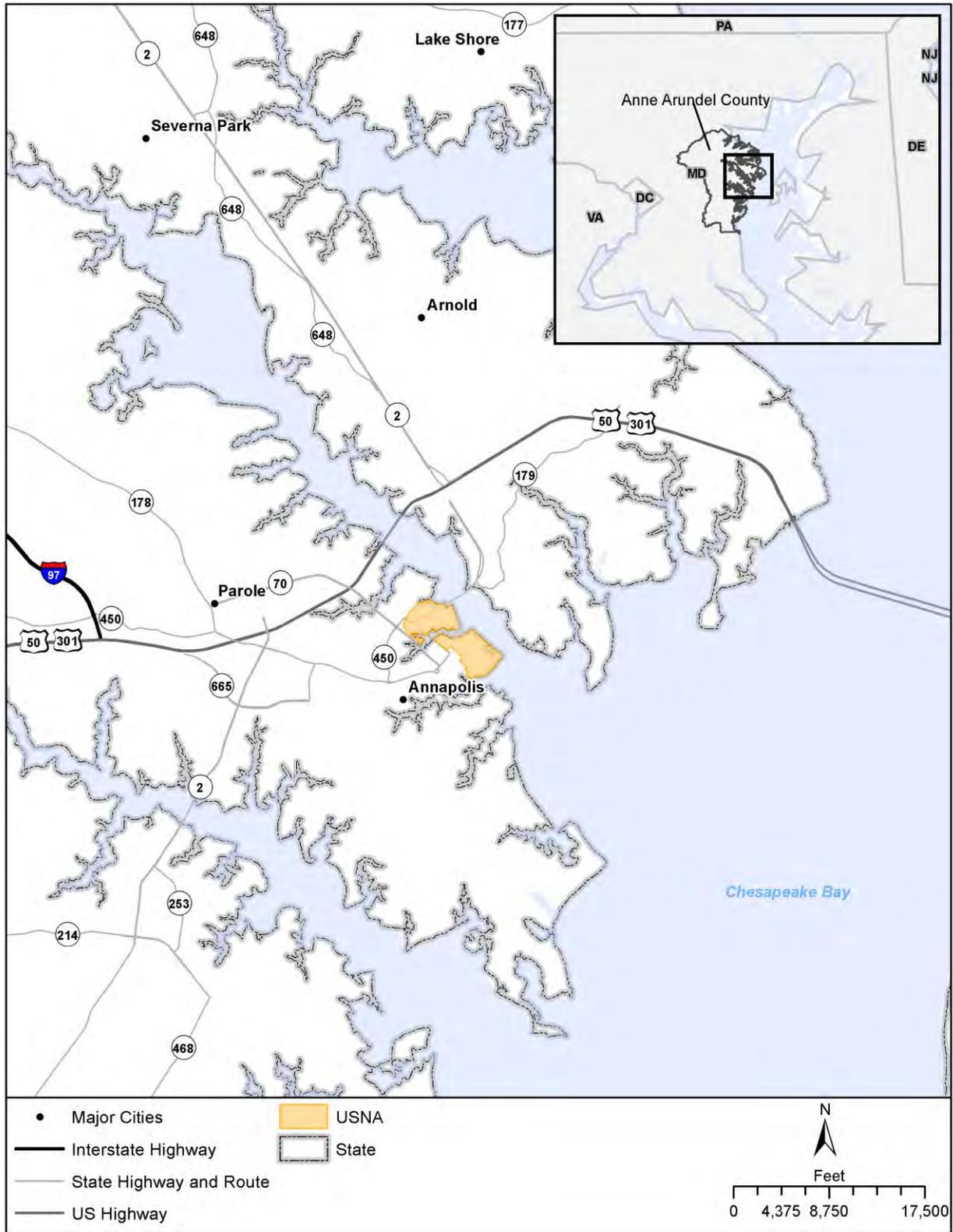


Figure 1-1. Location of USNA

Currently, the CCSS is the Navy's sole undergraduate organization in cyber education and research. The proposed cyber program "reaches into all aspects of the Brigade's education, including ethical implications, leadership opportunities, and warfare training" (DoN 2013). The CCSS will ensure that midshipmen are provided a state-of-the-art cyber education aligned and integrated with the needs of the Navy and U.S. Marine Corps.

1.2.2 USNA

Founded in 1845 by the Secretary of the Navy, George Bancroft, the USNA is located in central Maryland, on the south bank of the Severn River in historic downtown Annapolis. The USNA is a four-year co-educational service academy whose mission is to "develop midshipmen morally, mentally and physically" (USNA 2011). To accomplish this goal, the USNA program integrates officer development and the core qualities of integrity, honor, and mutual respect with academic study in the fields of engineering, science, mathematics, and humanities and social sciences; professional and leadership training; and physical education and fitness (USNA 2011).

The USNA campus, known as the Yard, encompasses approximately 348 acres on both sides of College Creek (NAVFAC Washington 2012b). West of College Creek is the Upper Yard, which includes a clinic and medical facilities, the main housing area, and support functions. East of College Creek is the Lower Yard. Comprising the core of the campus, the Lower Yard contains the primary academic facilities, most of the athletic facilities, and some housing.

The entire Lower Yard and much of the Upper Yard are included in the USNA historic district. This district was designated a National Historic Landmark (NHL) in 1961, and was listed in the National Register of Historic Places (NRHP) in 1966. These historic designations recognized the national level of significance of the USNA in the areas of education, naval military history, architecture, and planning.

1.3 PURPOSE OF AND NEED FOR THE PROPOSED ACTION

The purpose of the proposed action is to effectively implement the cyber curriculum by providing dedicated classrooms, laboratories, and secure project spaces, and meet associated parking requirements at the USNA.

The proposed action is needed to address current shortfalls in academic instruction space to support the CCSS and to replace parking that would be lost due to the proposed construction of the CCSS building on an existing parking lot, provide additional parking for cyber-related staff, and improve the existing parking deficit at the USNA.

The USNA currently has a shortfall in academic instruction space. A lack of applied instruction, or project-based learning (PBL) space, accounts for a significant portion of this shortage. The PBL teaching model emphasizes practical, real-world training in which students learn from individual or small-group, hands-on projects. As a result, the space requirement for PBL is greater than that for lecture-based teaching because it requires students to build actual working systems. PBL is particularly important in the cyber curriculum because it enables students to get hands on experience with the computer, electrical, and systems technology used to create cyber offensive and defensive strategies.

Furthermore, at the USNA, PBL is a critical element for the success of its science-technology-engineering-mathematics (STEM) disciplines. The USNA is currently meeting a directive to graduate 65 percent of each class of naval officers in a STEM field, but the space deficiency is making this requirement more difficult to achieve. Moreover, without sufficient PBL space, midshipmen are building projects in whatever free space they can find, which sometimes results in safety issues (e.g., fire egress

hazards, improper clearance space, or insufficient power supply). The CCSS building would address the space needs for cyber-related curricula and the STEM fields. Labs provided in the CCSS building would be built for cross-functional use so as to maximize the utilization of the spaces.

Effective implementation of an undergraduate cyber operations program also demands secure project spaces. No existing building at the USNA includes a Sensitive Compartmented Information Facility (SCIF) for handling classified information. Without PBL spaces and a SCIF, a full offering in cyber instruction is not possible, and midshipmen would receive primarily theoretical training.

In addition, the CCSS building would provide a centralized space for close, cross-disciplined collaboration and teaching between the CCSS and the existing academic departments with synergistic, cyber-related curricula. Full execution of the five-year cyber curriculum plan requires co-locating the CCSS with the STEM fields of Computer Science, Electrical and Computer Engineering, and Weapons and Systems Engineering. There is no existing contiguous space of sufficient size available at the USNA to enable this collocation. If the CCSS building is not constructed, then the cyber program would have to be broken up and dispersed across the Yard, losing the cross-department synergy critical to its success.

The parking garage is needed to replace the loss of parking for construction of the CCSS building on an existing parking lot. The USNA currently has a parking deficit of 156 spaces (Naval Support Activity [NSA] Annapolis 2013). The proposed construction of the CCSS building on an existing parking lot would add to this deficit. Furthermore, the project would create a demand for 40 parking spaces for CCSS faculty and staff. The parking garage is needed to accommodate the growth in the parking requirement for cyber-related staff and replace the loss of parking for construction of the project. In addition, the parking garage also would improve the existing parking deficit at the USNA.

1.4 THE ENVIRONMENTAL REVIEW PROCESS

The National Environmental Policy Act of 1969 requires consideration of environmental issues in federal agency planning and decision making. Under NEPA, federal agencies must prepare an EA or environmental impact statement (EIS) for certain federal actions, except those actions that are determined to be “categorically excluded” from further analysis.

An EA is a concise public document that provides sufficient analysis for determining whether the potential environmental impacts of a proposed action are significant, resulting in the preparation of an EIS, or not significant, resulting in the preparation of a Finding of No Significant Impact (FONSI). An EIS is prepared for those federal actions that may significantly affect the quality of the human environment. Thus, if the Navy were to determine that the proposed action would have a significant impact on the quality of the human environment, an EIS would be prepared.

The intent of this EA is to assess the potential environmental effects of the proposed construction and operation of the CCSS building and a parking garage at the USNA. This EA provides an analysis of the direct, indirect, and cumulative environmental impacts that have the potential to occur as a result of the proposed action and reasonable alternatives, including the No Action Alternative.

1.4.1 Public Involvement

A public scoping meeting was held for the CCSS building and parking garage project on February 5, 2014. A notice of the scoping meeting was published in *The Capital* for three consecutive days, with the first day of publication being 15 days in advance of the scheduled meeting. The scoping meeting was conducted in an open house format designed to inform the public about the proposed action and NEPA process, and allow the public to identify to USNA and Navy representatives issues and concerns they

would like to see addressed in the EA. During the scoping meeting, the USNA Superintendent gave a presentation on the Center for Cyber Security Studies and the objectives of the proposed action. Following the presentation, the public was provided the opportunity to ask questions and comment on the project. A total of 22 individuals signed in at the meeting, including one elected official.

The public had five ways to provide comments during the scoping period: 1) submit written comments during the public scoping meeting; 2) provide comments orally to a stenographer at the scoping meeting; 3) provide comments orally by telephoning the USNA Public Affairs Office at (410) 293-1520; 4) submit comments electronically to pao@usna.edu; or 5) mail written comments to USNA Public Affairs Office, 121 Blake Road, Annapolis, Maryland, 21402. A total of 10 comments were received during the scoping period from February 5, 2014 to March 7, 2014. The primary issues that were raised during scoping related to water resources and transportation. Specifically, comments concerned rising sea levels, and the need for parking at USNA and replacing the parking that would be lost for construction of the CCSS building. In addition, there were also comments indirectly related to cultural resources, as they pertained to the architectural style of the CCSS building and how it could relate to the tradition and values of the USNA. Comments and issues raised during scoping were addressed in the Draft EA.

On June 3, 2014, the Navy released the Draft EA for a 45-day public comment period. The public comment period provides members of the community an opportunity to review the Draft EA and provide comments on the findings in the document. The Navy published a notice of availability of the Draft EA and public meeting in *The Capital* for three consecutive days, beginning on June 1, 2014. The USNA Public Affairs Office also issued a press release about the public meeting on the USNA website (http://www.usna.edu/PAO/press_releases/) as well as a notice on the USNA Facebook page (<https://www.facebook.com/USNavyAcademy>). Copies of the Draft EA were available at the Annapolis Area Library at 1410 West Street in Annapolis, Maryland. In addition, an electronic copy of the Draft EA was available on the USNA Public Affairs Office website (<http://www.usna.edu/PAO/>).

The public meeting was held on June 18, 2014 and was conducted in an open house format designed to provide the public an opportunity to ask questions or discuss concerns they might have after their review of the Draft EA with USNA and Navy representatives. During the meeting, the USNA Superintendent gave a presentation on the Center for Cyber Security Studies, and answered questions following the presentation. A total of 16 individuals signed in at the meeting, including one elected official.

During the public meeting, attendees could submit written comments or provide comments orally to a stenographer. During the public comment period, which began on June 3 and ended on July 18, 2014, written comments could be submitted via mail or email to the USNA Public Affairs Office or to the USNA Facebook page. A total of five comments were received during the public comment period. One comment expressed support for the project. Two comments raised concern about the presence of a parking garage on the Yard and its design aesthetics in relation to the rest of the Yard. The other two comments pertained to the architectural style of the CCSS building and how it could relate to the existing architectural tradition at the USNA. Comments and issues raised during the public comment period on the Draft EA have been addressed in the Final EA.

The Navy mailed copies of the Draft EA to federal, state, and local agencies for their review and comment. The Navy also submitted copies of the Draft EA to the Maryland State Clearinghouse for distribution to additional state agencies for review and comment. Several agencies responded and their coordination letters are included in Appendix C. Specifically, changes have been made to Section 3.2, *Water Resources* and the Federal Coastal Consistency Determination (Appendix A) to address comments on the Draft EA received by the Maryland Department of Natural Resources (MDNR), Critical Area Commission for the Chesapeake and Atlantic Coastal Bays and the Maryland Department of the Environment.

1.4.2 Scope of Analysis

Only those resources that have a potential to be affected by the proposed action are analyzed in this EA, as per CEQ guidance [40 CFR § 1501.7(3)]. The resource areas evaluated in this EA include: geology, topography, and soils; water resources; biological resources; land use; air quality; noise; transportation; infrastructure and utilities; cultural resources; human health and safety; and socioeconomic resources.

Internal and external scoping identified two resource areas that did not warrant further analysis. These resource areas are as follows:

- Environmental Justice (Executive Order [EO] 12898) and Protection of Children (EO 13045) – There are no low income or minority populations in the area that would be affected; therefore, the proposed action would not result in disproportionately high and adverse human health or environmental effects on minority populations and low-income populations. Although children may reside in family housing areas at USNA, children would not be permitted access to any of the proposed construction areas; therefore, the proposed action would not result in environmental health risks and safety risks that may disproportionately affect children.
- Community Services and Facilities – The proposed increase of 40 cyber-related faculty and staff would not place additional demand on existing community services and facilities within the USNA region of influence. Therefore, no impacts to community services and facilities would occur with implementation of the proposed action.

1.4.3 Agency Coordination and Permit Requirements

In addition to NEPA, other laws, regulations, permits, and licenses may be applicable to the proposed CCSS building and parking facilities.

Specifically, the proposed action would require the following agency coordination, permits, and compliance:

- Consultation with the Maryland Historical Trust, Advisory Council on Historic Preservation, and National Park Service regarding effects to the USNA historic district and other historic properties in compliance with Section 106 of the National Historic Preservation Act (NHPA)
- Consultation with the City of Annapolis Historic Preservation Division regarding effects to the Annapolis Historic District in compliance with Section 106 of the NHPA
- Consultation with the U.S. Fish and Wildlife Service concerning potential impacts to threatened or endangered species and any critical habitat designations in compliance with Section 7 of the Endangered Species Act
- Consultation with the Maryland Department of Natural Resources concerning potential impacts to natural resources in compliance with the installation Integrated Natural Resources Management Plan
- Applicability Analysis pursuant to the General Conformity Rule of the Clean Air Act and its corresponding federal regulations (40 CFR Parts 51 and 93 as amended)
- Coastal Consistency Determination in compliance with the Coastal Zone Management Act (16 U.S.C. §§ 1451–1564] and the Memorandum of Understanding between the State of Maryland and the Department of Defense (DoD) concerning the application and implementation of Maryland’s Coastal Zone Management Program

- Consultation with the Maryland Department of the Environment concerning the issuance of a National Pollutant Discharge Elimination System stormwater permit
- Compliance with EO 11988, *Floodplain Management*, which directs federal agencies to avoid construction in floodplains and establishes an eight-step process for analysis and public notice if development is unavoidable

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2.0 PROPOSED ACTION AND ALTERNATIVES

The CEQ *Regulations for Implementing the Procedural Provisions of NEPA* establish a number of policies for federal agencies, including “...using the NEPA process to identify and assess reasonable alternatives to the proposed action that will avoid or minimize adverse effects of these actions on the quality of the human environment” (40 CFR § 1500.2 [e]). The construction of the CCSS building and parking garage is needed to accommodate the new cyber curriculum and improve existing deficiencies in academic instruction space and in parking at the USNA. The need for a building with adequate academic and instruction spaces, faculty offices, and supporting facilities such as a SCIF and parking garage establishes the foundation for evaluating whether an alternative is a reasonable option for fulfilling the purpose of and need for the proposed action.

2.1 PROPOSED ACTION

The proposed action would provide dedicated and secure space for the cyber curriculum at the USNA, inclusive of a supporting parking garage. A new approximately 206,000 SF multistory building would be constructed at the Lower Yard to house the CCSS as well as three existing academic departments that would comprise the focus of the cyber curriculum: Computer Sciences, Electrical and Computer Engineering, and Weapons and Systems Engineering. The CCSS building would house classrooms, teaching and research laboratories, lecture halls, a SCIF with specialized learning and support spaces, study rooms, offices, an observatory, and a rooftop multipurpose space. The number of midshipmen attending the USNA would not increase as a result of the proposed action, but 40 additional faculty and staff would be added to support the CCSS program. The staff growth is expected to be gradual or drawn from an existing regional pool.

The proposed action also includes construction of a parking garage. It would not be feasible to construct an underground parking garage below the proposed CCSS building due to antiterrorism/force protection (AT/FP) issues and because the water table is relatively close to the surface. The number of parking spaces in the parking garage would depend on the size and location of the site under each alternative, as described in Section 2.1.2, *Parking Garage Alternatives*. Nonetheless, the number of parking spaces provided by each of the garage alternatives in Section 2.1.2 would address the loss of parking due to construction of the CCSS building on an existing parking lot and accommodate the parking requirement (40 spaces) for CCSS faculty and staff. In addition, it would also improve existing shortfalls in parking at the USNA.

The project would implement energy efficient and sustainable design and construction solutions in accordance with EO 13423, *Strengthening Federal Environmental, Energy, and Transportation Management*, and other applicable executive orders and laws. The CCSS building, in particular, would achieve, at a minimum, Leadership in Energy and Environmental Design (LEED) Silver certification (NSA Annapolis 2013a).

Project construction would begin in 2015 with the parking garage. Construction of the CCSS building would begin in late 2016 after the parking garage is completed and would take approximately two years, finishing in late 2018. After construction of the CCSS building is completed, the computer sciences, electrical and computer engineering, and weapons and systems engineering departments would relocate to the CCSS building, and their vacated spaces would be back-filled primarily with PBL laboratories to address the shortfall of academic instruction space at the USNA.

2.1.1 CCSS Building Alternatives

Two alternatives for the construction of the CCSS building achieve the project requirements: the Waffle Lot and the Alumni Hall Lot (Figure 2-1).

2.1.1.1 Alternative 1A – Waffle Lot CCSS Building Alternative (Preferred)

Under Alternative 1A, the CCSS building would be constructed at the Waffle Lot, an irregularly shaped site between Nimitz Library (Building 589) and Rickover Hall (Building 590) at the Lower Yard (Figure 2-2). Commonly referred to as the “Waffle Lot,” the site is currently used as a surface parking lot by faculty and academic staff. Development of the Waffle Lot would permanently displace 111 parking spaces. Situated along College Creek, the parking lot is protected by a concrete seawall, and separated from the seawall by a sidewalk and an existing roadway (McNair Road). The Nimitz Library is directly to the southwest of the site, and Rickover Hall is directly to the southeast. Holloway Road borders the northeast side.

Development of the Waffle Lot site for the CCSS building would require removing the entire parking lot, concrete sidewalks and stairs, and site appurtenances (e.g., light poles, signs) between the parking lot and Nimitz Library and Rickover Hall. An existing electrical switching station and an emergency generator for Rickover Hall in the east portion of the parking lot would be removed and relocated. The portions of McNair Road and Holloway Road and their sidewalks that are adjacent to the Waffle Lot site would be closed to both vehicular and pedestrian traffic for the duration of construction; however, the portions of the roadways and sidewalks adjacent to Nimitz Library and Rickover Hall would remain in service during construction. The existing pedestrian and vehicular routes in the immediate area would be fully restored after construction. A new sidewalk on the north side of the CCSS building would be installed for additional pedestrian circulation. A construction staging area would be provided either at the intramural field on the northeast side of Holloway Road or on a barge along College Creek.

Under Alternative 1A, the Waffle Lot would accommodate an approximately 206,000 SF building for the CCSS. The building would have a plinth (an elevated base story broader than the upper stories) plus five stories, and its footprint and massing would have the same triangular configuration as the site. The building would be supported by a deep pile foundation due to the weak soils at the site.

2.1.1.2 Alternative 1B – Alumni Hall Lot CCSS Building Alternative

Under Alternative 1B, the CCSS building would be constructed on a portion of an existing parking lot commonly referred to as the Alumni Hall Lot. The Alumni Hall Lot is adjacent to Alumni Hall (Building 675), Leahy Hall (Building 117), the Naval Academy Club (Building 2; previously called the Officers’ and Faculty Club), and Worden Field, which is used for formal parades by the Brigade (Figure 2-3). It currently provides surface parking for faculty and staff. In addition, visitors use this lot when there is an event at Alumni Hall. The lot is bound by Balch Road to the northwest, Decatur Road to the northeast, Parker Road to the southeast, and Nulton Road to the southwest. The Alumni Hall Lot provides a total of 222 parking spaces. The site, however, is divided into two parking lots: the “lower lot” adjacent to Decatur Road provides 147 parking spaces, and the “upper lot” adjacent to Nulton Road provides 75 spaces. The elevation of the upper lot is 7 feet higher than the lower lot. The Alumni Hall Lot consists of asphalt except at the southeast side, where there is a grassy area and stairs to Parker Road, which is approximately 5 feet higher in elevation than the lower lot.

Development of the Alumni Hall Lot for the CCSS building would temporarily impact the roadways, parking, sidewalks, and utilities in the immediate vicinity. The entire site would be closed to vehicular and pedestrian traffic for the duration of the project: the lower lot would be demolished for the building

construction, and the upper lot would provide the staging area for construction materials and equipment. Decatur Road may be reduced intermittently to a single lane. The lower lot and the existing pedestrian and vehicular routes in the immediate area would be fully restored after construction and would not be permanently impacted.

Demolition for construction would consist of removing the asphalt parking lot and site appurtenances, removing existing underground concrete water storage tanks (no longer in use) underneath the existing parking lot, and removing and rerouting all existing utilities within the construction footprint. Other site items that would be removed include an existing shed and an electrical transformer. An existing oil/water separator, a crosswalk constructed with permeable pavers, and a bioretention area along the northwest corner adjacent to Balch Road would be removed and replaced on-site or elsewhere on the Yard.

Under Alternative 1B, development of the Alumni Hall Lot for the CCSS building would involve construction of a five-story, rectangular building on the lower lot. Encompassing the full extent of the lower lot would maximize the size of the building and provide 206,000 SF of space; however, 147 parking spaces would be permanently displaced. The building would be supported by a deep pile foundation due to the weak soils at the site.



Figure 2-1. Proposed Action Alternatives



Figure 2-2. Waffle Lot CCSS Building Alternative (Alternative 1A)



Figure 2-3. Alumni Hall Lot (Alternative 1B – CCSS Building; Alternative 2A – Parking Garage)

2.1.2 Parking Garage Alternatives

The USNA currently has a deficit of 156 parking spaces. Forty parking spaces are required to accommodate an increase of approximately 40 faculty and staff at the proposed CCSS building. Given that the two alternative sites for the CCSS building are currently used for parking, development at either CCSS building alternative would eliminate existing parking spaces, which would need to be replaced. The remaining parking spaces proposed under the parking garage alternatives would accommodate anticipated demands at the USNA.

Three alternative sites could accommodate the requirements for the parking garage: Alumni Hall Lot, Firehouse Site, and Lawrence Field (Figure 2-1).

2.1.2.1 Alternative 2A – Alumni Hall Lot Parking Garage Alternative (Preferred)

The Alumni Hall Lot is an alternative site for both the proposed CCSS building and the new parking garage. This site is southwest of Alumni Hall and currently used as a surface parking lot. Refer to Section 2.1.1.2, *Alternative 1B – Alumni Hall Lot CCSS Building Alternative*, for a description of the Alumni Hall Lot.

Development of the Alumni Hall Lot for a parking garage would involve constructing a two-level garage on the lower lot and incorporating surface parking on the upper lot into the structure. The parking garage would be an open parking structure of cast-in-place post-tensioned concrete and have a deep pile foundation. Exterior cladding would consist of a system of perforated zinc panels to blend with surrounding architectural elements. The upper deck of the parking garage would be built at grade with, and connected to, the upper lot, which would be removed and rebuilt in the same footprint and at the same elevation as the existing surface lot. Access to both the upper lot and the upper deck of the parking garage would be provided from Balch Road and from Parker Road. The lower level of the parking garage would be accessed from Balch Road. An elevator and three sets of stairs would provide pedestrian access. Alternative 2A would provide a total of 378 parking spaces: 142 spaces on the lower level of the parking garage and 236 spaces on the upper level of the parking garage and the upper lot combined. Construction staging areas would be along Balch and Nulton Roads.

2.1.2.2 Alternative 2B – Firehouse Site Parking Garage Alternative

Under Alternative 2B, the proposed parking garage would be constructed at the Firehouse Site. This site is located at the Upper Yard in proximity to College Creek, and adjacent to the USNA Fire Station (Building 446), a baseball field, and family housing (Figure 2-4). The site is bounded by Bowyer Road to the southwest, the firehouse to the east, and O'Hare Road and family housing to the north and northeast. The Firehouse Site is maintained as open space. The majority of the site is covered in grass, but Circle Court and a portion of O'Hare Road pass through the site, and several dumpsters are located at the cul-de-sac terminating Circle Court. In addition, a static display of a decommissioned aircraft is on the site next to the junction of Circle Court and O'Hare Road. Being within the floodplain of College Creek, the site is prone to flooding. In addition, large areas of land drain into the site, causing standing water on a regular basis.

Major portions of this alternative site are part of a Public/Private Venture lease agreement associated with the adjacent military family housing. Development of this site, therefore, would require renegotiating the lease agreement.

Site development would consist of removing Circle Court in its entirety and a portion of O'Hare Road, as well as any trees, light poles, or other site appurtenances. The existing aircraft exhibit and garbage

dumpsters would be removed and relocated. All existing utilities within the construction footprint would be removed and rerouted. The construction staging area would be located adjacent to the northwest side of the site, in an open space with maintained grass.

Under Alternative 2B, a four-level parking garage with 536 spaces would be constructed. This alternative would use the maximum footprint available on the site. The garage would be designed as an open parking structure with a precast concrete superstructure and a deep pile foundation. The entrance would be on Bowyer Road, just after vehicles leave the checkpoint at Gate 8. The height of the garage would be slightly taller than the adjacent family housing; the top deck of parking would be 23 feet above Bowyer Road (NSA Annapolis 2013a). The ground level of the garage would require flood-proofing measures to address routine flooding and standing water at the site.

2.1.2.3 Alternative 2C – Lawrence Field Parking Garage Alternative

Under Alternative 2C, the parking garage would be constructed at Lawrence Field. Lawrence Field comprises two baseball/softball fields used by midshipmen and non-USNA recreational leagues. The site is located at the Upper Yard outside of USNA’s fenced perimeter (Figure 2-5). It is southeast of Halligan Hall (Building 181), and is bounded by Bowyer Road, Wainwright Road, Vandergrift Road, and Bishop Stadium.

Development of this site would consist of removing the existing ball fields, as well as any trees, light poles, or other site appurtenances. In addition, all existing utilities would be removed and relocated. Bowyer and Wainwright Roads would remain open for the duration of construction. New sidewalks would be installed on the northwest side of the site for additional pedestrian circulation. The construction staging area would be located in the open space between Bowyer Road and Bishop Stadium.

Implementation of Alternative 2C would involve developing the entire extent of Lawrence Field with a two-level garage with 584 parking spaces at grade level and the ball fields relocated to the upper level of the garage. The second level would be 12.5 feet above the first level. The parking garage would be designed as an open parking structure with a deep pile foundation and cast-in-place concrete superstructure to accommodate requirements related to having elevated ball fields. The upper deck would comprise a green roof system capable of supporting traditional athletic field turf for the playing fields (NSA Annapolis 2013a). Access to the ball fields would be provided by elevators and stairs. Parking entrances would be located on Bowyer Road immediately before Gate 8 and on Vandergrift Road. Both of these entrances would satisfy the AT/FP requirements for standoff distance from Halligan Hall.



Figure 2-5. Lawrence Field Parking Garage Alternative (Alternative 2C)

2.1.3 No Action Alternative

Under the No Action Alternative, a building for the CCSS and a parking garage would not be constructed at the USNA. The cyber curriculum would continue to exist with two core courses and an undergraduate degree program in cyber operations, but the new cyber mission requirement would not be properly supported. Additionally, academic space deficiencies would continue under the No Action Alternative, as would unsafe PBL work-around solutions. Without the necessary space, the USNA's academic mission and capability to meet Naval requirements in both cyber security and STEM would be jeopardized. The No Action Alternative fails to meet the purpose of and need for the proposed action as stated in Section 1.3, *Purpose of and Need for the Proposed Action*. However, it does provide a baseline against which to measure the potential impacts of the proposed action. Therefore, the No Action Alternative is evaluated in subsequent sections of this EA.

2.2 ALTERNATIVES CONSIDERED BUT ELIMINATED FROM FURTHER ANALYSIS

The Navy considered a range of possible alternatives for accommodating the space needs for the new cyber curriculum and cyber-supporting academic programs. The following paragraphs summarize the alternatives that were considered and dismissed because they did not fully satisfy the purpose of and need for the proposed action.

The Navy considered renovating and modernizing existing facilities to either improve their condition or configuration to create suitable space for the cyber curriculum. In reviewing existing facilities, there is insufficient contiguous space that could be renovated for this purpose. Moreover, renovation of existing buildings in support of cyber-related curriculum would only exacerbate current shortfalls of space in other academic departments and would be unlikely to resolve the unsafe work-arounds for PBL space. Renovation is not considered a viable option, and was eliminated from further consideration.

Another option considered by the Navy was leasing space in an off-site facility for cyber studies. Leasing a commercial property within 5 miles of the USNA was considered. While this facility could be outfitted to teach cyber-related classes, the strict daily regimen required of midshipmen demands readily accessible academic facilities to accommodate their schedule and prohibits the logistics involved in the use of off-site leased facilities. The operational day for midshipmen simply does not allow for travel time to off-site classes. The leasing option is not a feasible solution, and thus, was eliminated from further consideration.

Adaptive reuse is the process of adapting an old building for a new use or purpose while retaining some of the building's existing architectural features. Review of existing assets at the USNA identified historical buildings for possible reuse for cyber studies. However, the identified facilities are outside the 10-minute walking radius that is required by the midshipmen's operational day. Furthermore, it is extremely difficult incorporating a SCIF and information technology (IT) infrastructure into an existing historical building, and the solution would not resolve the total academic space deficit. Therefore, this alternative was eliminated from further consideration.

2.3 SUMMARY OF ENVIRONMENTAL CONSEQUENCES

Table 2-1 provides a summary and comparison of the action alternatives and the No Action Alternative with respect to impacts to the human environment and natural and built resources in the USNA and vicinity. Temporary impacts to land use, noise, and transportation would occur as a result of the proposed action, regardless of the combination of CCSS building alternative and parking garage alternative that may be implemented. The proposed action alternatives would have minor, long-term impacts on transportation. Other long-term impacts would also occur, but vary by action alternative. One CCSS

building alternative (Alternative 1A) and one parking garage alternative (Alternative 2B) each would have long-term impacts to water resources. Minor, long-term impacts to noise levels would occur with implementation of Alternative 2B or 2C. Long-term impacts to cultural resources, specifically historic resources of the built environment, would occur under Alternatives 1B, 2B, and 2C. Not all impacts to historic built resources from Alternative 1A can be determined at this time due to insufficient design information. With the use of Best Management Practices (BMPs), and avoidance, minimization, and mitigation measures, none of the impacts associated with any of the alternatives for the proposed action would be significant.

Table 2-1. Summary of Environmental Consequences						
Resource Area	Alternative 1A – Waffle Lot CCSS Building	Alternative 1B – Alumni Hall Lot CCSS Building	Alternative 2A – Alumni Hall Lot Parking Garage	Alternative 2B – Firehouse Site Parking Garage	Alternative 2C – Lawrence Field Parking Garage	No Action Alternative
Geology, Topography, and Soils	<ul style="list-style-type: none"> No significant impacts to geology or topography Short-term impacts associated with clearing, grading, compaction, and potential erosion and sedimentation of exposed soils 1.4 acres of land disturbed Appropriate BMPs would be implemented during construction activities 	<ul style="list-style-type: none"> Similar to Alternative 1A 1.1 acres of land disturbed Appropriate BMPs would be implemented during construction activities 	<ul style="list-style-type: none"> Similar to Alternative 1A 1.9 acres of land disturbed Appropriate BMPs would be implemented during construction activities 	<ul style="list-style-type: none"> Similar to Alternative 1A 1.2 acres of land disturbed Appropriate BMPs would be implemented during construction activities 	<ul style="list-style-type: none"> Similar to Alternative 1A 2.7 acres of land disturbed Appropriate BMPs would be implemented during construction activities 	<ul style="list-style-type: none"> No change to geology, topography, and soils would occur

Table 2-1. Summary of Environmental Consequences						
Resource Area	Alternative 1A – Waffle Lot CCSS Building	Alternative 1B – Alumni Hall Lot CCSS Building	Alternative 2A – Alumni Hall Lot Parking Garage	Alternative 2B – Firehouse Site Parking Garage	Alternative 2C – Lawrence Field Parking Garage	No Action Alternative
Water Resources	<ul style="list-style-type: none"> • No significant impact to surface waters, groundwater, or coastal zone resources are anticipated • Impact to floodplain capacity; however, proposed design would minimize these impacts • Operational impacts would be negligible 	<ul style="list-style-type: none"> • Similar to Alternative 1A; however, no impact to floodplains as the alternative site is outside the 100-year floodplain 	<ul style="list-style-type: none"> • Similar to Alternative 1B 	<ul style="list-style-type: none"> • No direct impact to surface waters; however, on-site run-off from increase in impervious surfaces would be managed under a stormwater management plan • Impacts to floodplains, groundwater, and coastal zone resources are the same as Alternative 1A 	<ul style="list-style-type: none"> • Similar to Alternative 1B 	<ul style="list-style-type: none"> • No change to water resources would occur
Biological Resources	<ul style="list-style-type: none"> • No significant impact to vegetation or submerged aquatic vegetation • No significant impacts to wildlife, migratory birds, or their habitat are anticipated • No impacts to federally listed threatened, endangered, or candidate species 	<ul style="list-style-type: none"> • Similar to Alternative 1A 	<ul style="list-style-type: none"> • Similar to Alternative 1A 	<ul style="list-style-type: none"> • Similar to Alternative 1A 	<ul style="list-style-type: none"> • Similar to Alternative 1A 	<ul style="list-style-type: none"> • No change to biological resources would occur

Table 2-1. Summary of Environmental Consequences						
Resource Area	Alternative 1A – Waffle Lot CCSS Building	Alternative 1B – Alumni Hall Lot CCSS Building	Alternative 2A – Alumni Hall Lot Parking Garage	Alternative 2B – Firehouse Site Parking Garage	Alternative 2C – Lawrence Field Parking Garage	No Action Alternative
Land Use	<ul style="list-style-type: none"> • Temporary impacts during construction • Consistent with current land use categorization - “training support” 	<ul style="list-style-type: none"> • Similar to Alternative 1A 	<ul style="list-style-type: none"> • Temporary impacts during construction • Consistent with current land use categorization - “base support” 	<ul style="list-style-type: none"> • Temporary impacts during construction • Consistent with current land use categorization – “sailor and family support” 	<ul style="list-style-type: none"> • Similar to Alternative 1A 	<ul style="list-style-type: none"> • No impact to land use
Air Quality	<ul style="list-style-type: none"> • Estimated emissions generated by construction activities of the CCSS building at the Waffle Lot in combination with Alternative 2A, 2B, or 2C would be well below significance thresholds • BMPs would be employed to further minimize emissions • Emissions from operations would not be significant 	<ul style="list-style-type: none"> • Estimated emissions generated by construction activities of the CCSS building at the Alumni Hall Lot in combination with Alternative 2B or 2C would be well below significance thresholds • BMPs would be employed to further minimize emissions • Emissions from operations would not be significant 	<ul style="list-style-type: none"> • See Alternatives 1A and 1B 	<ul style="list-style-type: none"> • See Alternatives 1A and 1B 	<ul style="list-style-type: none"> • See Alternatives 1A and 1B 	<ul style="list-style-type: none"> • No impact to air quality would occur

Table 2-1. Summary of Environmental Consequences						
Resource Area	Alternative 1A – Waffle Lot CCSS Building	Alternative 1B – Alumni Hall Lot CCSS Building	Alternative 2A – Alumni Hall Lot Parking Garage	Alternative 2B – Firehouse Site Parking Garage	Alternative 2C – Lawrence Field Parking Garage	No Action Alternative
Noise	<ul style="list-style-type: none"> • Minor, short-term impacts from land clearing, excavation, and other construction equipment • Significant short-term impact from pile driving; however, noise attenuation measures would minimize this impact • No significant impact to noise from operations 	<ul style="list-style-type: none"> • Similar to Alternative 1A; however, fewer piles are required and temporary impact duration would be shorter than that of Alternative 1A 	<ul style="list-style-type: none"> • Similar to Alternative 1A; however, fewer piles are required and temporary impact duration would be shorter than that of Alternative 1A 	<ul style="list-style-type: none"> • Minor, short-term impacts from land clearing, excavation, and other construction equipment • Significant short-term impact from pile driving; noise attenuation measures would minimize this impact • Minor, long-term impact from traffic noise 	<ul style="list-style-type: none"> • Similar to Alternative 2B 	<ul style="list-style-type: none"> • No change to existing noise conditions would occur
Transportation	<ul style="list-style-type: none"> • Temporary traffic impacts during construction • Minor increase in traffic under operations • Minor beneficial impacts to existing pedestrian routes after construction 	<ul style="list-style-type: none"> • Similar to Alternative 1A 	<ul style="list-style-type: none"> • Temporary traffic and parking impacts during construction • Minor increase in traffic under operations • No impacts to pedestrian access after construction 	<ul style="list-style-type: none"> • Temporary traffic impacts during construction • Minor increase in traffic under operations • Impacts to pedestrian access (increased walking distance) 	<ul style="list-style-type: none"> • Similar to Alternative 2B 	<ul style="list-style-type: none"> • No impact to transportation

Table 2-1. Summary of Environmental Consequences						
Resource Area	Alternative 1A – Waffle Lot CCSS Building	Alternative 1B – Alumni Hall Lot CCSS Building	Alternative 2A – Alumni Hall Lot Parking Garage	Alternative 2B – Firehouse Site Parking Garage	Alternative 2C – Lawrence Field Parking Garage	No Action Alternative
Infrastructure and Utilities	<ul style="list-style-type: none"> No significant impacts to water supply, wastewater, electrical supply, fiber optic/ telecommunications, natural gas, or solid waste Existing switchgear and generator would be relocated and a small section of the existing waterline would be rerouted around the proposed switchgear and generator site 	<ul style="list-style-type: none"> Similar to Alternative 1A Water service lines would be rerouted; existing transformer and switch would need to be upgraded 	<ul style="list-style-type: none"> Similar to Alternative 1B 	<ul style="list-style-type: none"> Similar to Alternative 1A Existing water main would be relocated; upgrades to electrical system may be required 	<ul style="list-style-type: none"> Similar to Alternative 1A Existing water main, sewer line, storm drain, and electrical lines would be relocated; upgrades to electrical system may be required 	<ul style="list-style-type: none"> No change to infrastructure and utilities

Table 2-1. Summary of Environmental Consequences						
Resource Area	Alternative 1A – Waffle Lot CCSS Building	Alternative 1B – Alumni Hall Lot CCSS Building	Alternative 2A – Alumni Hall Lot Parking Garage	Alternative 2B – Firehouse Site Parking Garage	Alternative 2C – Lawrence Field Parking Garage	No Action Alternative
Cultural Resources	<ul style="list-style-type: none"> • No Effect to archaeological resources • Insufficient design information available to make a determination of effect on the USNA historic district and the Ferry Point Farm at this time • The Navy developed a Programmatic Agreement (PA) to assess effects • PA includes mitigation measures in case of an Adverse Effect 	<ul style="list-style-type: none"> • No Effect to archaeological resources • Adverse Effect (visual) to the integrity of the USNA historic district, the Colonial Annapolis Historic District, and the Peggy Stewart House • No Effect to the other historic properties in the APE 	<ul style="list-style-type: none"> • No Effect to archaeological resources • No Adverse Effect to the USNA historic district or the Colonial Annapolis Historic District • No Effect to the other historic properties in the APE 	<ul style="list-style-type: none"> • No Effect to archaeological resources • Adverse Effect to the USNA historic district – demolition of contributing features and diminished integrity from new visual elements in setting • No Adverse Effect to the Colonial Annapolis Historic District • No Effect to the other historic properties in the APE 	<ul style="list-style-type: none"> • No Effect to archaeological resources • Adverse Effect (visual) to the integrity of the USNA historic district • No Adverse Effect to the Colonial Annapolis Historic District • No Effect to the other historic properties in the APE 	<ul style="list-style-type: none"> • No impact to cultural resources

Table 2-1. Summary of Environmental Consequences						
Resource Area	Alternative 1A – Waffle Lot CCSS Building	Alternative 1B – Alumni Hall Lot CCSS Building	Alternative 2A – Alumni Hall Lot Parking Garage	Alternative 2B – Firehouse Site Parking Garage	Alternative 2C – Lawrence Field Parking Garage	No Action Alternative
Human Health and Safety	<ul style="list-style-type: none"> • Site security and worker and public safety would be managed in accordance with existing programs • Hazardous materials and wastes would be managed in accordance with existing plans and regulations • AT/FP features provided in compliance with AT/FP regulations, and physical security mitigation in accordance with Unified Facilities Criteria (UFC) 4-010-01 	<ul style="list-style-type: none"> • Same as Alternative 1A 	<ul style="list-style-type: none"> • Same as Alternative 1A; however, UFC 4-010-01 considers parking structures to be exempt from AT/FP provisions; modifications to existing buildings may be required to meet building standoff distances 	<ul style="list-style-type: none"> • Same as Alternative 2A 	<ul style="list-style-type: none"> • Same as Alternative 2A 	<ul style="list-style-type: none"> • Existing programs for public and worker safety and the management of hazardous materials and wastes would continue
Socioeconomic Resources	<ul style="list-style-type: none"> • No change in short- or long-term population • Short-term beneficial impact due to construction spending • Nominal long-term beneficial impact to payrolls due to additional staff 	<ul style="list-style-type: none"> • Similar to Alternative 1A 	<ul style="list-style-type: none"> • Similar to Alternative 1A 	<ul style="list-style-type: none"> • Similar to Alternative 1A 	<ul style="list-style-type: none"> • Similar to Alternative 1A 	<ul style="list-style-type: none"> • Existing socioeconomic conditions would continue

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3.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

This chapter presents the affected environment and the environmental consequences for the proposed action. The affected environment section under each resource topic describes the existing conditions of resources that could be affected by the project. The environmental consequences section under each resource topic analyzes the potential environmental impacts associated with each of the CCSS building and parking garage alternatives described in Chapter 2.

3.1 GEOLOGY, TOPOGRAPHY, AND SOILS

The affected environment for geology, topography, and soils includes those areas at the USNA that would be subject to ground-disturbing activities associated with the proposed construction.

3.1.1 Affected Environment

3.1.1.1 Geology

The USNA is located within the Atlantic Coastal Plain physiographic province, which is underlain by unconsolidated sediments containing sand, gravel, silt, and clay. These sediment deposits are thickest at the eastern side where they meet the Atlantic Continental Shelf. Sediment deposits within the Coastal Plain range in age from Triassic to Quaternary periods (Maryland Geological Survey 2014). Deposits in the project area include Quaternary (0–1 million years ago) Lowland deposits of sand, silt, gravel, clay and peat and Tertiary (1–63 million years ago) sands, clays, silts, greensand, and diatomaceous earth of the Aquia Formation (Maryland Geological Survey 1967 and 1968). Mineral resources of the Coastal Plain include sands and gravels, clay for brick, and iron ore (Maryland Geological Survey 2014). There are no known active fault lines in the Annapolis area.

3.1.1.2 Topography

The USNA is located along the Severn River near its juncture with the Chesapeake Bay. The proposed project area occupies a relatively low and flat topographical profile along the river with an elevation of approximately 5–25 feet above mean sea level. Alternatives 1A, 1B, and 2A are located on the south bank of College Creek and Alternatives 2B and 2C are located on the north bank of the creek. All of the alternative sites are located near the terminus of College Creek where it empties into the Severn River. The topography of this area is generally flat but some or all of the alternative sites may have been altered in the past by human activities associated with uses of the USNA.

3.1.1.3 Soils

Soils within the project area include the Annapolis-Urban land complex, Collington-Wist-Urban land complex, and Donlonton-Urban land complex, all with 0–5 percent slopes, as well as Urban land. Table 3.1-1 describes the soils within the proposed project area.

Table 3.1-1. Soils within the Proposed Project Area		
Soil Series	Prime/Statewide Important Farmland Soils	Description
Annapolis-Urban Land	No	Slopes are 0 to 5 percent. These soils are found on broad interstream divides. The parent material consists of glauconitic loamy fluviomarine deposits. The natural drainage class is well drained. This soil is not flooded or ponded. This soil does not meet hydric criteria. The Urban land component consists of human transported materials.
Collinton-Wist-Urban Land Complex	No	Slopes are 0 to 5 percent. These soils are found on broad interstream divides and interfluves. The parent material consists of glauconitic-bearing loamy fluviomarine deposits. The natural drainage class is well drained. This soil is not flooded or ponded. This soil does not meet hydric criteria. The Urban land component consists of human transported materials.
Donlonton-Urban Land Complex	No	Slopes are 0 to 5 percent. These soils are found in drainageways and swales. The parent material consists of glauconitic loamy fluviomarine deposits. The natural drainage class is moderately well drained. This soil is not flooded or ponded. This soil does not meet hydric criteria. The Urban land component consists of human transported materials.
Urban Land	No	The parent material consists of human transported materials.

Source: Natural Resources Conservation Service (NRCS) 2014.

Geotechnical studies were conducted at each of the alternative sites as part of a feasibility study for the CCSS building and parking garage (NSA Annapolis 2013a). The geotechnical studies conducted penetration test sound probes to determine the soil profile for each proposed alternative site. In addition, historical mapping and aerial photos were consulted to assist in determining landform changes and the presence of fill.

Alternative 1A – Waffle Lot CCSS Building Alternative

According to historical mapping, the northwest portion of the Waffle Lot was located in the Severn River prior to the late 1960s or 1970s and was filled at that time. Additional grading, placement of a road alignment along the shoreline, and removal and replacement of fill occurred on the rest of the site in the 1970s. A pile supported precast walkway is located along the north side of McNair Road. The walkway and facing panels were replaced and the deteriorated piles were encapsulated in 2014. A timber seawall, constructed in 1981, is located under the curb of McNair Road. This seawall was shored up with composite sheeting in 2009. A steel sheet pile and concrete beam seawall is also located between the Waffle Lot and Nimitz Library and was constructed in 2000 to arrest settlement of the lot (USNA Public Works Department 2014).

Soil borings at the Waffle Lot indicate the presence of granular fill layers of sand, gravel, shells, and debris to between approximately 10 and 25 feet across the site. Below this, pockets of loose to firm sand and silty sand (possible historic fill) were encountered above layers of underconsolidated clay. One boring encountered a hard surface, possibly old riprap or seawall (NSA Annapolis 2013a, Appendix B). Soils at the site are Urban Land (NRCS 2014).

Alternative 1B – Alumni Hall Lot CCSS Building Alternative

Soil borings were conducted at the lower lot of the Alumni Hall Lot site in April 2014. Borings indicated the presence of approximately 8–11 feet of sandy fill mixed with trace amounts of gravels and brick fragments, as well as concrete debris (ECS Mid-Atlantic 2014b). Obstructions associated with concrete underground reservoirs from a former water treatment plant were also noted in a previous geotechnical survey (NSA Annapolis 2013a, Appendix B). Soils at the site are categorized as Collington-Wist-Urban Land Complex with a very minor amount of Annapolis-Urban Land Complex (NRCS 2014).

Alternative 2A – Alumni Hall Lot Parking Garage Alternative

Soil borings conducted at the upper lot in April 2014 indicated the presence of approximately 8–12 feet of fill layers of mixed sandy soils with trace amounts of gravels and brick fragments (ECS Mid-Atlantic 2014b). Soils at the lower lot are described under Alternative 1B. Soils at the site are categorized as Collington-Wist-Urban Land Complex with a very minor amount of Annapolis-Urban Land Complex (NRCS 2014).

Alternative 2B – Firehouse Site Parking Garage Alternative

Soil borings at the Firehouse Site indicate the presence of fill layers of sand, mixed soils, and debris to a depth of approximately 5–6 feet. The water table was reached at 2-3 feet below the surface (NSA Annapolis 2013a, Appendix B). According to historical mapping, this area was located in the limits of shoreline prior to 1900, and may have been a tidal pool that was filled. Firm and dense sand was encountered below 17 feet in depth (NSA Annapolis 2013a, Appendix B). Soils at the site are categorized as Collington-Wist-Urban Land Complex and Donlonton-Urban Land Complex with minor amounts of Annapolis-Urban Land Complex (NRCS 2014).

Alternative 2C – Lawrence Field Parking Garage Alternative

Soil borings at the Lawrence Field site indicate the presence of 2–5 feet of fill layers of sand, silt, and clay, overlying sandy clay, silt, and clayey sand. Firm and dense sand was encountered beneath this stratum (NSA Annapolis 2013a, Appendix B). The Lawrence Field area appears to have been cut and filled to create a level grade with Halligan Hall in the early 1900s. Approximately 5 feet of soils were excavated in the area adjacent to Wainwright Road between 1913 and 1943. Portions of the field were also disturbed for the installation of porous drain tiles in 1922 (NSA Annapolis 2013d). Soils at the site are Annapolis-Urban Land Complex and Urban Land (NRCS 2014).

3.1.2 Environmental Consequences

3.1.2.1 Alternative 1A – Waffle Lot CCSS Building Alternative

Due to the nature of weak fill deposits in this location, deep pile foundations would be required for construction of the CCSS building at the Waffle Lot. Preliminary estimates indicate the piles would need to measure a minimum of 120 feet in length by 12 inches square or larger for driven piles and a minimum of 130 feet in length by 14 inches square or larger for auger cast piles, and would support a 100-ton or larger capacity (ECS Mid-Atlantic 2014a). Because the geology of this area comprises unconsolidated deposits of marine sands, gravels, silts, and clays, and due to the small area of impact, the deep pile foundations would not result in significant changes to the geology of this area under Alternative 1A. Similarly, no significant alterations to topography would be made under Alternative 1A.

Construction of the CCSS building at the Waffle Lot would disturb approximately 1.4 acres of land, most of which has been previously disturbed by the construction of an existing parking lot and an electrical

substation and emergency generator. Demolition activities would cause short-term impacts to soils in areas where the parking lot, substation, and generator would be demolished. Areas of new construction where there is currently grass in the east corner of the lot also would be subject to short-term impacts associated with clearing, grading, compaction, and potential erosion and sedimentation of exposed soils.

Appropriate Best Management Practices (BMPs), such as erosion control barriers, would be implemented during construction activities to prevent erosion of soils into the adjacent College Creek and Severn River. The relative flatness of the existing topography in conjunction with implementing BMPs would help prevent erosional soil impacts. In addition, the existing concrete seawall along the north side of the Waffle Lot would help to prevent runoff from directly impacting College Creek. Therefore, implementation of Alternative 1A would have no significant impacts to geology, topography, and soils from construction and demolition activities.

3.1.2.2 Alternative 1B – Alumni Hall Lot CCSS Building Alternative

Due to the nature of weak fill deposits on portions of this location, deep pile foundations would be required for construction of the CCSS building at the lower lot of the Alumni Hall Lot site. Preliminary estimates indicate that driven piles would need to measure a minimum of 60 feet in length by 12 inches square or larger on the western portion of the site and a minimum of 35 feet in length by 12 inches square or larger on the eastern portion. Auger grouted displacement piles would need to measure 65 feet in length by 16 inches in diameter. Both pile types would support a 75-ton capacity (ECS Mid-Atlantic 2014b). Because the geology of this area comprises unconsolidated deposits of marine sands, gravels, silts, and clays, and due to the small area of impact, the deep pile foundations would not result in significant changes to the geology of this area under Alternative 1B.

Although temporary site grade increases may be necessary under Alternative 1B, the upper two soil strata are expected to settle (NSA Annapolis 2013a, Appendix B). Therefore, there would be no significant changes to the topography under Alternative 1B.

Construction of the CCSS building at the lower lot would disturb approximately 1.1 acres of land, most of which has been previously disturbed by the construction of existing asphalt parking lots and by a former water treatment plant and underground concrete reservoir structures. Demolition activities would cause short-term impacts to soils in areas where the parking lot would be demolished and where the reservoirs would be removed. Areas of new construction where there is currently grass along the northwest edge, center, and south corner of the lower lot also would be subject to short-term impacts associated with clearing, grading, compaction, and potential erosion and sedimentation of exposed soils.

Appropriate BMPs, such as erosion control barriers, would be implemented during construction activities to prevent erosion of soils into the adjacent College Creek. The relative flatness of the existing topography in this location in conjunction with implementing BMPs would help prevent erosional soil impacts. Therefore, implementation of Alternative 1B would have no significant impacts to geology, topography, and soils from construction and demolition activities.

3.1.2.3 Alternative 2A – Alumni Hall Lot Parking Garage Alternative

Due to the nature of weak fill deposits in this location, deep pile foundations would be required for construction of the parking garage at the lower lot of the Alumni Hall Lot site. Impacts of the piles on the geology of the Alumni Hall Lot site would be the same as described for Alternative 1B. A deep foundation would not be necessary for rebuilding the surface parking lot at the upper lot of the site.

Under Alternative 2A, the lower lot would be excavated a few feet. The parking lot on the upper lot would remain at its current grade. Therefore, there would be a minor change to the topography of this area.

Construction would disturb approximately 1.9 acres of land, most of which has been previously disturbed by the construction of existing asphalt parking lots and by a former water treatment plant and underground concrete water reservoir structures. Short-term impacts of demolition activities under Alternative 2A would be identical to those described under Alternative 1B.

Appropriate BMPs, such as erosion control barriers, would be implemented and monitored during construction activities to prevent erosion of soils into the adjacent College Creek. The relative flatness of the existing topography in this location in conjunction with BMPs would help prevent erosional soil impacts. Therefore, implementation of Alternative 2A would have no significant impacts to geology, topography, and soils from construction and demolition activities.

3.1.2.4 Alternative 2B – Firehouse Site Parking Garage Alternative

Due to the nature of weak fill deposits in this location, deep concrete pile foundations would be required for construction of the parking garage at the Firehouse Site. Preliminary estimates indicate the piles would need to measure 65 feet in length by 12 inches square or larger, and would support a 75-ton capacity (NSA Annapolis 2013a). Because the geology of this area comprises unconsolidated deposits of marine sands, gravels, silts, and clays, and due to the small area of impact, the deep pile foundations would not result in significant changes to the geology of this area under Alternative 2B.

Under Alternative 2B, areas of the Firehouse Site with sloped grades may be increased to address flooding concerns (NSA Annapolis 2013a, Appendix B); however, these changes are not likely to result in significant impacts to topography.

Construction of the parking garage at the Firehouse Site would disturb approximately 1.2 acres of land, most of which is currently undeveloped. Demolition activities would cause short-term impacts to soils in areas where Circle Court and a portion of existing O'Hare Road would be demolished. Areas of new construction where there is currently grassy yard also would be subject to short-term impacts associated with clearing, grading, compaction, and potential erosion and sedimentation of exposed soils.

Appropriate BMPs, such as erosion control barriers, would be implemented during construction activities to prevent erosion of soils into the adjacent College Creek. The relative flatness of the existing topography in this location in conjunction with implementing BMPs would help prevent erosional soil impacts. Therefore, implementation of Alternative 2B would have no significant impacts to geology, topography, and soils from construction and demolition activities.

3.1.2.5 Alternative 2C – Lawrence Field Parking Garage Alternative

Due to the nature of weak fill deposits in this location, deep concrete pile foundations would be required for construction of the parking garage at Lawrence Field. Preliminary estimates indicate the piles would need to measure 70 feet in length by 12 inches square or larger, and would support a 75-ton capacity (NSA Annapolis 2013a). Because the geology of this area comprises unconsolidated deposits of marine sands, gravels, silts, and clays, and due to the small area of impact, the deep pile foundations would not result in significant changes to the geology of this area under Alternative 2C.

Under Alternative 2C, areas of the Lawrence Field site with sloped grades may be increased to address flooding concerns (NSA Annapolis 2013a, Appendix B); however, these changes are not likely to result in significant impacts to topography.

Construction of a parking garage at Lawrence Field would disturb approximately 2.7 acres of land, most of which is currently undeveloped and is utilized as ball fields. Areas of new construction where there are currently grassy yard areas and ball fields would be subject to short-term impacts associated with clearing, grading, compaction, and potential erosion and sedimentation of exposed soils.

Appropriate BMPs, such as erosion control barriers, would be implemented during construction activities to prevent erosion of soils into the adjacent College Creek. The relative flatness of the existing topography in this location in conjunction with implementing BMPs would help to prevent erosional soil impacts. Therefore, implementation of Alternative 2C would have no significant impacts to geology, topography, and soils from construction activities.

3.1.2.6 No Action Alternative

Under the No Action Alternative the CCSS building and parking garage would not be constructed at the USNA. Therefore, implementation of the No Action Alternative would have no impacts to geology, topography, or soils.

3.2 WATER RESOURCES

The affected environment for water resources includes those areas at the USNA that would be subject to ground-disturbing activities associated with proposed construction and demolition activities.

3.2.1 Affected Environment

3.2.1.1 Surface Water

The proposed alternative sites within the USNA occur within the College Creek watershed (Figure 3.2-1), which is a relatively small urban watershed that consists of more than 57 percent impervious surface and covers approximately 732 acres (Gagnon 1997). The Upper Yard is bound on the north by Shady Lake, on the east by the Severn River, and on the south by College Creek. The Lower Yard is bound on the north by College Creek, on the east by the Severn River, and on the south by Spa Creek. Stormwater within the College Creek watershed drains into College Creek, which in turn flows into the Severn River. The Severn River is considered an impaired water body and Total Maximum Daily Load limits have been established for fecal coliform, suspended sediment, and nutrients (nitrogen and phosphorus) (U.S. Environmental Protection Agency [USEPA] 2014).

The Clean Water Act (CWA) of 1972 (33 CFR Part 323) is the primary federal law that protects the nation's waters, including lakes, rivers, aquifers, and coastal areas. The primary objective of the CWA is to restore and maintain the integrity of the nation's waters. Waters of the U.S. are broadly defined to include navigable waters (including intermittent streams), impoundments, tributary streams, and wetlands. Areas meeting the waters of the U.S. definition are under the jurisdiction of the U.S. Army Corps of Engineers (USACE). Within Maryland, the Maryland Department of the Environment (MDE) is the administrative authority for water quality under the CWA.

Section 401 of the CWA requires an applicant for a federal license or permit to conduct any activity that may result in a discharge to waters of the U.S. to obtain certification that any discharges will comply with the Act, including water quality standard requirements, from the applicable state. Prior to discharging pollutants, the project proponent must seek a Water Quality Certification from the state in which the discharge will originate to ensure the discharge complies with applicable water quality standards. The MDE issues 401 water quality certifications for USEPA general permits. Section 404 of the CWA establishes a permit program for the discharge of dredge or fill into waters of the U.S.

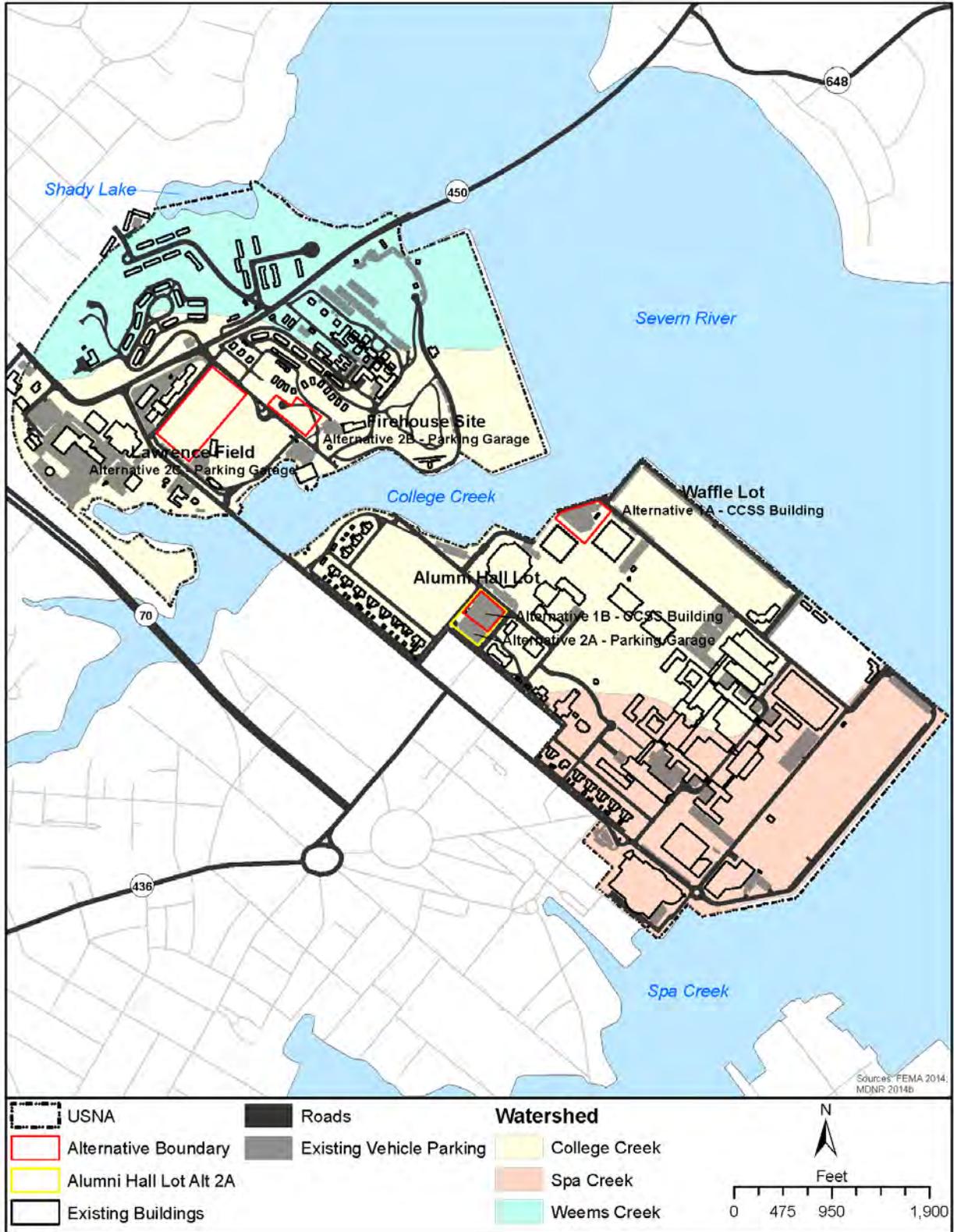


Figure 3.2-1. Watersheds

In addition, encroachment into waters of the U.S. requires a permit from the State and the federal government. Section 401 approval is typically a condition for Section 404 permit issuance.

All four alternative sites are within 500 feet of navigable surface waters, which are subject to the CWA, as described above. The Waffle Lot is the closest at approximately 30 feet from College Creek. The Waffle Lot is protected by a concrete seawall, and is separated from the seawall by a sidewalk and an existing roadway (McNair Road).

Wetlands are regulated under Sections 401 and 404 of the CWA and tidal wetlands are regulated jointly by MDE and the USACE. However, no wetlands have been identified within or immediately adjacent to the four proposed alternative sites by either the National Wetland Inventory or the MDNR and are therefore not discussed further.

3.2.1.2 Floodplains

EO 11988, *Floodplain Management*, instructs federal agencies to consider the risks, danger, and potential impacts from locating projects within floodplains, which are defined as the lowland and relatively flat areas adjoining inland waters subject to a 1 percent or greater chance of flooding in any given year, or the 100-year floodplain. The EO states that in instances where alternatives are impractical, the agency must minimize harm to or within the floodplain, and take appropriate steps to notify the public of the action or project. EO 11988 directs federal agencies to avoid construction in floodplains and establishes an eight-step process for analysis and public notice if development is unavoidable, including: (1) determine if a proposed action is in the base floodplain; (2) provide for public review; (3) identify and evaluate practicable alternatives to locating in the base floodplain; (4) identify the impacts of the proposed action; (5) minimize threats to life and property and to natural and beneficial floodplain values and restore and preserve natural and beneficial floodplain values; (6) re-evaluate alternatives; (7) issue findings and a public explanation; and (8) implement the action (NAVFAC Washington 2011b).

In addition, EO 13653, *Preparing the United States for the Impacts of Climate Change*, issued in November 2013, requires federal agencies to anticipate short- and long-term risks and vulnerabilities to climate change in order to proactively manage for risks to their operations and missions.

In February 2014, the DoD issued the memorandum Floodplain Management on Department of Defense Installations. The memo directs DoD components to minimize construction in 100-year floodplains consistent with EOs 11988 and 13653, DoD policy and regulations, and the Unified Facilities Criteria (UFC). In addition, DoD components are responsible for documenting on DoD Form 1391 that flood mitigation measures will be incorporated into the project when mission needs require construction within the 100-year floodplain, in addition to submission of the Joint Federal/State Application for the Alteration of Any Floodplain, Waterway, Tidal, or Nontidal Wetland in Maryland to the MDE for review and authorization. Furthermore, DoD components are required to annually certify that the appropriate flood damage vulnerability assessment has been completed for military construction projects sited within the 100-year floodplain (Under Secretary of Defense 2014).

The Alumni Hall Lot and Lawrence Field are not located within the 100-year floodplain; however, both the Waffle Lot and Firehouse Site are within the effective 100-year floodplain (Federal Emergency Management Agency 2014; MDNR 2014b), as depicted in Figure 3.2-2. These same two sites would be impacted by coastal flooding from storm surges and sea level rise, as depicted in Figure 3.2-3 and described below.

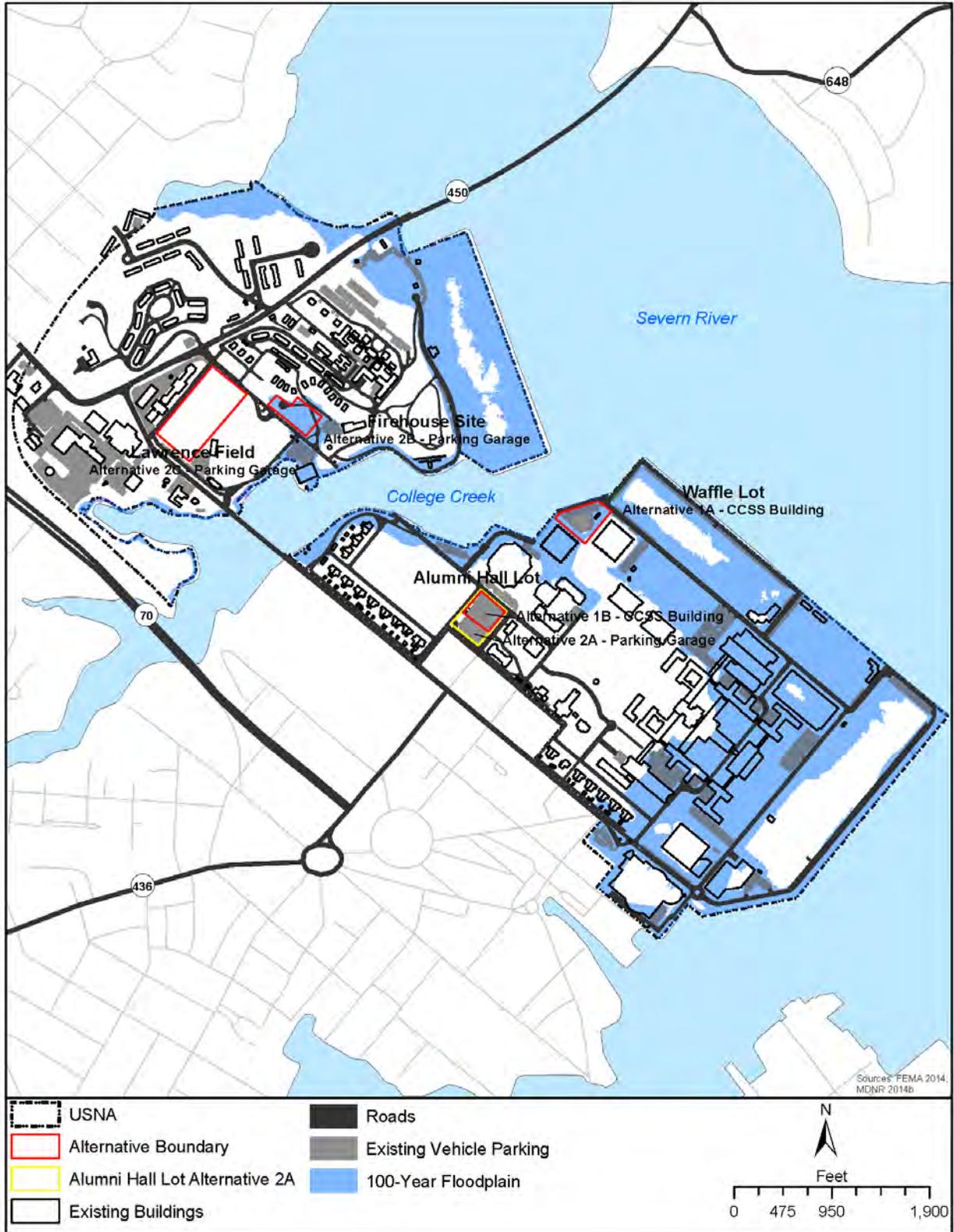


Figure 3.2-2. 100-Year Floodplain

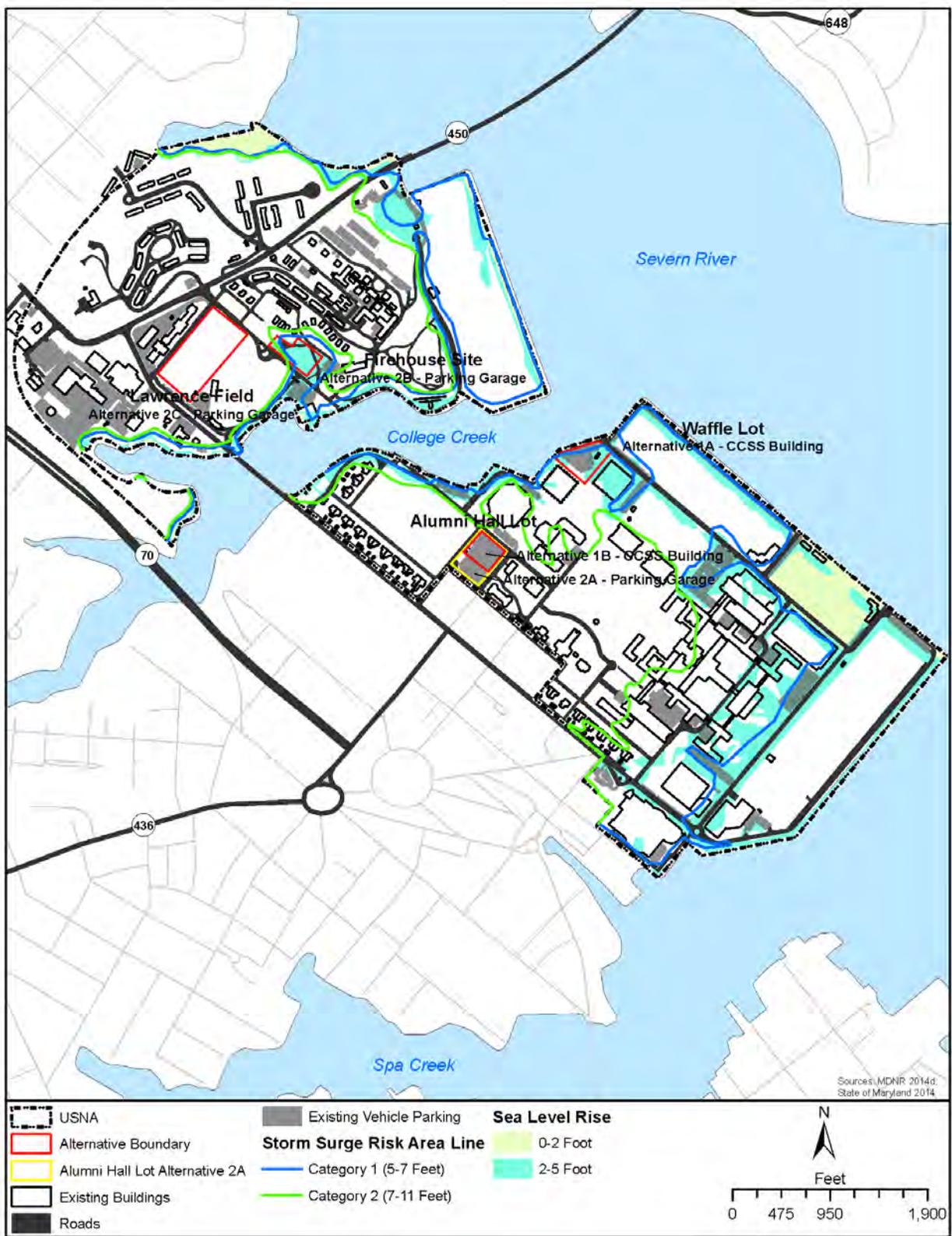


Figure 3.2-3. Storm Surge and Sea Level Rise

In the event of a storm surge associated with a Category 1 storm (storm surge of 5–7 feet), the entire Waffle Lot and the majority of the Firehouse Site would be inundated. During a Category 2 storm (storm surge of 7–11 feet), both sites would be entirely inundated. Neither the Alumni Hall Lot site nor the Lawrence Field site would be impacted during a Category 1 or Category 2 storm (MDNR 2014a). In addition to flooding as a result of episodic events, chronic flooding as a result of climate change is considered. Over the past several decades, sea levels and temperatures have risen at rates higher than historical averages (National Oceanic and Atmospheric Administration [NOAA] 2014). Based on data provided by the MDNR, a sea level rise of 2 to 5 feet would inundate the Waffle Lot with the exception of the center and the southwestern portion of the site. The majority of the Firehouse Site also would be inundated at a 2 to 5 foot sea level rise, with the exception of a small area in the northwestern portion of the site. Alumni Hall Lot and Lawrence Field are not projected to be impacted by a sea level rise of 5 feet or less (MDNR 2014a).

3.2.1.3 Groundwater

The principal federal regulation concerning the protection of groundwater is the Safe Drinking Water Act of 1974. This act was set forth to protect the nation’s public water supplies, including groundwater in areas where it is the main potable water source.

Groundwater at a given location is largely dictated by the geology of the area, but it is typically found in aquifers with high porosity soil where water can be stored between soil particles and within soil pore spaces. Located under the USNA (including the four proposed alternative sites), the Patapsco Aquifer is an important source of freshwater for the region east of Washington D.C. and Baltimore for water consumption, agricultural irrigation, and industrial applications. This particular aquifer is recharged over very long time periods, with a portion of the groundwater in this aquifer determined to be more than a million years old, the oldest recorded for a major aquifer on the Atlantic Coast. This aquifer continues to experience additional demand as saltwater intrusion concerns for more shallow aquifers has encouraged increased use of this deeper aquifer (U.S. Geological Survey 2012).

Threats to groundwater include: (a) surface contamination, which may be transported through precipitation to the underlying aquifer, and (b) over pumping groundwater, which results when groundwater withdrawal occurs more rapidly than recharge. MDE issues groundwater appropriation permits to ensure aquifers are not overexploited and to reduce the likelihood of saltwater intrusion (Heller and Grace 2009).

Drinking water for the USNA is provided from the Patapsco Aquifer, which is approximately 600 to 700 feet below the ground surface, by three groundwater wells located in the Upper Yard (NSA Annapolis 2012a). The NSA Annapolis Environmental Department monitors groundwater and implements a wellhead protection program, which manages the land surface around wells to ensure no surface activities impact water quality.

3.2.1.4 Coastal Zone

The USNA is located entirely within Maryland’s coastal zone, meaning USNA activities that are reasonably likely to affect use of lands, waters, or natural resources of the coastal zone beyond the boundaries of federal property must be consistent to the maximum extent practicable with the enforceable policies of Maryland’s Coastal Zone Management Program (CZMP) in accordance with the federal Coastal Zone Management Act (CZMA) of 1972. Maryland’s CZMP addresses coastal hazards, growth management, habitat and living resources, non-point source pollution, non-tidal wetlands, provision of public access, and tidal wetlands, and it encompasses several state laws and regulatory programs, of

which the CWA is specifically applicable to the proposed action. There are no delineated wetlands or critical areas at any of the proposed alternative sites.

Under the Stormwater Management Act of 2007, MDE established the stormwater management approval process, whereby environmental site design measures are to be implemented to the maximum extent practicable. This approach encourages the maintenance of pre-development runoff characteristics and protection of natural resources by integrating site design, natural hydrology, and small controls to capture and treat runoff. This approach is reinforced by the Energy Independence and Security Act of 2007, Section 438, which instructs federal agencies to “use site planning, design, construction, and maintenance strategies for the property to maintain or restore, to the maximum extent technically feasible, the pre-development hydrology of the property with regard to the temperature, rate,” for any project with a footprint exceeding 5,000 square feet. In summary, stormwater runoff from the site should be mitigated and the volume and peak rate of runoff should not increase as a result of developing the site (NAVFAC Washington 2014b).

USNA has approximately 4 miles of shoreline along the Severn River, College Creek, and Spa Creek—the proposed action would occur within the College Creek watershed. The site of Alternative 1A, the Waffle Lot, is adjacent to College Creek and is protected by a concrete seawall and separated by a sidewalk and McNair Road. The location and elevation of both the Waffle Lot and the Firehouse Site (Alternative 2B) place them entirely within the 100-year floodplain (refer to Section 3.2.1.3, *Floodplains*), which requires additional design considerations to account for likely inundation at these sites to ensure compliance with Maryland’s CZMP to the maximum extent practicable.

In accordance with Section 307 of the CZMA, the proposed action is analyzed for consistency with Maryland’s CZMP. A Memorandum of Understanding between the State of Maryland and the DoD, signed in May 2013, outlines the application and implementation of certain enforceable policies of Maryland’s CZMP for federal actions (refer to Appendix A, *Federal Coastal Consistency Determination*).

3.2.2 Environmental Consequences

3.2.2.1 Alternative 1A – Waffle Lot CCSS Building Alternative

Surface Water

The Waffle Lot is approximately 30 feet from College Creek. No surface waters are located on the Waffle Lot site; therefore, due to the seawall, construction of Alternative 1A would not have a direct impact on surface waters. The existing parking lot at the Waffle Lot would be removed and the underlying soil would be disturbed for construction of the CCSS building. However, impacts to surface waters (College Creek and Severn River) from erosion during construction would be avoided and minimized through compliance with CWA requirements and observance of the building permit process whereby earth disturbance of 5,000 SF or more and 100 cubic yards or more requires an Erosion and Sediment Control Plan (ESCP) and a stormwater management plan, which must be approved by MDE prior to the issuance of building or grading permits (MDE 2014).

All appropriate erosion and stormwater protections (i.e., silt fence, temporary seeding, storm drain inlet protection, construction entrance stabilization, and sediment retention basins) would be implemented prior to construction of the CCSS building in accordance with the requirements of the concomitant plan. There would be no significant impacts to water quality as a result of construction of the proposed action due to the implementation of these BMPs and through compliance with the requirements of the CWA, as described in Section 3.2.1.1, *Surface Water*. Operational impacts to surface waters would be negligible

since the existing conditions are already largely impervious. Therefore, implementation of Alternative 1A would have no significant impacts to surface water.

Floodplains

Implementation of Alternative 1A would result in impacts to the 100-year floodplain. Prior to the initiation of construction, NSA Annapolis would comply with the DoD memorandum (February 11, 2014), EO 13653, and EO 11988 to minimize impacts to the 100-year floodplain, the requirements for which are summarized in Section 3.2.1.2, *Floodplains*.

The Waffle Lot site would be inundated under the 2–5 foot sea level rise scenario and under a Category 1 and 2 storm scenario. Construction of the CCSS building at the Waffle Lot site would incorporate flood proofing to an elevation of 10.8 feet in order to minimize flooding impacts to the building. Flood proofing would consist of the installation of seals and backflow preventers at all utility penetrations on the exterior walls. Infrastructure for panelized flood battens would be installed and battens would be put in place to block lower level doors and windows prior to anticipated floods events (NSA Annapolis 2013a).

Under Alternative 1A, the CCSS building would have a footprint of approximately 1 acre; however, not all of the footprint would be located in the 100-year floodplain. During the data collection phase of the CCSS building feasibility study (NSA Annapolis 2013a), NSA Annapolis staff indicated the Waffle Lot site floods approximately one to two times a year. The feasibility study found the site has a base flow elevation of approximately 7 feet during a 100-year flood. The building would be designed to keep out flood water up to the 10.8 feet flood elevation and to resist hydrostatic pressures from the flood water level. The proposed plinth base for the CCSS building would minimize floodplain capacity loss, support landscape elements and/or a green roof, and would transport water to a remotely located cistern for stormwater management measures.

Implementation of Alternative 1A would result in impacts to floodplain capacity as the construction would displace potential floodplain volume; however, impacts to the floodplain would be minimized to less than significant through compliance with the eight-step process detailed in EO 11988. During the final design phase a technical study that assesses impacts of new construction on flood heights and threats to public safety would be prepared. If the results of the study indicate negligible impacts, then the Navy would conduct appropriate coordination regarding an application for floodplain modification. A modification application typically requires the results of the technical study, including: 1) determination that the modification request will not result in increased flood heights, threats to public safety, etc.; 2) a showing of good and sufficient cause; 3) evidence that failure to grant the requested modification will result in exceptional hardship; and 4) a showing that the modifications are the minimum necessary to afford relief. If the results of the technical study indicate the potential for increased flood heights, the Navy would conduct appropriate coordination regarding application for a floodplain boundary line revision. A boundary line revision application typically requires a certified engineering study with supporting hydrologic and hydraulic data justifying the proposed boundary line revision.

Groundwater

Under Alternative 1A, groundwater would be protected under the wellhead protection program managed by the NSA Annapolis Environmental Department. Additional demand for potable water would be provided by the existing wells, but would not result in substantial depletion of groundwater supplies or interfere with groundwater recharge. Therefore, implementation of Alternative 1A would have no significant impacts to groundwater.

Coastal Zone

The Waffle Lot site is close to the water's edge, separated from College Creek by a concrete seawall and McNair Road. The Waffle Lot primarily consists of an asphalt parking lot with a number of raised grass islands with concrete curbing located along the north and west sides of the lot. The site has been classified as predominantly consisting of pavement with a hydrologic soil group of Type D, meaning it is categorized as having the lowest infiltration rates (highest runoff). The drainage area covers approximately 2.14 acres, with 1.85 acres of existing impervious area. Since the existing site imperviousness of approximately 87 percent is greater than the 40 percent threshold for redevelopment classification, the construction of the CCSS building at the Waffle Lot must meet the stormwater management design requirements for "redevelopment."

Stormwater runoff is currently collected in storm inlets located throughout the parking lot and ultimately discharges into an 84-inch storm pipe located to the north of the site, which in turn discharges into Dorsey Creek. Under Alternative 1A, runoff is anticipated to be captured by a series of roof drains and area drains, and conveyed directly to the 84-inch storm pipe. Suitable environmental site design measures identified for this site include green roofs, rainwater harvesting, and submerged gravel wetlands. The implementation of such measures is anticipated to meet the minimum environmental site design volume to satisfy water quality requirements, but a waiver for channel protection volume requirements may be required. This waiver may be requested since the Waffle Lot discharges to tidally influenced receiving waters, under Section 3.3.B of the Maryland Stormwater Management Guidelines for State and Federal Projects (2010) (NAVFAC Washington 2014b).

Consistency with the CZMA would be ensured through implementation of the following processes and procedures:

- Coastal zone consistency determination process
- Adherence to CZMA and CZMA Maryland-DoD Memorandum of Understanding practices
- Permit submittals and issuance (i.e., stormwater management plans, erosion control plans, and National Pollutant Discharge Elimination System [NPDES] permits)
- Adherence to Navy Low Impact Development Policy, the Energy Independence and Security Act Section 438, the Stormwater Management Act of 2007, MDE's Maryland Stormwater Management Guidelines for State and Federal Projects (2010), Maryland Stormwater Management Design Manual, Volumes I and II (2009), and Maryland Erosion and Sediment Control Guidelines for State and Federal Projects (2004)

Through the use of environmental site design practices (i.e., green roof areas and rainwater cisterns), the proposed CCSS building at the Waffle Lot would satisfy the minimum environmental site design volume requirements for water quality and would ensure there is no increase in stormwater runoff generated by the 10-year, 24-hour storm event. The exact approach to the environmental site design would be determined during the design phase. In addition, all areas within the site that do not receive impervious materials from construction of the CCSS building would receive topsoil, fertilizer, and seed or plantings in accordance with the Soil Erosion and Sediment Control regulations and best practices for the growth of landscape material. All plants selected for landscaping would be regionally native plants. The Navy's selected contractor would employ a Landscape Architect registered in the State of Maryland who would prepare a Landscape Plan that is in accordance with the Installation Appearance Plan and would complement the existing campus landscaping.

Therefore, the Navy determined the proposed action is consistent to the maximum extent practicable with the enforceable policies of Maryland's CZMP and would have no significant impacts to coastal zone

resources (refer to Appendix A, *Federal Coastal Consistency Determination*). In accordance with Section 307 of the CZMA, the Navy submitted the Coastal Consistency Determination for the proposed action to the MDE. On April 3, 2015, the MDE concurred with the Navy's finding, contingent upon the Navy providing additional information to the MDE once the design plans for the project are more fully developed (refer to Appendix C, *Agency Correspondence*).

In conclusion, implementation of Alternative 1A would have no significant impacts to surface waters, groundwater, and coastal zone resources, and less than significant impacts to floodplains.

3.2.2.2 Alternative 1B – Alumni Hall Lot CCSS Building Alternative

Surface Water

The Alumni Hall Lot is approximately 335 feet south of College Creek. Alternative 1B would result in the construction of a five-story, 206,000 SF building in the place of a 147-space surface parking lot. Alternative 1B would not have any direct impacts on surface waters. Potential indirect impacts to surface waters from construction and operation would be avoided and minimized through the same procedures described in the Surface Water discussion under Section 3.2.2.1. The existing oil/water separator, permeable paver crosswalk, and bioretention area along the northwest corner of the Alumni Hall Lot would be removed and either replaced on-site or elsewhere on the Yard; their specific location(s) would be determined through consultation with MDE to ensure adequate stormwater treatment for the site (refer to Appendix A, *Federal Coastal Consistency Determination*, for details). Therefore, implementation of Alternative 1B would have no significant impacts to surface waters.

Floodplains

The Alumni Hall Lot is located outside the 100-year floodplain and would not be impacted under 2–5 foot sea level rise or a Category 1 or 2 storm scenario. There would be no long-term adverse alteration of existing drainage patterns or creation or modification of flood hazard conditions in a manner that endangers people or structures. The existing oil/water separator, permeable paver crosswalk, and bioretention area along the northwest corner of the site would be removed and either replaced on-site or elsewhere on the Yard; their specific location(s) would be determined through consultation with MDE to ensure there would be no adverse impacts to surrounding drainage patterns (refer to Appendix A, *Federal Coastal Consistency Determination*, for details). Therefore, implementation of Alternative 1B would have no significant impacts to floodplains.

Groundwater

Potential impacts to groundwater would be minimized through the same procedures identified under Alternative 1A for groundwater (refer to Section 3.2.2.1, *Alternative 1A – Waffle Lot CCSS Building Alternative*). Therefore, implementation of Alternative 1B would have no significant impacts to groundwater.

Coastal Zone

The proposed action under Alternative 1B occurs at the Alumni Hall Lot, and is a proposed site for both the CCSS building and a parking garage. The Alumni Hall Lot is situated entirely outside the 100-year floodplain.

Potential impacts to the coastal zone would be minimized through implementation of the same procedures discussed under Alternative 1A for the Coastal Zone.

The Navy determined the proposed action is consistent to the maximum extent practicable with the enforceable policies of Maryland's CZMP and would have no significant impacts to coastal zone resources (refer to Appendix A, *Federal Coastal Consistency Determination*). In accordance with Section 307 of the CZMA, the Navy submitted the Coastal Consistency Determination for the proposed action to the MDE. On April 3, 2015, the MDE concurred with the Navy's finding, contingent upon the Navy providing additional information to the MDE once the design plans for the project are more fully developed (refer to Appendix C, *Agency Correspondence*).

In conclusion, implementation of Alternative 1B would have no significant impacts to surface waters, floodplains, groundwater, and coastal zone resources.

3.2.2.3 Alternative 2A – Alumni Hall Lot Parking Garage Alternative

Surface Water

The potential impacts to surface waters under Alternative 2A would be the same as those described for Alternative 1B. Therefore, implementation of Alternative 2A would have no significant impacts to surface waters.

Floodplains

Potential impacts to floodplains under Alternative 2A would be the same as those described for Alternative 1B. Therefore, implementation of Alternative 2A would have no significant impacts to floodplains.

Groundwater

Potential impacts to groundwater would be minimized through the same procedures discussed under Alternative 1A for groundwater. Therefore, implementation of Alternative 2A would have no significant impacts to groundwater.

Coastal Zone

The proposed action under Alternative 2A occurs at the Alumni Hall Lot, and is a proposed site for both a parking garage and the CCSS building. The Alumni Hall Lot is situated entirely outside the 100-year floodplain.

The Alumni Hall Lot is within an urban environment where the proposed parking garage would not significantly increase the impervious area of the site. Alternative 2A would include two micro-bioretenion facilities and the installation of permeable pavement in the upper lot. These stormwater management measures would meet MDE's water quality and quantity requirements for "redevelopment" for ground disturbance greater than 5,000 square feet.

Potential impacts to the coastal zone would be minimized through implementation of the same procedures discussed under Alternative 1A for the Coastal Zone.

The Navy determined the proposed action is consistent to the maximum extent practicable with the enforceable policies of Maryland's CZMP and would not result in significant impacts to coastal zone resources (refer to Appendix A, *Federal Coastal Consistency Determination*). In accordance with Section 307 of the CZMA, the Navy submitted the Coastal Consistency Determination for the proposed action to the MDE. On April 3, 2015, the MDE concurred with the Navy's finding, contingent upon the Navy

providing additional information to the MDE once the design plans for the project are more fully developed (refer to Appendix C, *Agency Correspondence*).

In conclusion, implementation of Alternative 2A would have no significant impacts to surface waters, floodplains, groundwater, and coastal zone resources.

3.2.2.4 Alternative 2B – Firehouse Site Parking Garage Alternative

Surface Water

The closest surface water to the Firehouse Site is College Creek, which is located approximately 210 feet to the south. Alternative 2B, therefore, would have no direct impacts on surface water. Potential indirect impacts to surface waters from construction would be avoided and minimized through the same procedures discussed under Alternative 1A for groundwater (refer to Section 3.2.2.1, *Alternative 1A – Waffle Lot CCSS Building Alternative*). The parking garage would increase impervious surfaces, as presently the Firehouse Site mostly comprises maintained lawn. On-site runoff from the increase in impervious surfaces would be managed under a stormwater management plan. The stormwater management plan would manage stormwater by using environmental site design practices to the maximum extent practicable to reduce stream channel erosion, pollution, siltation, sedimentation, and local flooding. Therefore, implementation of Alternative 2B would have no significant impacts to surface water.

Floodplains

Implementation of Alternative 2B would result in direct impacts to the 100-year floodplain. Potential impacts to floodplains from construction and operation would be minimized through the same procedures described under Alternative 1A for floodplains (refer to Section 3.2.2.1, *Alternative 1A – Waffle Lot CCSS Building Alternative*). Additionally, flood-proofing measures would be incorporated into the construction of the parking garage to minimize flooding impacts. These measures would include: flood proofing lower level walls to an elevation of 10.8 feet; installation of a thick floor slab to resist buoyant forces from the underlying water table; effective waterproofing of the slab and walls; installation of a pump system at the lower level to address any possible water intrusion; flood proofing of lower level personnel doors and vehicle entrances; and ongoing maintenance to ensure flood proofing remains effective.

Implementation of Alternative 2B would result in impacts to floodplain capacity as the construction would displace potential floodplain volume; however, impacts to the floodplain would be minimized to less than significant through compliance with the eight-step process detailed in EO 11988. During the final design phase a technical study that assesses impacts of new construction on flood heights and threats to public safety would be prepared. If the results of the study indicate negligible impacts, then the Navy would conduct appropriate coordination regarding an application for floodplain modification. A modification application typically requires the results of the technical study, including: 1) determination that the modification request will not result in increased flood heights, threats to public safety, etc.; 2) a showing of good and sufficient cause; 3) evidence that failure to grant the requested modification will result in exceptional hardship; and 4) a showing that the modifications are the minimum necessary to afford relief. If the results of the technical study indicate the potential for increased flood heights, the Navy would conduct appropriate coordination regarding application for a floodplain boundary line revision. A boundary line revision application typically requires a certified engineering study with supporting hydrologic and hydraulic data justifying the proposed boundary line revision.

Groundwater

Potential impacts to groundwater would be minimized through the same procedures discussed under Alternative 1A for groundwater (refer to Section 3.2.2.1, *Alternative 1A – Waffle Lot CCSS Building Alternative*). Therefore, implementation of Alternative 2B would have no significant impacts to groundwater.

Coastal Zone

The Firehouse Site is situated entirely within the 100-year floodplain. Impervious areas under current conditions are less than 40 percent of the project site, so the construction of the parking garage at the Firehouse Site would be classified as new development, which means runoff treatment requirements (1 to 2.6 inches of rainfall for the newly developed impervious area) would need to be met through design considerations. Possible treatment options include: reduction of existing impervious area within the proposed project limits; conservation of natural drainage patterns; use of permeable pavement; maintaining 100 percent of the annual predevelopment groundwater discharge and limiting soil disturbance, mass grading, and compaction; installation of landscape infiltration, micro-bioretenion, rain gardens, or vegetated swales; capture of roof drainage in cisterns for rainwater harvesting and reuse for irrigation of the ball field northeast of Bishop Stadium (in conjunction with an oil/water separator or water quality unit). However, given limited space availability, alternative options would be explored, including on-site or off-site stormwater filtering systems in consultation with MDE (NSA Annapolis 2013a).

Potential impacts to the coastal zone would be minimized through implementation of the same procedures identified under Alternative 1A for the Coastal Zone.

The Navy determined the proposed action is consistent to the maximum extent practicable with the enforceable policies of Maryland's CZMP and would not result in significant impacts to coastal zone resources (refer to Appendix A, *Federal Coastal Consistency Determination*). In accordance with Section 307 of the CZMA, the Navy submitted the Coastal Consistency Determination for the proposed action to the MDE. On April 3, 2015, the MDE concurred with the Navy's finding, contingent upon the Navy providing additional information to the MDE once the design plans for the project are more fully developed (refer to Appendix C, *Agency Correspondence*).

In conclusion, implementation of Alternative 2B would have no significant impacts to surface waters, groundwater, and coastal zone resources, and less than significant impacts to floodplains.

3.2.2.5 Alternative 2C – Lawrence Field Parking Garage Alternative

Surface Water

Lawrence Field is approximately 440 feet from the closest surface water. Alternative 2C, therefore, would not have a direct impact on surface waters. Potential indirect impacts to adjacent surface waters resulting from construction and operation would be avoided and minimized through the same procedures discussed under Alternative 1A for groundwater (refer to Section 3.2.2.1, *Alternative 1A – Waffle Lot CCSS Building Alternative*). Therefore, implementation of Alternative 2C would have no significant impacts to surface water.

Floodplains

Lawrence Field is located outside of the 100-year floodplain and would not be impacted by a 2–5 foot sea level rise or a Category 1 or 2 storm scenario. There would be no long-term adverse alteration of existing

drainage patterns or creation or modification of flood hazard conditions in a manner that endangers people or structures. Therefore, implementation of Alternative 2C would have no significant impacts to floodplains.

Groundwater

Potential impacts to groundwater would be minimized through the same procedures discussed under Alternative 1A for groundwater (refer to Section 3.2.2.1, *Alternative 1A – Waffle Lot CCSS Building Alternative*). Therefore, implementation of Alternative 2C would have no significant impacts to groundwater.

Coastal Zone

Lawrence Field is situated entirely outside the 100-year floodplain. Impervious areas under current conditions are less than 40 percent of the project site, so the construction of the parking garage at Lawrence Field would be classified as new development, which means runoff treatment requirements (1 to 2.6 inches of rainfall for the newly developed impervious area) would need to be met through design considerations.

Potential impacts to the coastal zone would be minimized through implementation of the same procedures identified under Alternative 1A for the Coastal Zone.

The Navy determined the proposed action is consistent to the maximum extent practicable with the enforceable policies of Maryland's CZMP and would have no significant impacts to coastal zone resources (refer to Appendix A, *Federal Coastal Consistency Determination*). In accordance with Section 307 of the CZMA, the Navy submitted the Coastal Consistency Determination for the proposed action to the MDE. On April 3, 2015, the MDE concurred with the Navy's finding, contingent upon the Navy providing additional information to the MDE once the design plans for the project are more fully developed (refer to Appendix C, *Agency Correspondence*).

In conclusion, implementation of Alternative 2C would have no significant impacts to surface waters, floodplains, groundwater, and coastal zone resources.

3.2.2.6 No Action Alternative

Under the No Action Alternative, the CCSS building and parking garage would not be constructed at the USNA. Therefore, implementation of the No Action Alternative would have no impacts to surface waters, wetlands, floodplains, groundwater, or coastal zone resources.

3.3 BIOLOGICAL RESOURCES

The affected environment for biological resources includes the USNA and adjacent tidal waters.

3.3.1 Affected Environment

3.3.1.1 Vegetation

The land within the Upper and Lower Yards is largely developed. Approximately 80 percent of the main campus consists of buildings, parking areas, and roads, or is intensely managed with athletic fields and parade grounds (Naval Facilities Engineering Command [NAVFAC] Washington 2011b). There are no forests within the proposed alternative sites. A complete inventory of the 200-plus trees within the USNA was conducted in 2008. The inventory revealed that 26 species comprise 69 percent of the trees on the

Upper and Lower Yards. The trees present on or adjacent to the alternative sites areas were primarily planted for aesthetics, as street trees, or as shade trees. The trees include tulip poplar (*Liriodendron tulipifera*), red maple (*Acer rubrum*), silver maple (*Acer saccharinum*), flowering dogwood (*Cornus florida*), and white pine (*Pinus strobus*) (NAVFAC Washington 2011b).

The proximity of the alternative sites to tidal waters makes indirect impacts to submerged aquatic vegetation (SAV) from sediment runoff or increased stormwater a concern. SAV includes benthic macroalgae and seagrasses that grow from underwater surfaces. Due to the valuable functions SAV provides as sediment traps, energy and nutrient attenuators, oxygenators, and as food and habitat for blue crabs, juvenile rockfish, and other aquatic species, SAV is considered a Special Aquatic Site under 40 CFR Part 230, Section 404(b)(1) (Virginia Institute of Marine Science 2014). NOAA documented an SAV species, clasping-leaved pondweed (*Potamogeton perfoliatus*), immediately north of the Waffle Lot in College Creek (NAVFAC Washington 2011b).

3.3.1.2 Wildlife

The four alternative sites are located on developed or highly maintained land and are surrounded by a dense urban environment. As a result, wildlife is largely limited to small mammals, reptiles, amphibians, and birds. Mammals likely to be found on-site include gray squirrels (*Sciurus carolinensis*), meadow voles (*Microtus pennsylvanicus*), moles (*Talpidae*), house mice (*Mus musculus*), raccoons (*Procyon lotor*), skunks (*Mephitidae*), and other small mammals able to tolerate human activities in urbanized and semi-urbanized environments (DoN 2010a).

Birds found within the USNA or in the vicinity comprise regionally common birds, such as house sparrow (*Passer domesticus*), house finch (*Carpodacus mexicanus*), blue jay (*Cyanocitta cristata*), American crow (*Corvus brachyrhynchos*), rock pigeon (*Columba livia*), mourning dove (*Zenaida macroura*), Carolina chickadee (*Poecile carolinensis*), chimney swift (*Chaetura pelagica*), European starling (*Sturnus vulgaris*), northern mockingbird (*Mimus polyglottos*), American robin (*Turdus migratorius*), and northern cardinal (*Cardinalis cardinalis*). Birds typically found in open water habitats are also found within the USNA. The most commonly sighted are sandpiper and tern species (*Calidris* spp. and *Sterna* spp., respectively) and Canada geese (*Branta canadensis*) (NAVFAC Washington 2011b).

The Migratory Bird Treaty Act (MBTA) was designed to protect migratory birds (including their eggs, nests, and feathers) and their habitats. Migratory birds are a large, diverse group of species and portions of Maryland serve as an important stopover for their breeding and overwintering, especially wintering waterfowl and wading birds in summer (NAVFAC Washington 2011b). Several returning pairs of ospreys (*Pandion haliaetus*) have been nesting on nearby buildings and lighting structures at USNA (NSA Annapolis 2014c). Migratory bird species may also be found in the vicinity during spring and fall migrations.

3.3.1.3 Rare, Threatened, and Endangered Species

Special-status species include plant and animal species that are listed or proposed for listing as threatened and endangered by the U.S. Fish and Wildlife Service (USFWS) under the federal Endangered Species Act (ESA) (16 U.S.C. 1531 et seq.) and by the State of Maryland. The federal ESA provides for the conservation of threatened and endangered species of plants and animals and the habitats where they are found.

The four alternative sites have been highly disturbed and are regularly maintained and surrounded by an urban environment. Field investigations of NSA Annapolis conducted in 2005 did not identify any federally listed threatened, endangered, or candidate species (DoN 2010a).

According to the USFWS Chesapeake Bay Field Office's Information, Planning, and Conservation System, no federally proposed or listed endangered or threatened species are known to exist within the proposed alternative sites. In addition, no critical habitat is located within the four alternative sites. The Maryland Department of Natural Resources, Wildlife and Heritage Service has determined that there are no State or federal records for rare, threatened, or endangered species within the alternative sites (USFWS 2014).

3.3.2 Environmental Consequences

3.3.2.1 Alternative 1A – Waffle Lot CCSS Building Alternative

Vegetation

Under Alternative 1A, all vegetation on the existing Waffle Lot would be removed. Currently vegetation is limited to grass and a few trees in the eastern portion of the site, and shrubs lining McNair Road. As the site is within an urban environment, on-site vegetation is scarce and is maintained, resulting in a low functional value. After construction is completed, any available area at the site would be replanted with plant materials from the plant list included in the Installation Appearance Plan (NSA Annapolis 2008) to be consistent with surrounding areas. Therefore, it is anticipated that implementation of Alternative 1A would have no significant impacts to vegetation.

Wildlife

The Waffle Lot consists of a parking lot with grass and a few trees in the eastern portion of the site and shrubs lining McNair Road. While the existing vegetation provides some minimal foraging potential for wildlife, it provides very little suitable habitat. No nests of MBTA-protected species have been observed at the Waffle Lot site. Therefore, it is expected that implementation of Alternative 1A would have no significant impacts to wildlife, migratory birds, or wildlife habitat.

Rare, Threatened, and Endangered Species

USFWS records indicate there are no rare, threatened, or endangered species known to exist within the Waffle Lot site. In addition, the site is a parking lot located in an urbanized environment, so it is unlikely the status of the site would change. The Navy has determined that Alternative 1A would not affect threatened or endangered species or designated critical habitat protected under the ESA. In correspondence dated February 20, 2015, the USFWS indicated they had no comments on the proposed action (Appendix C, *Agency Correspondence*). Alternative 1A would not affect state listed rare, threatened, or endangered species or their habitat. MDNR Wildlife and Heritage Service concurred with this finding in a letter dated September 17, 2014 (Appendix C, *Agency Correspondence*).

In conclusion, implementation of Alternative 1A would have no significant impacts to vegetation or wildlife or their habitat and no impacts to rare, threatened, or endangered species.

3.3.2.2 Alternative 1B – Alumni Hall Lot CCSS Building Alternative

Vegetation

Under Alternative 1B, all vegetation within the lower lot of the Alumni Hall Lot would be removed. Currently, vegetation on the lower lot is limited to strips of maintained grass, trees, and shrubs. As the site is within an urban environment, on-site vegetation is scarce and is maintained, resulting in a low functional value. After construction is completed, any available area at the site would be replanted with plant materials from the plant list included in the Installation Appearance Plan (NSA Annapolis 2008) to be consistent with surrounding areas. Therefore, it is expected that implementation of Alternative 1B would have no significant impacts to vegetation.

Wildlife

Currently, habitat on the lower lot is limited to strips of maintained grass, trees, and shrubs. As a result of the surrounding urbanized environment and the scarcity of vegetation on-site, the existing vegetation provides minimal foraging potential for wildlife and very little suitable habitat. No nests of MBTA-protected species have been observed at the Alumni Hall Lot site. Therefore, it is anticipated that implementation of Alternative 1B would have no significant impacts to wildlife, migratory birds, or wildlife habitat.

Rare, Threatened, and Endangered Species

USFWS records indicate there are no rare, threatened, or endangered species known to exist within the Alumni Hall Lot site. In addition, the site is a parking lot located in an urbanized environment, so it is unlikely the status of the site would change. The Navy has determined that Alternative 1B would not affect threatened or endangered species or designated critical habitat protected under the ESA. In correspondence dated February 20, 2015, the USFWS indicated they had no comments on the proposed action (Appendix C, *Agency Correspondence*). Alternative 1B would not affect state listed rare, threatened, or endangered species or their habitat. MDNR Wildlife and Heritage Service concurred with this finding in a letter dated September 17, 2014 (Appendix C, *Agency Correspondence*). In conclusion, implementation of Alternative 1B would have no significant impacts to vegetation or wildlife or their habitat and no impacts to rare, threatened, or endangered species.

3.3.2.3 Alternative 2A – Alumni Hall Lot Parking Garage Alternative

Vegetation

Under Alternative 2A, all vegetation within the lower and upper lots of the Alumni Hall Lot would be removed. Currently vegetation on the site is limited to strips of maintained grass, trees, and shrubs. As the site is within an urban environment, on-site vegetation is scarce and is maintained, resulting in a low functional value. After construction is completed, any available area at the site would be replanted with plant materials from the plant list included in the Installation Appearance Plan (NSA Annapolis 2008) to be consistent with surrounding areas. Therefore, it is expected that implementation of Alternative 2A would have no significant impacts to vegetation.

Wildlife

Vegetation is limited to strips of maintained grass, trees, and shrubs along the perimeter of the upper and lower lots. While the existing vegetation provides some minimal foraging potential for wildlife; it provides very little suitable habitat. No nests of MBTA-protected species have been observed at the

Alumni Hall Lot site. Therefore, it is expected that implementation of Alternative 2A would have no significant impacts to wildlife, migratory birds, or wildlife habitat.

Rare, Threatened, and Endangered Species

USFWS records indicate there are no rare, threatened, or endangered species known to exist within the Alumni Hall Lot site. In addition, the site is a parking lot located in an urbanized environment, so it is unlikely the status of the site would change. The Navy has determined that Alternative 2A would not affect threatened or endangered species or designated critical habitat protected under the ESA. In correspondence dated February 20, 2015, the USFWS indicated they had no comments on the proposed action (Appendix C, *Agency Correspondence*). Alternative 2A would not affect state listed rare, threatened, or endangered species or their habitat. MDNR Wildlife and Heritage Service concurred with this finding in a letter dated September 17, 2014 (Appendix C, *Agency Correspondence*).

In conclusion, implementation of Alternative 2A would have no significant impacts to vegetation or wildlife or their habitat and no impacts to rare, threatened, or endangered species.

3.3.2.4 Alternative 2B – Firehouse Site Parking Garage Alternative

Vegetation

Under Alternative 2B, the footprint of the parking garage would encompass the entirety of the Firehouse Site, resulting in removal of the existing vegetation. The site is primarily vegetated with maintained grass and a few trees; only a small portion of it includes an impervious surface. On-site vegetation is maintained and surrounded by an urban environment, resulting in a low functional value. Therefore, it is anticipated that implementation of Alternative 2B would have no significant impacts to vegetation.

Wildlife

The Firehouse Site is primarily vegetated with only a small portion of it comprised of an impervious surface. Vegetation is maintained grass with a few trees. While the existing vegetation provides some minimal foraging potential for wildlife, it provides very little suitable habitat. There have been several MBTA-protected birds observed at the Firehouse Site. However, no nests have been found in detrimental places. Therefore, it is expected that implementation of Alternative 2B would have no significant impacts to wildlife, migratory birds, or wildlife habitat.

Rare, Threatened, and Endangered Species

USFWS records indicate there are no rare, threatened, or endangered species known to exist within the Firehouse Site. In addition, the site is located in an urbanized environment, so it is unlikely the status of the site would change. The Navy has determined that Alternative 2B would not affect threatened or endangered species or designated critical habitat protected under the ESA. In correspondence dated February 20, 2015, the USFWS indicated they had no comments on the proposed action (Appendix C, *Agency Correspondence*). Alternative 2B would not affect state listed rare, threatened, or endangered species or their habitat. MDNR Wildlife and Heritage Service concurred with this finding in a letter dated September 17, 2014 (Appendix C, *Agency Correspondence*).

In conclusion, implementation of Alternative 2B would have no significant impacts to vegetation or wildlife or their habitat and no impacts to rare, threatened, or endangered species.

3.3.2.5 Alternative 2C – Lawrence Field Parking Garage Alternative

Vegetation

Under Alternative 2C, the proposed action would convert the existing playing fields into a parking garage, resulting in removal of the existing vegetation. The site is almost entirely vegetated, consisting of maintained grass and trees at the southwest end. On-site vegetation is maintained and surrounded by an urban environment, resulting in a low functional value. Therefore, it is expected that implementation of Alternative 2C would have no significant impacts to vegetation.

Wildlife

Under Alternative 2C, most of the wildlife habitat, of which very little is suitable, on the Lawrence Field site would be removed. Habitat on the Lawrence Field site consists of maintained grass with a few trees at the southwest edge. It provides some minimal foraging potential for wildlife and is primarily limited to a corridor for transient species, which pass through the site. There are other maintained grass areas in the vicinity, such as Forrest Sherman Field, which provide similar habitat to the Lawrence Field site. No nests of MBTA-protected species have been observed at the Lawrence Field site. Therefore, it is anticipated that implementation of Alternative 2C would have no significant impacts to wildlife, migratory birds, or wildlife habitat.

Rare, Threatened, and Endangered Species

USFWS records indicate there are no rare, threatened, or endangered species known to exist within the Lawrence Field site. In addition, the site comprises athletic fields with few trees and is located in an urbanized environment. The Navy has determined that Alternative 2C would not affect threatened or endangered species or designated critical habitat protected under the ESA. In correspondence dated February 20, 2015, the USFWS indicated they had no comments on the proposed action (Appendix C, *Agency Correspondence*). Alternative 2C would not affect state listed rare, threatened, or endangered species or their habitat. MDNR Wildlife and Heritage Service concurred with this finding in a letter dated September 17, 2014 (Appendix C, *Agency Correspondence*).

In conclusion, implementation of Alternative 2C would have no significant impacts to vegetation or wildlife or their habitat and no impacts to rare, threatened, or endangered species.

3.3.2.6 No Action Alternative

Under the No Action Alternative, the CCSS building and parking garage would not be constructed at the USNA. Therefore, implementation of the No Action Alternative would have no impacts to vegetation, wildlife or their habitat, or rare, threatened, or endangered species.

3.4 LAND USE

The affected environment for land use includes the USNA. Land use potentially impacted by the proposed action has been specifically set aside for USNA goals and objectives, with community use of buildings and features affected by the proposed action being limited and temporary in nature, as described for each alternative under Section 3.4.2, *Environmental Consequences*.

3.4.1 Affected Environment

Land use refers to the various ways in which land is developed and used, typically in terms of the types of activities allowed and the type and use of structures permitted. Land use management plans, policies,

ordinances, and regulations determine the type and extent of allowable land use in specific areas to limit conflicting land uses and protect specially designated or environmentally sensitive areas. Land use classifications refer to the current and recommended future use of land. Land uses within the USNA include the following:

- Base support – administrative and public works facilities
- Medical support
- Sailor and family support – facilities that support military personnel and their dependents, including housing and community support (i.e., schools, health clinics, fitness centers, and Morale, Welfare, and Recreation facilities)
- Training support – facilities used to train Midshipman (academic and athletic) (NAVFAC Washington 2012b)

The land within the Upper and Lower Yards is largely developed, with no forests, conservation areas, or delineated wetlands within or immediately adjacent to the footprints for the four proposed alternative sites.

The proposed locations for the CCSS building under Alternative 1A at the Waffle Lot, and the CCSS building and parking garage under Alternatives 1B and 2A at the Alumni Hall Lot are within the AT/FP setbacks. New facilities within these setbacks must comply with UFC 4-010-01, DoD Minimum Antiterrorism Standards for Buildings.

The proposed locations for the CCSS building under Alternative 1A at the Waffle Lot, the CCSS building and parking garage under Alternative 1B and 2A at the Alumni Hall Lot, and the parking garage under Alternative 2C at Lawrence Field are categorized as training support (60 percent of the total acreage at the USNA). The proposed location for the parking garage under Alternative 2B at the Firehouse Site is categorized as sailor and family support (29 percent of the total acreage) (NAVFAC Washington 2012b).

The NSA Annapolis Installation Master Plan states that land use within the Lower Yard should directly support midshipmen due to limited land availability and the requirement for centralization of midshipmen needs in a core area, where new academic facilities must be within a 10-minute walking radius of the academic core. However, the limited availability of space in this area requires future development to ensure land use is compatible with both the athletic and academic needs of midshipmen (NAVFAC Washington 2012b).

Within the NSA Annapolis Installation Master Plan, both current land use and recommended future land use is identified. However, there is only a difference in these designations within the master plan for one of the sites identified in this document as an alternative for the proposed action: the Alumni Hall Lot, which is identified as currently being used for training support, but for which base support is recommended for future land use (NAVFAC Washington 2012b).

3.4.2 Environmental Consequences

3.4.2.1 Alternative 1A – Waffle Lot CCSS Building Alternative

Under Alternative 1A, the construction of a new CCSS building would replace the surface parking lot currently located at the Waffle Lot. While the proposed location for the CCSS building under Alternative 1A is categorized as training support, the site is currently used as a parking lot (111 parking spaces) for faculty and academic staff. The NSA Annapolis Installation Master Plan stated a new academic building at this location would reinforce the functional use of the Lower Yard for training support (NAVFAC Washington 2012b); therefore, there would be no land use change. However, the proposed action for

Alternative 1A would require additional parking capacity elsewhere to address the current and projected future parking deficiency.

The proposed CCSS building would be designed according to UFC 4-010-01, DoD Minimum Antiterrorism Standards for Buildings, ensuring compliance with AT/FP setbacks.

Impacts to land use adjacent to the Waffle Lot within the USNA generally would be temporary, restricting use of roadways, parking, sidewalks, and utilities in the immediate vicinity of the proposed site during construction. Views of the waterfront edge of the USNA as currently seen by boaters and motorists driving over the Severn River Bridge on Maryland State Route 450 would be modified by the construction of the CCSS building at the Waffle Lot; however, the height of the building and its visual character would complement the surrounding area (refer to Cultural Resources Section 3.9.2.1, *Alternative 1A – Waffle Lot CCSS Building Alternative*, under the Built Environment subsection). The intramural fields on the northeast side of Holloway Road (refer to Figure 2-2) may be used for construction staging; if so, this would result in a temporary impact. Permanent changes include the relocation and extension of existing utilities.

Implementation of Alternative 1A would be consistent with existing and recommended development within the USNA, per the NSA Annapolis Installation Master Plan. In addition, the proposed parking garage would be built and completed prior to construction of the CCSS building, which would prevent adverse impacts to parking capacity once construction of Alternative 1A would begin.

3.4.2.2 Alternative 1B – Alumni Hall Lot CCSS Building Alternative

Under Alternative 1B, the construction of a new CCSS building would replace the surface parking lot (147 parking spaces) currently located at the lower lot of the Alumni Hall Lot, and would not require the relocation of any existing facilities. The proposed location for the CCSS building under Alternative 1B is categorized as training support, but is recommended for base support in the NSA Annapolis Installation Master Plan (NAVFAC Washington 2012b). The CCSS building would support the educational needs of midshipmen, which is consistent with either land use category; therefore, there would be no land use change from either the current or recommended land use as identified by the NSA Annapolis Installation Master Plan. However, this site would be further from existing academic facilities compared to Alternative 1A. In addition, the proposed action for Alternative 1B would require additional parking capacity be provided to address the current and projected future parking deficiency, particularly with the loss of 147 of the parking spaces currently available at the Alumni Hall Lot. Community use of this parking lot by visitors when events are held at Alumni Hall would not be affected because the new parking garage would be built prior to construction of the CCSS building. However, visitors would have an increased walking distance from the new parking garage to Alumni Hall.

The proposed CCSS building would be designed according to UFC 4-010-01, DoD Minimum Antiterrorism Standards for Buildings, ensuring compliance with AT/FP setbacks.

Impacts to adjacent land use generally would be temporary, restricting use of roadways, parking, sidewalks, and utilities in the immediate vicinity of the Alumni Hall Lot during construction. The upper lot would be used as the construction staging area. Permanent changes include the relocation of an existing electrical transformer; the removal of an oil/water separator, small shed, and former underground concrete water storage tanks; and the extension of existing utilities.

Implementation of Alternative 1B would be consistent with existing and recommended development within the USNA, per the NSA Annapolis Installation Master Plan. In addition, the proposed parking garage would be built and completed prior to construction of the CCSS building, which would prevent

adverse impacts to parking capacity once construction of Alternative 2A would begin. Constructing the CCSS building at the Alumni Hall Lot would, however, permanently remove parking spaces from the Lower Yard (the lost parking would be replaced by the parking garage at either the Firehouse Site [Alternative 2B] or Lawrence Field [Alternative 2C] on the Upper Yard).

3.4.2.3 Alternative 2A – Alumni Hall Lot Parking Garage Alternative

Under Alternative 2A, construction of a new two-level parking garage would replace the current surface parking at the Alumni Hall lower lot, and the existing surface parking at the upper lot would be rebuilt and connected to the upper deck of the parking garage. There would be no change in land use as this site is currently categorized as base support in the NSA Annapolis Installation Master Plan. The proposed parking garage would be designed according to UFC 4-010-01, DoD Minimum Antiterrorism Standards for Buildings, ensuring compliance with AT/FP setbacks.

Impacts to adjacent land use generally would be temporary, restricting use of roadways, parking, sidewalks, and utilities in the immediate vicinity of the Alumni Hall Lot during construction. Community use may be temporarily adversely impacted because this parking lot is utilized by visitors when events are held at Alumni Hall. Construction staging areas would be along Balch and Nulton Roads (refer to Figure 2-3).

Implementation of Alternative 2A would be consistent with existing and recommended development within the USNA, per the NSA Annapolis Installation Master Plan; however, there would be short-term adverse impacts to parking capacity during the duration of construction of the parking garage at the Alumni Hall Lot.

3.4.2.4 Alternative 2B – Firehouse Site Parking Garage Alternative

Under Alternative 2B, the construction of a new parking garage with 536 spaces would replace the current Firehouse Site, which generally consists of open space with maintained grass as well as Circle Court and a portion of O'Hare Road, several dumpsters, and a static display of a decommissioned aircraft. There would be no change in land use as the site is currently categorized as sailor and family support in the NSA Annapolis Installation Master Plan, and the parking garage would provide for use of facilities in support of midshipmen and faculty by addressing the current parking capacity deficit. The proposed parking garage would be designed according to UFC 4-010-01, DoD Minimum Antiterrorism Standards for Buildings, ensuring compliance with AT/FP setbacks.

The permanent removal of all of Circle Court, a portion of O'Hare Road, and any trees, light poles, or other site appurtenances would be required under this alternative. The aircraft exhibit and dumpsters also would be removed and relocated and existing utilities in the construction footprint would be removed and rerouted. Impacts to adjacent land use generally would be temporary, restricting use of roadways, parking, sidewalks, and utilities in the immediate vicinity of the Firehouse Site during construction. An open space with maintained grass in an area adjacent to the northwest side of the site (refer to Figure 2-4) would provide the construction staging area.

Implementation of Alternative 2B would be consistent with existing and recommended development within the USNA, per the NSA Annapolis Installation Master Plan.

3.4.2.5 Alternative 2C – Lawrence Field Parking Garage Alternative

Under Alternative 2C, the construction of a new parking garage with 584 spaces would replace Lawrence Field. This site is currently categorized as training support in the NSA Annapolis Installation Master Plan; however, there would be no change in land use since the athletic needs of midshipmen (and the

community, which currently uses the fields for recreational leagues) would be met with the relocation of the ball fields to the upper level of the parking garage. The proposed parking garage would be designed according to UFC 4-010-01, DoD Minimum Antiterrorism Standards for Buildings, ensuring compliance with AT/FP setbacks.

Impacts to adjacent land use generally would be temporary, restricting use of roadways, parking, sidewalks, and utilities in the immediate vicinity of Lawrence Field during construction. Existing utilities at the site would be removed and relocated. The undeveloped open space between Bowyer Road and Bishop Stadium (refer to Figure 2-5) would provide the construction staging area.

Implementation of Alternative 2C would be consistent with existing and recommended development within the USNA, per the NSA Annapolis Installation Master Plan; however, there would be short-term adverse impacts to midshipmen athletic training and to community recreational use by the temporary loss of use of the ball fields for the duration of construction of the parking garage at Lawrence Field.

3.4.2.6 No Action Alternative

Under the No Action Alternative, there would be no impact to existing or recommended land use at the USNA because the CCSS building and the parking garage would not be constructed.

3.5 AIR QUALITY

3.5.1 Affected Environment

3.5.1.1 Ambient Air Quality

Air quality in a given location is described by the concentration of various pollutants in the atmosphere. A region's air quality is influenced by many factors including the type and amount of pollutants emitted into the atmosphere, the size and topography of the air basin, and the prevailing meteorological conditions. The significance of the pollutant concentration is determined by comparing it to the federal and state ambient air quality standards. The Clean Air Act (CAA) and its subsequent amendments established the National Ambient Air Quality Standards (NAAQS) for what are commonly referred to as "criteria" pollutants:

- ozone
- carbon monoxide (CO)
- nitrogen dioxide (NO₂)
- sulfur dioxide (SO₂)
- particulate matter less than 10 microns (PM₁₀)
- particulate matter less than 2.5 microns (PM_{2.5})
- lead

These standards represent the maximum allowable atmospheric concentrations that may occur while ensuring protection of public health and welfare, with a reasonable margin of safety. Short-term standards (1-, 8-, and 24-hour periods) are established for pollutants contributing to acute health effects. Long-term standards (quarterly and annual averages) are established for pollutants contributing to chronic health effects.

Areas that comply with NAAQS are designated as attainment areas. Areas that violate ambient air quality standards are designated as nonattainment areas. Areas that have improved air quality from nonattainment to attainment are designated as attainment/maintenance areas. Areas that lack monitoring data to

demonstrate attainment or nonattainment status are designated as unclassified and are treated as attainment areas for regulatory purposes.

The affected environment for the air quality analysis for the proposed action is identified as the Metropolitan Baltimore Intrastate Air Quality Control Region (AQCR) defined in 40 CFR § 81.28. This AQCR includes Anne Arundel County, Baltimore City, Baltimore County, Carroll County, Harford County, and Howard County. Specifically, the proposed action is located at the USNA in the city of Annapolis, which is located in Anne Arundel County.

The Metropolitan Baltimore Intrastate AQCR is classified (40 CFR § 81.321) as:

- nonattainment for PM_{2.5} (annual NAAQS)
- unclassifiable/attainment for PM_{2.5} (24-hour NAAQS)
- better than national standards for SO₂
- unclassifiable/attainment for CO
- Subpart 2/serious nonattainment for the 1997 8-hour ozone standard and moderate nonattainment for the 2008 8-hour ozone standard;
- not designated for lead or PM₁₀
- cannot be classified or better than national standards for NO₂

The MDE published the Baltimore Nonattainment Area PM_{2.5} State Implementation Plan and Base Year Inventory on March 24, 2008. This plan is currently awaiting approval of the USEPA.

The MDE published the Baltimore Nonattainment Area 8-hour Ozone State Implementation Plan and Base Year Inventory on June 15, 2007. The complete plan is currently awaiting approval from the USEPA. USEPA initially approved the 1-hour ozone attainment plan for the Metropolitan Baltimore Area on October 30, 2001 (66 Federal Register 54666).

Hazardous Air Pollutants

In addition to the ambient air quality standards for criteria pollutants, national standards exist for hazardous air pollutants (HAPs), which are regulated under Section 112(b) of the 1990 CAA Amendments. The National Emission Standards for Hazardous Air Pollutants regulate HAP emissions from stationary sources (40 CFR Parts 61 and 63). HAPs emitted from mobile sources are called Mobile Source Air Toxics (MSATs); these are compounds emitted from highway vehicles and non-road equipment that are known or suspected to cause serious health and environmental effects. In 2001, USEPA issued its first MSAT Rule, which identified 21 compounds as being HAPs that required regulation. In February 2007, USEPA issued a second MSAT Rule, which generally supported the findings in the first rule and provided additional recommendations of compounds having the greatest impact on health. The rule also identified several engine emission certification standards that must be implemented.

Unlike the criteria pollutants, there are no NAAQS for HAPs. The primary control methodologies instituted by federal regulation for MSATs involve technological improvements for reducing their content in fuel and altering engine operating characteristics to reduce the volume of pollutants generated during combustion. MSATs would be the primary HAPs emitted by mobile sources during construction and operation of the proposed action alternatives. The equipment used during construction would likely vary in age and have a range of pollution reduction effectiveness. Construction equipment, however, would be operated intermittently over a large area and would produce negligible ambient HAPs in a localized area. Operational equipment, including vehicles driven by commuters, is anticipated to be

primarily newer equipment (post-2005 model year) that generate lower emissions and would also produce negligible ambient HAPs. Therefore, MSAT emissions are not considered further in this analysis.

Regulatory Requirements – New Source Review and Prevention of Significant Deterioration

As part of the 1977 amendments to the CAA, Congress established the New Source Review (NSR) program. This program is designed to ensure that air quality is not significantly degraded from the addition of new and modified factories, industrial boilers, and power plants. In areas with unhealthy air, NSR assures that new emissions do not slow progress toward cleaner air. In areas with clean air, especially pristine areas like designated Class I areas (e.g., national parks), NSR assures that new emissions do not significantly worsen air quality.

The construction activities associated with the proposed action are temporary and would not be an issue with regard to Class I Prevention of Significant Deterioration (PSD) areas, nor would any new major sources (greater than 250 tons per year of any pollutant) be constructed as a result of the proposed action. Therefore, NSR and PSD requirements are not carried forward in the air quality analysis.

3.5.1.2 General Conformity Rule

Federal actions proposed to occur in areas that are classified as nonattainment or maintenance by the USEPA must demonstrate that emissions from the action will not exceed emission budgets established in a state's plan to attain or maintain the NAAQS. Construction for this proposed action would occur in an area that has been classified as nonattainment for ozone and for the annual PM_{2.5} NAAQS. Thus, the construction emissions for the proposed CCSS building and parking garage have been evaluated against the General Conformity Rule's *de minimis* thresholds and any applicable portions of the Maryland State Implementation Plan. The General Conformity Rule does not apply to the portion of an action that includes major or minor new or modified stationary sources that require a permit under the NSR program or the PSD program, such as would be required for emergency generators or boilers that could be used to provide heat or hot water to the proposed CCSS building. Therefore, a conformity applicability analysis was only performed for the proposed construction activities.

3.5.2 Environmental Consequences

Pollutant emissions resulting from proposed construction and operation activities have been evaluated for the proposed action. Air quality impacts would be significant if emissions associated with the proposed action would: 1) increase ambient air pollution concentrations above the NAAQS, 2) contribute to an existing violation of the NAAQS, 3) interfere with, or delay timely attainment of the NAAQS, or 4) for mobile source emissions, result in an increase in emissions to exceed 250 tons per year for any pollutant. Pollutants considered in this air quality analysis include the criteria pollutants measured by federal standards.

The proposed action involves the construction and subsequent operation of the CCSS building and a parking garage on the USNA campus. In order to assess the air quality impacts of the proposed action, emissions for the construction segment of the action were compared to the General Conformity Rule *de minimis* thresholds for volatile organic compounds (VOCs) and NO₂, because these are ozone precursors, as well as PM_{2.5} and its precursor SO₂. For the criteria pollutants that the Metropolitan Baltimore Intrastate AQCR is designated as unclassifiable/better than national standards, the calculated emissions are compared to the 250-ton comparative threshold. Appendix B, *Air Quality*, contains a conformity applicability analysis with the detailed emissions calculations prepared to assess the air quality impacts of the proposed action.

3.5.2.1 Waffle Lot CCSS Building Alternative (Alternative 1A) with Parking Garage Alternatives (Alternative 2A, 2B, or 2C)

Air quality impacts from construction would occur from (1) combustion emissions due to the use of fossil fuel-powered equipment and (2) fugitive dust emissions (PM₁₀ and PM_{2.5}) during demolition activities, earth-moving activities, and the operation of equipment on bare soil. Fugitive dust emissions were calculated based on the total site disturbance projected for each construction project for all construction years. Equipment usage was based on similar construction projects to estimate project combustion and fugitive dust emissions.

The emissions associated with the proposed construction of the CCSS building and the alternative locations for the parking garage are summarized in Table 3.5-1. Variations in the proposed parking garage layouts result in small variations in emissions associated with the three building/parking garage combinations. The calculations for both the building and parking garage indicate that annual emissions for proposed construction activities would not exceed the *de minimis* thresholds or the 250 tons per year for any criteria pollutant. Air quality impacts associated with the construction activities at either location would not be significant. Table 3.5-1 presents the maximum emissions associated with construction of the CCSS building at the Waffle Lot (Alternative 1A) and each of the possible three parking garage alternatives, with 2016 being the year of maximum emissions for all three scenarios with the exception of VOC emissions, which are greatest in 2018 when interior painting activities occur. The combination of Alternative 1A with the parking garage at Lawrence Field (Alternative 2C) would result in the greatest construction emissions. Nitrogen oxide (NO_x) emissions would total less than 10 tons per year and PM₁₀ at a little more than 8 tons per year. None of the emission estimates would meet or exceed the thresholds of significance. A Record of Non-Applicability (RONA) has been prepared and can be found in Appendix B, *Air Quality*.

Table 3.5-1. Maximum Estimated Emissions for Construction of the Proposed CCSS Building at the Waffle Lot (Alternative 1A) and Each Parking Garage Alternative						
Construction Activity	Air Pollutant Emissions (tons)					
	VOCs	CO	NO _x	SO ₂	PM ₁₀	PM _{2.5}
Alternative 1A and Alternative 2A	0.86	1.65	4.21	0.09	5.12	0.75
Alternative 1A and Alternative 2B	0.86	2.39	5.75	0.12	4.64	0.79
Alternative 1A and Alternative 2C	0.86	3.80	9.84	0.21	8.12	1.37
Major Source Comparative Threshold		250	-	-	250	-
<i>de minimis</i> Thresholds	50		100	100	-	100

Notes: ¹VOC *de minimis* established for nonattainment areas located in ozone transport region.

3.5.2.2 Alumni Hall Lot CCSS Building Alternative (Alternative 1B) with Parking Garage Alternatives (Alternative 2B or 2C)

Air quality impacts from construction for Alternative 1B would be very similar to those associated with Alternative 1A. The construction of Alternative 2A, a parking garage proposed for construction on the Alumni Hall Lot, however, would not be an option as Alternative 1B would require the location in its entirety. Therefore, the construction of Alternative 1B was evaluated along with the parking garage proposed for the Firehouse Site (Alternative 2B) and the Lawrence Field site (Alternative 2C).

The emissions associated with the proposed construction of the CCSS building and the alternative locations for the parking garage are summarized in Table 3.5-2. Variations in the proposed parking garage layouts result in small variations in emissions associated with the two building/parking garage combinations. The calculations for both the building and the parking garage indicate that annual emissions for proposed construction activities would not exceed the *de minimis* thresholds or the 250 tons per year for any criteria pollutant. Air quality impacts associated with the construction activities at either

location would not be significant. Table 3.5-2 presents the maximum emissions associated with construction of the CCSS building at the Alumni Hall Lot (Alternative 1A) and both parking garage alternatives, with 2016 being the year of maximum emissions for both scenarios with the exception of VOC emissions, which are greatest in 2018 when interior painting activities occur. The combination of Alternative 1B with the parking garage at the Lawrence Field location (Alternative 2C) would result in the greatest construction emissions. NO_x emissions would total less than 10 tons per year and PM₁₀ at a little more than 8 tons per year. None of the emission estimates would meet or exceed the thresholds of significance. A Record of Non-Applicability (RONA) has been prepared and can be found in Appendix B, *Air Quality*.

Table 3.5-2. Maximum Estimated Emissions for Construction of the Proposed CCSS Building at the Alumni Hall Lot (Alternative 1B) and Each Parking Garage Alternative						
Construction Activity	Air Pollutant Emissions (tons)					
	VOCs	CO	NO_x	SO₂	PM₁₀	PM_{2.5}
Alternative 1B and Alternative 2B	0.85	2.41	5.68	0.12	4.82	0.81
Alternative 1B and Alternative 2C	0.85	3.82	9.77	0.21	8.30	1.39
Major Source Comparative Threshold		250	-	-	250	-
<i>de minimis</i> Thresholds	¹ 50		100	100	-	100

Notes: ¹VOC *de minimis* established for nonattainment areas located in ozone transport region.

3.5.2.3 Operational Emissions

Operational emissions would be generated as a result of the additional 40 staff/faculty required for the CCSS program, emergency generator operation, and boiler operations. The emergency generators and boilers are stationary sources. Construction permits would be required for the equipment prior to installation and operation. The details on emissions would be based on the sizes of the equipment and type(s) of fuel used to operate them and would be required for construction permits. Ultimately, they would be included as a modification to the existing Title V permit that is held by USNA and be regulated in accordance with Maryland Department of Environment-issued permit requirements. Because these sources would be subject to new source review and permitting requirements, they are not assessed for General Conformity requirements.

The emissions from staff commuters are from mobile sources and as such would be subject to GCR requirements. In order to assess these emissions, a worst-case scenario was used that assumed each of the additional staff/faculty members drove their own vehicle to work every day, and that this trip constituted a 40 mile round trip. Additionally, it is assumed that all 40 employees work a full year and not an academic calendar year. The results of this calculation are included in Table 3.5-3. The emissions were calculated for annual totals based on the year the CCSS becomes fully operational, which is 2019. None of the emission estimates would meet or exceed the thresholds of significance. A Record of Non-Applicability (RONA) has been prepared and can be found in Appendix B, *Air Quality*.

Table 3.5-3. Maximum Estimated Annual Emissions for Faculty/Staff Commuters						
Operational Activity	Air Pollutant Emissions (tons)					
	VOCs	CO	NO_x	SO₂	PM₁₀	PM_{2.5}
40 daily commuters, 240 days/year	0.23	6.80	0.95	0.00	0.04	0.04
Major Source Comparative Threshold		250	-	-	250	-
<i>de minimis</i> Thresholds	¹ 50		100	100	-	100

Notes: ¹VOC *de minimis* established for nonattainment areas located in ozone transport region.

3.5.2.4 No Action Alternative

Under the No Action Alternative, the CCSS building and parking garage would not be constructed at the USNA. Therefore, implementation of the No Action Alternative would have no significant impacts to air quality.

3.6 NOISE

Levels of noise are measured in units called decibels (dB). However, a number of factors affect how the human ear perceives sound: the actual level of noise, frequency, period of exposure, and fluctuations in noise levels during exposure. The human ear cannot equally perceive all pitches or frequencies and noise measurements are therefore adjusted or weighted to compensate for the human lack of sensitivity to low- and high-pitched sounds. This adjusted unit is known as the A-weighted decibel, or dBA. The A-weighted metric, de-emphasizes very low and very high pitched sound and is most often applied to noise generated by motor vehicle traffic, small boats, and aircraft. Background, or ambient, noise levels are all sounds present in an environment and are dependent upon land use. Very rural areas with little human activity would be expected to have the lowest levels of background noise, typically on the order of 15–20 dBA (USEPA 1971). Noise increases with increased population, as demonstrated in Table 3.6-1.

Table 3.6-1. Sound Levels Estimated by Population Density		
Description	Population Density (people per square mile)	Sound Level (dB)
Rural (undeveloped)	20	35
Quiet suburban	60	45
Normal suburban	600	50
Urban	2,000	55
Noisy urban	6,000	60
Very noisy urban	20,000	65

Source: USEPA 1982

Daily operations associated with the USNA would fall within the 50–55 dBA range and primarily consist of the daily operation of personal vehicles and a normal suburban environment. The dBA for light traffic and for a normal suburban environment is 50 dBA.

3.6.1 Affected Environment

The Occupational Safety and Health Administration (OSHA) regulates noise impacts to workers and sets forth thresholds for a safe work environment. OSHA has set permissible noise exposure limits (codified in 29 CFR § 1910.95). Based on these limits, an employee should not be subjected to continuous noise exceeding 90 dBA for durations lasting more than 8 hours per day (Table 3.6-2). As the level increases, the allowed duration of noise decreases. The maximum limit is 115 dBA for duration of 15 minutes or less. OSHA standards are the best documented requirements in regards to long-term human noise exposure. In addition, OSHA standards state that exposure to impulsive or impact noise (loud, short duration sounds) is not to exceed 140 dB peak sound pressure level (OSHA 2014).

Duration per Day (hours)	Sound Level (dBA)
8	90
6	92
4	95
3	97
2	100
1.5	102
1	105
0.5	110
0.25 or less	115

Source: 29 CFR § 1910.95(b)(2)

In addition to the OSHA permissible noise exposure levels, the Navy and State of Maryland also have set noise exposure levels to protect the health and welfare of employees and residents. The Navy’s standard for occupational noise exposure of 84 dBA for 8 hours of constant noise is set in OPNAVINST 5100.23G (Change 1), *Navy Safety and Occupational Health Program Manual* (DoN 2011). Additionally, Code of Maryland Regulations 26.02.03, Control of Noise Pollution, states that “a person may not cause or permit noise levels emanating from construction or demolition site activities which exceed: (a) 90 dBA during daytime hours; [or] (b) the levels specified in Table [3.6-3] during nighttime hours.” Anne Arundel County has the same daytime and nighttime noise criteria and the same day and night hour intervals as the State.

Day/Night*	Industrial	Commercial	Residential
Day	75	67	65
Night	75	62	55

Note: *Defined as Day - 7:00 a.m. to 10:00 p.m. and Night - 10:00 p.m. to 7:00 a.m.

3.6.2 Environmental Consequences

As stated in Section 3.6.1, *Affected Environment*, OSHA standards (29 CFR § 1910.95) state that employees should not be subjected to continuous noise exceeding 90 dBA for durations lasting more than 8 hours per day. Navy standards are more conservative in that maximum allowable exposure over an 8-hour period should not exceed 84 dBA. State of Maryland standards allow for 90 dBA during a 15-hour daytime period. For the purposes of this analysis, noise at a sensitive receptor above the level for a residential district, 55 dBA, is noted for impacts, and noise emissions exceeding 90 dBA for more than 8 hours per day at a sensitive receptor location would be considered to have significant adverse impacts.

A noise sensitive receptor is defined as a location or facility where people involved in indoor or outdoor activities may be subject to stress or considerable interference from noise. Such locations or facilities often include residential dwellings, hospitals, nursing homes, educational facilities, and libraries. Sensitive noise receptors may also include supporting habitat for certain wildlife species or noise sensitive cultural practices. For the purposes of this analysis all buildings associated with the USNA were considered to be sensitive noise receptors.

3.6.2.1 Alternative 1A – Waffle Lot CCSS Building Alternative

The proposed action would generate noise during the construction phases of the CCSS building at the Waffle Lot. Phases of construction that would generate noise include: land clearing and excavations, pile driving, foundation and capping, erection of structural steel, and construction of exterior walls.

Construction activities that would impact noise levels include noise from construction equipment operating at the site, construction/delivery vehicles traveling to and from the site, and pile driving activities required for placement of deep pile foundations. Noise levels at a given receptor location would depend on the type and number of pieces of construction equipment being operated and the receptor’s distance from the construction site. Construction related noise emissions are listed in Table 3.6-4 and can range from 74 to 101 dBA when measured 50 feet from the respective piece of equipment.

Table 3.6-4. Airborne Construction Related Noise Emissions	
Equipment Description	Actual Measured L_{max} at 50 feet (dBA)
Flat Bed Truck	74
Welder/Torch	74
Man Lift	75
Dump Truck	76
Backhoe	78
Compressor (air)	78
Concrete Mixer Truck	79
Drill Rig Truck	79
Front End Loader	79
Rivet Buster/Chipping Gun	79
Ventilation Fan	79
Drum Mixer	80
Vibratory Concrete Mixer	80
Concrete Pump Truck	81
Crane	81
Generator	81
Pumps	81
Dozer	82
Boring Jack Power Unit	83
Warning Horn	83
Auger Drill Rig	84
Scraper	84
Pneumatic Tools	85
Vacuum Excavator	85
Vibrating Hopper	87
Jackhammer	89
Concrete Saw	90
Mounted Impact Hammer (hoe ram)	90
Sheers (on backhoe)	96
Impact Pile Driver	101
Vibratory Pile Driver	101

Source: Federal Highway Administration 2006

Small increases in noise levels would be expected as a result of the operation of delivery trucks and other construction vehicles. However, larger increases in noise levels would result during pile driving activities. Increased noise levels would be greatest during the early stages of each construction phase, although these periods would be of relatively short duration. However, under the worst case scenario during pile driving, there would be periods during construction when noise would range from 101 dBA at 50 feet from the equipment to 89 dBA at 200 feet from the equipment. The 200-foot radius from the equipment would encompass portions of Nimitz Library and Rickover Hall, depending on the location of the pile driving equipment at any given time on the Waffle Lot construction site. When compared to the existing noise conditions at the USNA (50–55 dBA) and the OSHA and Navy noise thresholds for workers, the pile

driving activities would result in significant short-term impacts to noise receptors located within 200 feet of the pile driving equipment location at the construction site, which would vary as the foundation piles are being driven throughout the foundation footprint. Moderate noise impacts would extend up to 1.5 miles from the Waffle Lot construction site, as this is the distance at which noise levels would attenuate to 55–60 dBA.

To minimize the impact to noise receptors during the operation of the pile driving equipment, the Navy would require the construction contractor to develop and implement a noise monitoring plan that provides means and methods for reducing noise. All construction activities, including pile driving, would be monitored for noise in excess of state noise restrictions. A variety of measures would be taken to minimize noise from construction activities, including but not limited to performing the work during daytime hours, defined by Maryland regulations as the period between 7:00 a.m. and 10:00 p.m., and installing acoustical barriers.

In conclusion, temporary and short-term noise disturbance would occur during construction; however, implementation of noise attenuation measures stated above would reduce potential disturbance from noise. Therefore, implementation of Alternative 1A would have no significant impacts to sensitive noise receptors from noise.

The operation of the CCSS building, once construction is completed, is not expected to significantly increase ambient noise levels.

3.6.2.2 Alternative 1B – Alumni Hall Lot CCSS Building Alternative

Implementation of Alternative 1B would have similar impacts as those described for Alternative 1A, except that fewer piles are required so that the temporary impact duration would be shorter.

3.6.2.3 Alternative 2A – Alumni Hall Lot Parking Garage Alternative

Construction of a parking garage at the Alumni Hall Lot would have similar impacts as those described for Alternative 1A. In particular, pile driving would occur for the placement of deep pile foundations and would result in similar impacts as described in Alternative 1A, except that fewer piles are required so that the temporary impact duration would be shorter.

The sites of both Alternative 1A and Alternative 1B currently serve as surface parking lots. Under Alternative 2A, parking at the Alumni Hall Lot would increase from the existing 222 parking spaces in the upper and lower lots to 378 with the combined two-level parking garage on the lower lot and reconfigured surface parking at the existing upper lot. The 378 parking spaces would accommodate the vehicles currently parking in the Waffle Lot (111) and Alumni Hall Lot (222), as well as 40 additional staff for the CCSS. Although there would be additional vehicles, the combination of existing traffic noise together with additional traffic noise resulting from the parking garage operation would result in a marginal increase in noise levels that would not be expected to exceed significance thresholds. This is because noise levels from two equal sources (in this case, traffic noise and additional traffic noise) result in marginal increases in sound levels as compared to the sound levels of a louder source.

In conclusion, temporary and short-term noise disturbance would occur during construction; however, implementation of a noise monitoring plan as described above under Alternative 1A would reduce potential disturbance from noise. The operation of the parking garage, once construction is completed, is not expected to significantly increase ambient noise levels. Therefore, implementation of Alternative 2A would have no significant impacts to sensitive noise receptors from noise.

3.6.2.4 Alternative 2B – Firehouse Site Parking Garage Alternative

Currently, the majority of the Firehouse Site is open space with maintained grass. Once the parking garage is constructed, there would be a permanent increase in local noise due to an increase in automobile traffic using the parking garage. The traffic increase would be limited by the parking garage size, which at any time could hold a maximum of 536 vehicles. Ingress and egress would be via Bowyer Road, a main artery at USNA. The housing located near the proposed parking garage would be located on the opposite side of the property from the garage access point, so that traffic impacts would be located away from the housing and therefore reduced. Traffic using the parking garage primarily would be active during daytime hours and during the week and would be moving at residential speeds or slower. Other time periods would be expected to see limited use of the garage. Overall, a limited increase in traffic noise may be perceptible at the residential housing at times of the day when the parking garage is particularly active (at the beginning and end of work/class days), but the combination of existing traffic noise together with additional traffic noise resulting from the parking garage operation would result in a marginal increase in noise levels.

In conclusion, temporary and short-term noise disturbance would occur during construction; however, implementation of a noise monitoring plan as described above under Alternative 1A would reduce potential disturbance from noise. The operation of the parking garage, once construction is completed, is not expected to significantly increase ambient noise levels. Therefore, implementation of Alternative 1A would have no significant impacts to sensitive noise receptors from noise.

3.6.2.5 Alternative 2C – Lawrence Field Parking Garage Alternative

Implementation of the proposed action under Alternative 2C would have similar impacts as those described for Alternative 2B; therefore, implementation of Alternative 2C would have no significant impacts to sensitive noise receptors from noise.

3.6.2.6 No Action Alternative

Under the No Action Alternative, the CCSS building and parking garage would not be constructed at USNA. Therefore, implementation of the No Action Alternative would have no impacts to sensitive noise receptors.

3.7 TRANSPORTATION

Transportation refers to the movement of people and goods throughout a transportation network. Analysis of the effect that a proposed action could have on transportation focuses on the key characteristics of the affected transportation network, especially the network's capacity to accommodate the additional demand, or other effects, associated with a proposed project. A transportation network may include many different types of facilities that serve a variety of transportation modes, such as non-motorized travel (e.g., pedestrians and bicycles), public transit, and vehicular traffic. Level of Service (LOS) is a commonly used method to describe traffic impacts at intersections and on street segments. With respect to the proposed action, impacts to the transportation network may arise from project-related construction activities, operations traffic from the addition of new faculty, and the redistribution of existing pedestrian and vehicle trips due to the proposed relocation of existing parking facilities.

The affected environment for transportation includes USNA roadways used by midshipmen first-class, academic and other personnel, contractors, and others for daily duties. The affected environment also includes the local roadways that provide access to USNA.

3.7.1 Affected Environment

3.7.1.1 USNA

Vehicular access to the Upper and Lower Yards is restricted. Only individuals having a USNA identification card or DoD credential may drive onto the installation (NSA Annapolis 2014a). Although there are numerous gates to the Upper and Lower Yards (refer to Table 3.7-1), only three (i.e., Gates 1, 3, and 8) are regularly open. These three gates accommodate a combined total of approximately 3,200 entering and exiting vehicles per day (NAVFAC Washington 2012b). In addition to the numbered gates listed in Table 3.7-1, there are three additional pedestrian only access points, one open vehicular access point off Vandergrift Road, three closed gates, and one RAPIDGate vehicular access point, which is located at the Upper Yard on Bailey Road. The RAPIDGate facility may be used by participating contractors and vendors who have obtained a long-term credential for regular access to the installation. RAPIDGate participants are subject to random vehicle inspections.

Table 3.7-1. Gates on the Upper and Lower Yards			
Gate	Location	Access	Notes/Hours
1	King George Street	Vehicular/Pedestrian	Sunday-Thursday 0600–2200/Friday-Saturday 0600–0100 for both pedestrians and vehicles
2	Intersection of King George Street and Buchanan Road	Vehicular/Pedestrian	Not used on a regular basis
3	Intersection of Hanover Street and Maryland Avenue	Vehicular/Pedestrian	<i>Pedestrian:</i> Open from Sunday-Thursday 0600–1900/Friday-Saturday 0600–2200 <i>Vehicular:</i> Open to inbound vehicular traffic only from 0600–0900 Monday-Friday; Open to outbound vehicular traffic only from 1500–1800 Monday-Friday
4	King George Street and Balch Road	Vehicular/Pedestrian	Not used on any regular basis
6	Vandergrift Road	Vehicular/Pedestrian	Open permanently
7	King George Street/ Vandergrift Road	Pedestrian	Pedestrian traffic between the public works area and Perry Center
8	Bowyer Road	Vehicular/Pedestrian	24 hours a day/7 days a week; Gate 8 is the only access point for official traffic, contractors, deliveries, and large vehicles
9	Maryland State Route 450 and the Intersection of Wood Road and Longshaw Road	Vehicular/Pedestrian	Closed (operable for pedestrians or special requirements)

Source: NAVFAC Washington 2012b

A network of primary and secondary roads accommodates traffic circulation within the USNA (refer to Figure 3.7-1). Primary roads are used to travel between the access gates and various destinations within the installation, while secondary roads provide direct access to specific buildings, housing areas, and sports fields. Both primary and secondary roads are generally narrow two-lane streets. Parallel and perpendicular parking is provided along many of the streets within the installation. The principal traffic pattern is a route consisting of Brownson Road, Holloway Road, McNair Road, and Decatur Road, which connects the Upper and Lower Yards via a bridge over College Creek (NAVFAC Washington 2012b). The circulation route provides a connection between Gates 1 and 8, and passes near most of the major buildings and parking facilities on the Lower Yard.

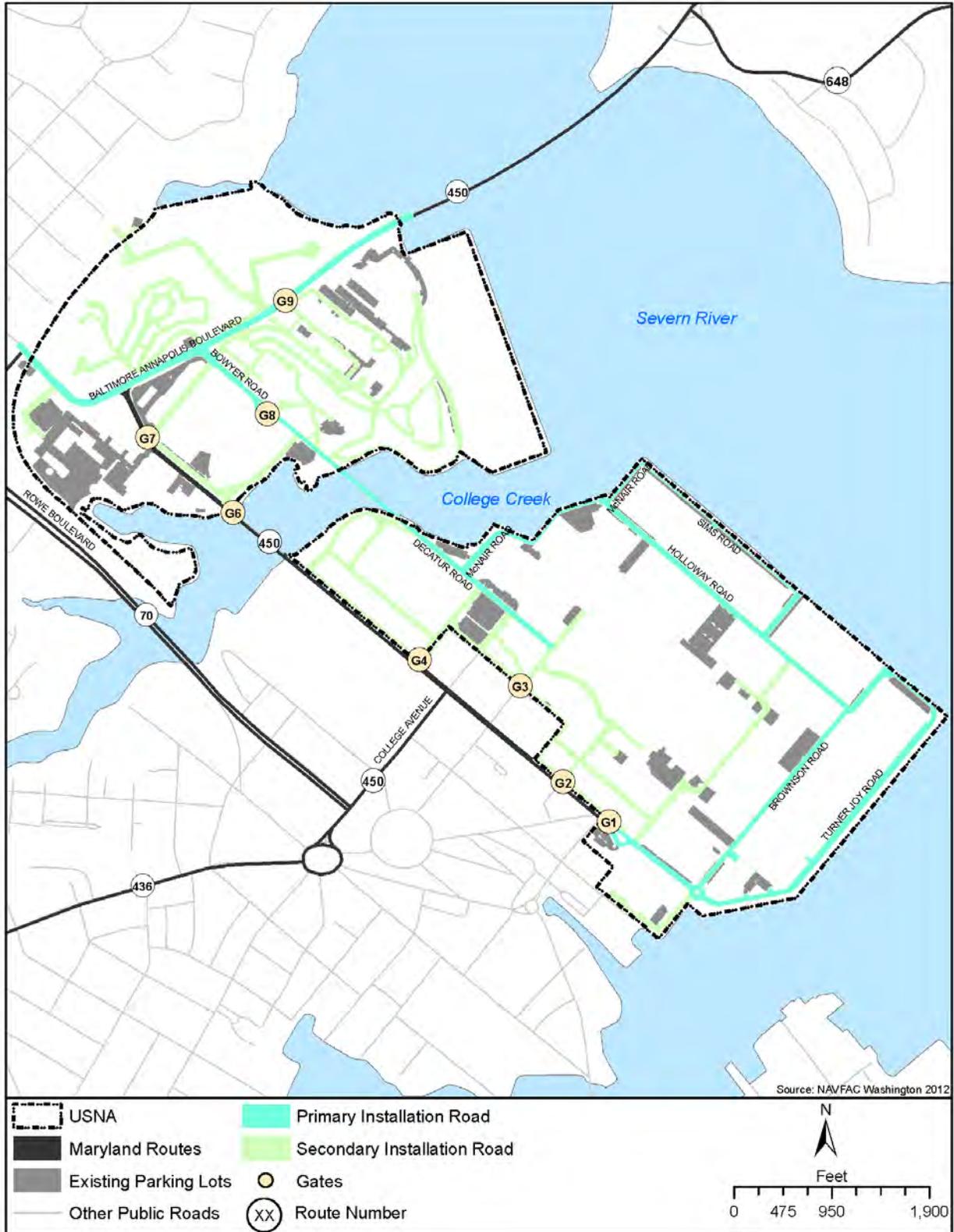


Figure 3.7-1. Internal Street Network and Access Points

The USNA provides approximately 3,500 street and surface lot parking spaces. Approximately 64 percent of these spaces are situated on the Lower Yard. Table 3.7-2 provides a breakdown of parking counts by users. Midshipmen¹ and academic personnel account for approximately 46 percent of the total parking use. As discussed in Section 2.1.1, *CCSS Building Alternatives*, the Waffle Lot includes 111 parking spaces, while the Alumni Hall Lot accommodates 222 spaces. Combined, these two lots provide approximately 10 percent of all spaces at the USNA, and approximately 14 percent of the spaces on the Lower Yard. As described in Section 2.1.2, *Parking Garage Alternatives*, the USNA currently has a parking deficit of 156 spaces.

User	Spaces	Percentage
Medical	274	8
Academic	587	7
Midshipmen	1,000	29
Administrative	356	10
Community Support	424	12
Residents	49	1
Special Guests/Visitors	470	14
Industrial	309	9
Total	3,469	100

Source: NAVFAC Washington 2012b

The USNA, and the Lower Yard in particular, is a compact installation with numerous pedestrian paths and sidewalks. Most parking facilities and housing areas are within a five-minute walking distance of academic buildings on the Lower Yard. Pedestrians may travel between the Upper and Lower Yards via a pedestrian footbridge between Forrest Sherman Field and McNair Road, or by using the sidewalk on the King George Street Bridge over College Creek. In practice, trips across College Creek are commonly made by personal vehicle. The USNA Public Works Department (PWD) maintains a fleet of six electric vehicles on the Upper Yard specifically for this purpose.

The total installation population of NSA Annapolis is 8,373, including 4,000 Midshipmen, 1,052 permanent military personnel, and 3,321 civilian staff. Midshipmen reside on the installation, and only Midshipmen first-class have access to automobiles. Therefore, the recurring daily traffic generation of the USNA is based on commuting trips made by permanent military personnel and/or civilian staff. Gate counts at the Upper and Lower Yards indicate that the total volume of traffic entering and exiting the USNA is 3,600 trips per day (NAVFAC Washington 2012b).

3.7.1.2 Adjacent Areas

Transportation facilities (i.e., roads, transit service, and pedestrian paths) providing direct access to and from the USNA are under the jurisdiction of the City of Annapolis and the State of Maryland. Like the USNA, land use in Annapolis adjacent to the installation is compact, and numerous pedestrian paths and sidewalks are provided. According to the Annapolis Comprehensive Plan (City of Annapolis 2009), College Avenue (designated as Maryland State Route [MD] 436) and King George Street (MD 450) are classified as Minor Collector roadways, which are designed to carry traffic from smaller local streets to larger arterial streets. Rowe Boulevard (MD 70) and Baltimore Annapolis Boulevard (MD 450) are designated as Major Arterials, which are intended to carry large volumes of traffic over a longer distance than local roads or collectors.

¹Only midshipmen first-class (analogous to college seniors) may park a vehicle on the Upper and Lower Yards.

As discussed above, traffic conditions on streets and at intersections are commonly described in terms of LOS. LOS rates performance on a scale of A to F, with LOS A reflecting free-flowing conditions and LOS F representing heavily congested conditions (Transportation Research Board 2010). LOS D is often used as a minimum performance standard in urbanized areas. Under existing conditions, segments of Rowe Boulevard are characterized by congested LOS E or F conditions (City of Annapolis 2006). By the year 2030, projected future growth is expected to result in congested traffic conditions on King George Street, College Avenue, and Baltimore Annapolis Boulevard (City of Annapolis 2009).

3.7.2 Environmental Consequences

3.7.2.1 Alternative 1A – Waffle Lot CCSS Building Alternative

Implementation of Alternative 1A would involve temporary traffic impacts resulting from demolition and construction activities. The following types of additional trips are expected to be added to the transportation network:

- Construction worker commuting trips
- Trips involving the delivery and removal of construction equipment and materials
- Trips involving the removal of demolition debris and excess fill material

Construction trips would likely enter the installation at Gate 8, which is the primary access point for truck and delivery access. After being granted access, construction traffic would proceed along Decatur Road across College Creek en route to the Waffle Lot construction site. A construction staging area would be provided either on an intramural field on the northeast side of Holloway Road, or on a barge along College Creek. Although construction activities would temporarily increase traffic volumes within the USNA, the number of additional trips is expected to be comparatively minor.

Outside the installation, construction trips would take various routes along public roadways to approach the USNA. During construction, traffic likely would be added to some combination of Rowe Boulevard, Baltimore Annapolis Boulevard, and/or King George Street. As noted above, Rowe Boulevard experiences LOS E or F conditions under existing conditions; the addition of construction traffic on this segment would incrementally increase existing congestion. Also, the addition of construction traffic could increase delays and queues for vehicles accessing the installation via Gate 8. However, the volume of construction traffic is expected to be comparatively minor.

During construction, segments of Holloway Road and McNair Road adjacent to the Waffle Lot would be closed to vehicles and pedestrians for the two-year duration of building construction. As discussed above, these two roadways are classified as primary roads and are part of the principal circulation route within the USNA. Closure would cause the diversion of trips from these segments to alternate routes, resulting in incremental traffic increases on some roads and an increase in travel time for some motorists. However, the following measures could be taken to offset the impacts associated with construction:

- As practicable, schedule construction-related traffic outside of the traditional peak commuting periods of 6:00 a.m. through 8:00 a.m. and 4:00 p.m. to 6:00 p.m. to minimize peak hour traffic congestion on surrounding public roads.
- Streamline contractor access to minimize potential queues and delays resulting from construction traffic accessing the USNA via Gate 8. Minimization measures could involve scheduling trips to avoid peak demand at the gate, the use of the RAPIDGate program to facilitate regular access to the installation, and/or other measures as appropriate and feasible.

- Advise the USNA population of temporary street closures during building construction, and recommend specific measures such as carpooling, expanded use of public transit, alternate work schedules and other measures that would reduce vehicular travel demand during the construction period.

With the implementation of the avoidance and minimization measures identified above, the impact to traffic during construction under Alternative 1A would be less than significant.

As noted in Section 2.1, *Proposed Action*, one of the proposed parking garage alternatives (i.e., Alternatives 2A, 2B, and 2C) would be built before construction starts on the proposed CCSS building. The proposed garage would compensate for lost parking spaces at the Waffle Lot, improve the existing parking shortfall at the USNA, and accommodate the faculty and staff of the proposed CCSS. As a result, there would be a net increase in parking on the installation during building construction, and therefore the proposed removal of Waffle Lot parking spaces would result in no impact to parking.

The closure of sidewalks along portions of Holloway Road and McNair Road would affect pedestrian circulation, and may cause some pedestrians to change their normal routes. However, many pedestrian trips originate in the residential areas located in the southern portion of the Lower Yard and there are numerous alternate sidewalks and paths to accommodate walking trips between these areas and academic buildings near the Waffle Lot. Therefore, the additional walking distance is expected to be relatively minor, and the impact to pedestrian accessibility would be less than significant.

As discussed above, construction staging might be accommodated using a barge that would be positioned in College Creek. It is anticipated that the barge would be used for discrete, large deliveries of construction materials and equipment, rather than for the day-to-day deliveries. This option would reduce the number of construction trips on the ground transportation system, as certain construction materials and equipment would be brought in by barge, rather than by truck. As appropriate, the Navy would coordinate with the U.S. Coast Guard to issue a Notice to Mariners when the barge is in transit or in use. Because Alternative 1A would generate a negligible amount of temporary vessel traffic, there would be a less than significant impact to vessel transportation from implementation of Alternative 1A.

After the proposed CCSS building is completed, existing pedestrian and vehicular routes adjacent to the construction site would be fully restored and, therefore, vehicles would return to their existing routes. As discussed in Section 2.1, *Proposed Action*, 40 new faculty and staff members would be required to manage and instruct at the new building. As a result, approximately 80 daily trips (i.e., one inbound and one outbound trip for each faculty or staff member) would be added on a regular basis to the USNA. Assuming that all of these trips were to use single-occupancy vehicles, the additional faculty and staff would increase overall traffic generation at the USNA by approximately 2.2 percent. Given this relatively minor increase, the impact to traffic from operations under Alternative 1A would be less than significant.

During operations, Alternative 1A would add up to 80 daily trips to external streets and gates providing access to the USNA. These trips include 40 arrivals and 40 departures associated with new staff for the CCSS. Depending upon the route and timing of these trips, they may contribute to existing and projected future congestion. Because classes are expected to be scheduled at various times on a given day, it is unlikely that many of the 40 inbound and outbound trips would coincide with peak commuting periods. Instead, instructor trips would likely be distributed throughout the course of a typical business day. Given that the volume of traffic is relatively minor and would not be concentrated in peak commuting hours, and with the implementation of avoidance and minimization measures, the impact would be less than significant.

As discussed above, faculty and staff parking would be provided at one of the alternative parking garage locations. Therefore, operations under Alternative 1A would have no impact on parking.

As discussed above, existing pedestrian facilities would be fully restored after building construction, and a new sidewalk would be constructed along the north side of the CCSS building to enhance pedestrian circulation. Therefore, operations under Alternative 1A would have a less than significant beneficial impact to pedestrian accessibility.

In conclusion, with implementation of avoidance and minimization measures, implementation of Alternative 1A would have less than significant impacts to transportation during both construction and post-construction operations of the CCSS building.

3.7.2.2 Alternative 1B – Alumni Hall Lot CCSS Building Alternative

Construction related transportation impacts under Alternative 1B would be consistent with those previously described for Alternative 1A. As with Alternative 1A, construction traffic under Alternative 1B would likely access the USNA via Gate 8 and approach the construction site via Decatur Road. Also, the proposed temporary closure of roadways adjacent to the Alumni Hall Lot would cause the diversion of some traffic to alternate routes, resulting in incremental traffic increases on some roads and an increase in travel time for some motorists. Because one of the parking garage alternatives would be constructed before the CCSS building, no parking impact would occur. Given the availability of numerous alternate pedestrian routes, the proposed temporary closure of pedestrian facilities would have a less than significant impact to pedestrian accessibility. Whereas Alternative 1A considers the possibility of using a barge for construction staging, Alternative 1B would not use a barge for staging. Instead, staging would be provided in the upper lot adjacent to Nulton Road. With the implementation of the avoidance and minimization measures identified above for Alternative 1A, Alternative 1B would have less than significant impacts to traffic, parking, and pedestrian accessibility during construction.

Impacts of operations under Alternative 1B would be the same as those for Alternative 1A. With the implementation of avoidance and minimization measures, impacts to traffic, parking, and pedestrian accessibility from operations under Alternative 1B would be less than significant.

In conclusion, with implementation of avoidance and minimization measures, implementation of Alternative 1B would have less than significant impacts to transportation during both construction and post-construction operations of the CCSS building.

3.7.2.3 Alternative 2A – Alumni Hall Lot Parking Garage Alternative

The temporary construction traffic impacts of Alternative 2A, both within and outside the installation, would be similar to those described above under Alternative 1A. However, as described in Section 2.1, *Proposed Action*, parking garage construction would have a shorter duration than building construction. Construction staging would be provided along Balch Road and Nulton Road. Under Alternative 2A, the 222 existing surface parking spaces at the Alumni Hall upper and lower lots (i.e., 6.4 percent of the total spaces at the USNA) would be closed for more than one year during construction. The following measures could be taken to reduce the identified impacts to traffic and parking during construction:

- Streamline contractor access to minimize potential queues and delays resulting from construction traffic accessing the USNA via Gate 8. Minimization measures could involve scheduling trips to avoid peak demand at the gate, the use of the RAPIDGate program to facilitate regular access to the installation, and/or other measures as appropriate and feasible.

- Provide additional parking at other locations within the installation, implement mandatory trip reduction measures, and/or implement other measures as appropriate and feasible to address the temporary elimination of 222 parking spaces during construction of the parking garage.

Temporary pedestrian accessibility impacts would be consistent with those of Alternative 1B.

With the implementation of the above avoidance and minimization measures, impacts to traffic, parking, and pedestrian accessibility during construction under Alternative 2A would be less than significant.

The proposed parking garage at the Alumni Hall Lot plus the surface spaces at the existing upper lot would compensate for 333 lost spaces (111 at the Waffle Lot plus 222 at the Alumni Hall Lot). As a result, approximately 47 additional vehicles would park at the new garage each day. Of this total, 40 would be new vehicles, while the remaining 7 would be existing vehicles that would shift to the garage from other parking locations at the USNA. This shift would increase traffic volumes and delays along some routes, while reducing volumes and delays along others. Depending on the design of the proposed garage, and the number of vehicles arriving at a given time, queues may form at the garage entrance driveway. Design of the parking garage should assess the likelihood and extent of queues that may form as vehicles are processed for access to the facility, and to the extent feasible, incorporate measures to avoid blockage of through lanes into the design. With the implementation of avoidance and minimization measures such as these, impacts to traffic from operations under Alternative 2A would be less than significant.

The proposed parking garage at the lower lot and the surface parking at the upper lot would provide 378 spaces, which is enough to accommodate spaces previously provided at the Alumni Hall Lot (222) and at the Waffle Lot (111), and the new spaces needed by CCSS faculty and staff (40). It would also reduce the USNA parking shortfall (156) by 5 spaces. Therefore, no parking impact would occur. The proposed parking garage at the Alumni Hall Lot is located within a five-minute walking distance of the proposed CCSS and other academic buildings on the Lower Yard. Therefore, no impact to pedestrian accessibility would occur under Alternative 1A.

In conclusion, with implementation of avoidance and minimization measures, implementation of Alternative 2A would have less than significant impacts to transportation during both construction and post-construction operations of the CCSS building.

3.7.2.4 Alternative 2B – Firehouse Site Parking Garage Alternative

In terms of construction traffic on both internal and external streets, Alternative 2B would have similar impacts to Alternative 1A, in that construction traffic could contribute toward already congested conditions on Rowe Boulevard and could increase queues and delays at Gate 8. To minimize the potential effects from construction traffic accessing the USNA via Gate 8, the USNA could implement measures for streamlining contractor access, such as scheduling trips to avoid peak demand at the gate, use of the RAPIDGate program to facilitate regular access to the installation, and/or other measures as appropriate and feasible. Because the parking garage at the Firehouse Site would be located adjacent to Gate 8, construction traffic would be localized and unlikely to affect streets within the USNA. Construction staging would be provided in an undeveloped area adjacent to the proposed garage, to the north and east of Bowyer Road. Construction of Alternative 2B would involve the permanent closure of Circle Court, a secondary road providing access from Bowyer Road to a residential community located along O'Hare Road. This closure would cause the redistribution of existing trips from Circle Court to Bailey Road and Phythian Road. Given the generally low development intensity in this area, and considering the availability of alternate routes to and from Bowyer Road, the traffic redistribution impact would be less

than significant. With the implementation of avoidance and minimization measures, construction impacts to traffic under Alternative 2B would be less than significant.

Alternative 2B would not remove any existing parking spaces; therefore, no parking impact would occur. Existing pedestrian paths would not be affected by construction of the parking garage at the Firehouse Site.

The Firehouse Site parking garage would compensate for the loss of parking at either the Waffle Lot or the Alumni Hall Lot, would address the existing parking shortfall, and would provide parking for CCSS faculty and staff. Total parking demand for the parking garage at the Firehouse Site would be 307 spaces under Alternative 1A or 408 spaces for Alternative 1B. The proposed 536 spaces would be more than sufficient to accommodate this demand. As with Alternative 2A, the proposed closure of existing parking lots on the Lower Yard (i.e., either the Waffle Lot or the Alumni Hall Lot) would cause traffic to be redistributed from their existing routes to new routes leading to the garage. As a result, streets both on and off the installation may experience an incremental traffic volume and delay increase. The redistribution would also reduce traffic volumes and delay on the former routes. Because the proposed parking garage access driveway would be via Bowyer Road near Gate 8, it is expected that most if not all of the diverted vehicles would approach the parking garage via this gate, potentially increasing queues at this access point. Alternative 2B would not affect pedestrian facilities. However, faculty and staff walking from the parking garage at the Firehouse Site would have to walk 11 minutes to the center of the Lower Yard, nine minutes to the Waffle Lot site, and eight minutes to the Alumni Hall Lot site. The following measures could be taken to reduce the identified impacts to traffic and parking from operations:

- Consider the location of proposed driveways and assess the likelihood and extent of queues that may form as vehicles are processed for access to the facility in the design of the parking garage.
- To the extent feasible, incorporate measures to avoid blockage of through lanes into the parking garage design.
- Provide a limited shuttle service between the parking garage and various locations on the Lower Yard.

Therefore, with the implementation of avoidance and minimization measures, operations under Alternative 2B would have less than significant impacts to traffic, parking, and pedestrian accessibility.

In conclusion, with implementation of avoidance and minimization measures, implementation of Alternative 2B would have less than significant impacts to transportation during both construction and post-construction operations of the CCSS building.

3.7.2.5 Alternative 2C – Lawrence Field Parking Garage Alternative

Construction related impacts under Alternative 2C would be similar to those of Alternative 2B, as described above. However, unlike Alternative 2B, Alternative 2C would not involve the permanent or temporary closure of any existing roadways. Staging would be provided in an undeveloped area between Bowyer Road and the Bishop Field baseball stadium. With the implementation of avoidance and minimization measures such as those identified for Alternative 2B, construction impacts to traffic, parking, and pedestrian accessibility under Alternative 2C would be less than significant.

Impacts from operations under Alternative 2C would be generally the same as those for Alternative 2B. However, the proposed parking garage would increase walking distance, relative to Alternative 2B. Faculty and staff walking from the parking garage at Lawrence Field would take 14 minutes to reach the

center of the Lower Yard, 11 minutes to reach the Waffle Lot site, and 10 minutes to reach the Alumni Hall Lot site. With the implementation of avoidance and minimization measures such as those identified for Alternative 2B, impacts to traffic, parking, and pedestrian accessibility from operations under Alternative 2C would be less than significant.

In conclusion, with implementation of avoidance and minimization measures, implementation of Alternative 2C would have less than significant impacts to transportation during both construction and post-construction operations of the CCSS building.

3.7.2.6 No Action Alternative

Under the No Action Alternative, the CCSS building and parking garage would not be constructed at the USNA. Therefore, implementation of the No Action Alternative would have no impacts to transportation.

3.8 INFRASTRUCTURE AND UTILITIES

The affected environment for infrastructure and utilities includes the USNA, NSA Annapolis, and the city of Annapolis.

3.8.1 Affected Environment

3.8.1.1 Water Supply

Potable water for the Upper and Lower Yards is supplied by three wells located at the Upper Yard. The wells are 600 feet to 700 feet deep and are located in the Upper Patapsco Aquifer. The wells each have a capacity of 1,200–1,300 gallons per minute and the capacity of the installation's water treatment plant (WTP) is 3.46 million gallons per day (MGD) (NAVFAC 2009).

Currently, NSA Annapolis owns and operates the WTP and water distribution system. The WTP was constructed in 1971, with modifications performed in 1998 and 2004. The plant typically operates approximately 14 hours per day and produces approximately 1.8 MGD of potable water. Treated water is stored in the elevated water storage tank and two aboveground storage tanks located on the Upper Yard and is distributed throughout the Upper and Lower Yards through a network of water lines that include two crossings under College Creek (NAVFAC 2009). With a treatment capacity of 3.46 MGD and a daily water demand of 1.8 MGD, the WTP is operating at just over 50 percent of its capacity.

3.8.1.2 Wastewater

Currently, wastewater from the Upper and Lower Yards is conveyed to the municipal wastewater treatment plant (WWTP). The Upper and Lower Yards have separate systems with separate connections to the municipal system. In both cases, there is a meter at the connection to the municipal system to meter the flows from NSA Annapolis. The Upper and Lower Yards include both gravity and forcemains for the collection and conveyance of wastewater. There are a number of lift stations located throughout the Lower Yard.

The Navy owns the lines and NAVFAC maintains them within the boundaries of the Upper and Lower Yards. Within the past few years, NAVFAC has re-lined and replaced several sewer lines (NAVFAC Washington 2012b).

3.8.1.3 Stormwater

NSA Annapolis is currently discharging stormwater from industrial activities under the MDE State Discharge Permit Number 08-DP-2513 (NPDES Permit Number MD0002488). NSA Annapolis has an existing Stormwater Pollution Prevention Plan (NSA Annapolis 2014e) which combines both the requirements of the NPDES Phase II General Permit for Discharges from State and Federal Small Municipal Separate Storm Sewer Systems (MS4s) and the NPDES Permit Number MD0002488.

The stormwater infrastructure for the Upper and Lower Yards includes 24 major drainage basins. The basins collect and discharge nearly 80 percent of the runoff. The remaining runoff from areas, such as roadways and athletic fields, is discharged through single or double structure outlets. These drainage areas typically collect runoff from athletic fields and perimeter roadways. All USNA outfalls discharge into Spa Creek, Santee Basin, College Creek, Shady Lake, or the Severn River; all of which eventually discharge to the Chesapeake Bay (NSA Annapolis 2014e).

3.8.1.4 Electricity

Power is provided to the Upper and Lower Yards by Baltimore Gas and Electric (BGE). BGE provides electricity through two feeders provided from Substation A. However, the substation and the electrical distribution grid are owned and maintained by NAVFAC Washington. Much of the distribution system has been upgraded in recent years and is now installed underground (NAVFAC Washington 2012b).

To ensure uninterrupted power service, emergency generators are installed at various locations throughout the Upper and Lower Yards.

3.8.1.5 Fiber Optic/Telecommunications

Telecommunication services, including telephone, fiber optic, and cable, are provided to all buildings in the Upper and Lower Yards by the Navy, with the exception of Navy Marine Corps Intranet services at the facilities occupied by NSA Annapolis and Commander Navy Installations Command (NAVFAC Washington 2012b).

3.8.1.6 Natural Gas

Natural gas is provided by BGE. Easements are provided at all of the installation facilities to allow BGE to maintain their infrastructure at the USNA (NAVFAC Washington 2012b).

3.8.1.7 Solid Waste

Domestic solid waste is collected by a private contractor for off-site disposal at a permitted landfill. In addition, a recycling program is implemented by the Navy (NAVFAC Atlantic 2009).

3.8.2 Environmental Consequences

3.8.2.1 Alternative 1A – Waffle Lot CCSS Building Alternative

Water

Under Alternative 1A, new service lines would be required for water and fire service. Approximately 100 feet of existing 8-inch water main would need to be rerouted around the proposed site for the relocation of the switchgear and substation, as discussed below under the Electricity section. In addition, the

connection to the existing water main would require the installation of isolation valves along with the piping at the connection point to ensure the CCSS building can be isolated in the future, if necessary.

As discussed in Section 3.8.1.1, *Water Supply*, the WTP has a capacity of 3.46 MGD and currently the demand at NSA Annapolis is approximately 1.8 MGD. The addition of the CCSS building would increase water demand by approximately 18,540 gallons per day (gpd). This assumes the new 206,000 SF building has a demand of 0.09 gpd per SF. This increase is only 1 percent of the current demand and is well below the current capacity, which indicates that Alternative 1A would not result in significant impacts to the water supply system.

Wastewater

No significant impacts to wastewater would occur under Alternative 1A. There would be only a 1 percent increase in wastewater under Alternative 1A. Therefore, there would not be a significant impact to the municipal WWTP. Wastewater would be conveyed to the municipal WWTP through the existing and new sewer lines. The proposed connection from the CCSS building to the existing collection system includes the installation of a 6-inch gravity sewer main from the CCSS building to the existing pump station 7. Upgrades to pump station 7 may be required. However, it is anticipated that Alternative 1A would not result in a significant impact to wastewater.

Stormwater

The preliminary conceptual design of the CCSS building at the Waffle Lot considers both reduction of impervious area and rainwater harvesting (NSA Annapolis 2013a). However, plans for stormwater management have not yet been finalized. Alternative 1A would be implemented in accordance with NSA Annapolis' existing Stormwater Pollution Prevention Plan. Therefore, there would be no significant impacts to stormwater associated with the implementation of Alternative 1A.

Electricity

Under Alternative 1A, the existing electrical switchgear and emergency generator that are located within the footprint of the Waffle Lot would need to be relocated. The switchgear and generator would be relocated to the corner of Dewey Field near the intersection of Sims and Holloway Roads. The upgraded switchgear and generator would be a beneficial impact to the existing electrical system. Therefore, there would be no significant impact to electricity under Alternative 1A.

Fiber Optic/Telecommunications

The telecommunications systems to be provided to the CCSS building would include telephone, fiber optic, and cable. Capacity exists within the current systems to meet the demands under Alternative 1A. The proposed connection points for these systems are as follows:

- Telephone – Connect with existing phone switch room at Rickover Hall
- Fiber Optic – Connect with the splice point located in the utility tunnel at the northwest corner of Nimitz Library
- Cable – Connect with the existing amplifier in the media center of the Nimitz Library

Based on the available capacity, Alternative 1A would not result in significant impacts to fiber optic and telecommunications systems.

Natural Gas

Under Alternative 1A, the increase in natural gas usage would be negligible. There is a 4-inch high pressure natural gas line that was recently installed adjacent to Holloway Road at the corner of Rickover Hall. Under Alternative 1A, this gas line would be extended down Holloway Road to provide the connection and serve as the primary heating source for the CCSS building. There would be no significant impacts to natural gas associated with Alternative 1A.

Solid Waste

Solid waste generated during the construction, operation, and maintenance of the CCSS building would be disposed of by the private contractor at an existing permitted landfill. Solid waste generated during operation of the CCSS building by personnel working in the building and by midshipmen attending classes would be approximately 30 cubic yards per week. This assumes the 206,000 SF building would generate approximately 0.03 lbs per SF weekly. The increase in solid waste from the construction and operation of the CCSS building would not result in significant impacts to existing arrangements for solid waste disposal.

Therefore, implementation of Alternative 1A would have no significant impacts to infrastructure and utilities.

3.8.2.2 Alternative 1B – Alumni Hall Lot CCSS Building Alternative

Water

Under Alternative 1B, approximately 250 feet of existing water service lines at the Alumni Hall Lot would need to be rerouted to provide the new water and fire services to the CCSS building. These new service connections and estimated water demands would be similar to those discussed under Alternative 1A. The increase in water represents only 1 percent of the current demand and is well below the current capacity, which indicates that Alternative 1B would not result in significant impacts to the water supply system.

Wastewater

No significant impacts to wastewater would occur under Alternative 1B. There would be only a 1 percent increase in wastewater under Alternative 1B. Therefore, there would not be a significant impact to the municipal WWTP. Wastewater would be conveyed to the municipal WWTP through the existing and new sewer lines. The proposed connection from the CCSS building to the existing collection system includes the installation of a 6-inch gravity sewer main from the CCSS building to the existing 8-inch gravity sewer northeast of the Alumni Hall Lot. Upgrades to downstream collection stream may be required. However, it is anticipated that Alternative 1A would not result in a significant impact to wastewater.

Stormwater

Similar to Alternative 1A, Alternative 1B would not result in significant impacts to stormwater.

Electricity

Under Alternative 1B, the existing transformer and switch that serve the Alumni Hall Lot would need to be upgraded. The existing power capacity of the transformer is not adequate to serve the CCSS building. An upgraded transformer would be a beneficial impact to the existing electrical system. There would be no significant impact to electricity under Alternative 1B.

Fiber Optic/Telecommunications

The telecommunications systems to be provided to the CCSS building would include telephone, fiber optic, and cable. Capacity exists within the current systems in the basement of Leahy Hall and the adjacent manholes and ductbank system. Based on the available capacity, Alternative 1B would not result in significant impacts to the fiber optic and telecommunications systems.

Natural Gas

Under Alternative 1B, the increase in natural gas usage would be negligible. There is a 1½-inch high pressure natural gas line near the east corner of the Alumni Hall Lot. Under Alternative 1B, this gas line would be extended to the CCSS building to provide the connection and serve as the primary heating source for the building. Therefore, there would be no significant impacts to natural gas associated with Alternative 1B.

Solid Waste

Similar to Alternative 1A, solid waste generated during the construction, operation, and maintenance of the CCSS building under Alternative 1B would be disposed of by the private contractor at an existing permitted landfill. Approximately 30 cubic yards of solid waste would be generated during operation of the CCSS building by personnel working in the building and by midshipmen attending classes. The increase in solid waste from the construction and operation of the CCSS building would not result in significant impacts to existing arrangements for solid waste disposal.

Therefore, implementation of Alternative 1B would have no significant impacts to infrastructure and utilities.

3.8.2.3 Alternative 2A – Alumni Hall Lot Parking Garage Alternative

Water

Under Alternative 2A, water service to the proposed parking garage would be limited to some hose bibs and new fire hydrants. The water demand associated with these fixtures would be negligible, which indicates that Alternative 2A would not result in significant impacts to the water supply system. Alternative 2A would have short term impacts associated with rerouting the high-temperature hot water line located at the Alumni Hall Lot.

Wastewater

Construction and operation of the parking garage would not generate wastewater; therefore, there would be no significant impacts to wastewater as a result of Alternative 2A.

Stormwater

The preliminary conceptual design of the parking garage at the Alumni Hall Lot includes installation of two micro-bioretention facilities and permeable pavement in the upper lot to ensure there is no increase in stormwater runoff. These stormwater management measures would meet MDE's water quality and quantity requirements for "redevelopment" for ground disturbance greater than 5,000 square feet. Therefore, there would be no significant impacts to stormwater associated with the implementation of Alternative 1A.

Electricity

Under Alternative 2A, a new transformer and pad-mounted switch would be installed and tied into the existing circuit that currently serves the Alumni Hall Lot. These electrical utility upgrades would be a beneficial impact to the existing electrical system. There would be no significant impact to electricity under Alternative 2A.

Fiber Optic/Telecommunications

The telecommunications systems to be provided to the parking garage would include telephone, fiber optic, and cable. Capacity exists within the current system in the basement of Leahy Hall and the adjacent manholes and ductbank system. Based on the available capacity, Alternative 2A would have no significant impact to the fiber optic and telecommunications systems.

Natural Gas

Construction and operation of the parking garage would not require natural gas. Therefore, there would be no significant impacts to natural gas as a result of Alternative 2A.

Solid Waste

Solid waste generated during the construction of the parking garage would be disposed of by the private contractor at an existing permitted landfill. Solid waste generated during operation of the parking garage would be negligible. The increase in solid waste from the construction and operation of the parking garage under Alternative 2A would not result in a significant impact to existing arrangements for solid waste disposal.

Therefore, implementation of Alternative 2A would have no significant impacts to infrastructure and utilities.

3.8.2.4 Alternative 2B – Firehouse Site Parking Garage Alternative

Water

Under Alternative 2B, approximately 330 feet of an existing 12-inch water main would need to be relocated and water service to the new parking garage would be limited to some hose bibs and new fire hydrants. The water demand associated with these fixtures would be negligible, which indicates that Alternative 2B would not result in significant impacts to the water supply system.

Wastewater

Construction and operation of the parking garage would not generate wastewater; therefore, there would be no significant impacts to wastewater as a result of Alternative 2B.

Stormwater

Similar to Alternative 1A, Alternative 2B would not result in significant impacts to stormwater.

Electricity

Under Alternative 2B, there are two options for connecting to the existing electrical system. One option is the PS5 switch directly across from Gate 8 and the second option is located in a small structure adjacent

to PS5. Some upgrades to either system may be required. If required, the upgrades would be a beneficial impact to the existing electrical system. There would be no significant impact to electricity under Alternative 2B.

Fiber Optic/Telecommunications

The telecommunications systems to be provided to the parking garage would include telephone, fiber optic, and cable. Capacity exists within the current system, adjacent to the USNA fire station. Based on the available capacity, Alternative 2B would have no significant impact to the fiber optic and telecommunications systems.

Natural Gas

Construction and operation of the parking garage would not require natural gas. Therefore, there would be no significant impacts to the existing natural gas distribution system as a result of the Alternative 2B.

Solid Waste

Solid waste generated during the construction of the parking garage would be disposed of by the private contractor at an existing permitted landfill. Solid waste generated during operation of the parking garage would be negligible. The increase in solid waste from the construction and operation of the parking garage under Alternative 2B would not result in a significant impact to existing arrangements for solid waste disposal.

Therefore, implementation of Alternative 2B would have no significant impacts to infrastructure and utilities.

3.8.2.5 Alternative 2C – Lawrence Field Parking Garage Alternative

Water

Under Alternative 2C, two separate sections of 8-inch water main, each approximately 750 feet long, would need to be relocated. The water service to the parking garage would be limited to some hose bibs and new fire hydrants. The water demand associated with these fixtures would be negligible, which indicates that Alternative 2C would not result in significant impacts to the water supply system.

Wastewater

Construction and operation of the parking garage would not generate wastewater, but the footprint of the proposed garage would require the relocation of approximately 340 feet of existing 8-inch sanitary sewer. There would be no significant impacts to wastewater as a result of Alternative 2C.

Stormwater

Alternative 2C would require the relocation of approximately 340 feet of existing 12-inch storm pipe around the northeast side of the garage. Also, due to the amount of impervious area associated with the construction of Alternative 2C, Environmental Site Design would be required. The relocation of the existing storm pipe and the implementation of Environmental Site Design best practices would not result in significant impacts to stormwater.

Electricity

Under Alternative 2C, the two options for connecting to the existing electrical system are identical to Alternative 2B. Similar to Alternative 2B, some upgrades to either system may be required under Alternative 2C. If required, the upgrades would be a beneficial impact to the existing electrical system. Under Alternative 2C, the construction of the parking garage would require the removal of existing lighting and relocation of electrical lines. These changes to the electrical system would have no significant impact to electricity under Alternative 2C.

Fiber Optic/Telecommunications

The telecommunications systems to be provided to the parking garage would include telephone, fiber optic, and cable. Capacity exists within the current system at Halligan Hall. Based on the available capacity, Alternative 2C would have no significant impact to the fiber optic and telecommunications systems.

Natural Gas

Construction and operation of the parking garage would not require natural gas. Therefore, there would be no significant impacts to natural gas as a result of Alternative 2C.

Solid Waste

Solid waste generated during the construction of the parking garage would be disposed of by the private contractor at an existing permitted landfill. Solid waste generated during operation of the parking garage would be negligible. The increase in solid waste from the construction and operation of the parking garage under Alternative 2C would not result in a significant impact to existing arrangements for solid waste disposal.

Therefore, implementation of Alternative 2C would have no significant impacts to infrastructure and utilities.

3.8.2.6 No Action Alternative

Under the No Action Alternative, a building for the CCSS and a parking garage would not be constructed at the USNA. Therefore, there would be no impacts on the existing infrastructure and utilities.

3.9 CULTURAL RESOURCES

Cultural resources are prehistoric or historic sites, buildings, structures, objects, districts, or other physical evidence of human activity that are considered important to a culture, subculture, or community for scientific, traditional, religious, or other purposes. They include archaeological resources, historic architectural/engineering resources, and traditional cultural properties.

Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended, empowers the Advisory Council on Historic Preservation (ACHP) to comment on federally initiated, licensed, funded, or permitted projects affecting cultural resources listed or eligible for listing in the National Register of Historic Places (NRHP) (i.e., historic properties). Each state or territory has a State Historic Preservation Office (SHPO) that is responsible for administering cultural resources programs within a given jurisdiction; the Maryland SHPO is the Maryland Historical Trust (MHT). The NHPA requires federal agencies, in carrying out their Section 106 responsibilities, to consult with the SHPO, Indian tribes, representatives of local governments, and the public in a manner appropriate to the agency planning

process for the planned action, and to its potential to cause effects on historic properties. The criteria of adverse effect (36 CFR § 800.5) are applied to evaluate the effects of a proposed undertaking on a historic property located in the area of potential effects (APE). An APE is the geographic area or areas within which an undertaking may directly or indirectly cause changes in the character or use of historic properties, if any such properties exist (36 CFR § 800.16[d]). The APE for cultural resources for this proposed action includes the USNA, areas of the city of Annapolis adjacent to the installation, and areas with water-related views of the Waffle Lot (Figure 3.9-1). For archaeological resources, potential effects would be limited to each alternative site, as those are the areas within the APE where ground disturbance would occur.

The management of cultural resources at the USNA is guided by the Integrated Cultural Resources Management Plan (ICRMP) for NSA Annapolis (NSA Annapolis and NAVFAC Washington PWD Annapolis 2010). The ICRMP provides the protocols for managing and protecting cultural resources at the USNA. The ICRMP also addresses compliance actions for meeting federal regulations regarding cultural resources.

3.9.1 Affected Environment

3.9.1.1 Archaeological Resources

Fifteen archaeological surveys have been conducted at the USNA and there are a total of 15 archaeological sites, including prehistoric sites and historic domestic and military sites, located within the Upper and Lower Yards (NSA Annapolis and NAVFAC Washington PWD Annapolis 2010). None of these sites are located within the proposed alternative sites. Portions of the USNA have been disturbed by activities at the installation, and other areas rest on created land.

Alternative 1A – Waffle Lot CCSS Building Alternative

The area of the Waffle Lot is composed entirely of made land. Prior to the 1960s, the area of the Waffle Lot was part of the Severn River. By 1901, the Lower Yard had been extended into the river by adding fill, creating additional space for buildings and Dewey Basin, a water feature that opened the center of the campus to the river (NAVFAC Washington 2013a). Remnants of a bulkhead of steel sheet piles and a concrete cap that were possibly constructed in the 1940s are located running through the middle of the site. A second bulkhead runs along the former shoreline and is still in place along the south edge of the site (NSA Annapolis 2013a, Appendix B). The immediate area of the Waffle Lot appears to have been created between 1966 and 1971 when additional fill was placed here, likely in anticipation of the construction of the new Nimitz Library (Nationwide Environmental Title Research [NETR] 2009).

Soil borings at the Waffle Lot indicate the presence of granular fill layers of sand, gravel, shells, and debris to between approximately 10 and 25 feet across the site. Below this, pockets of loose to firm sand and silty sand (possible historic fill) were encountered above layers of underconsolidated clay. One boring encountered a hard surface, possibly old riprap or seawall (NSA Annapolis 2013a, Appendix B).

Although the CCSS building feasibility study indicates that structures have been located on the Waffle Lot in the past (NSA Annapolis 2013a), available mapping and aerial photos do not show any buildings on this site between its creation and present (NETR 2009).



Figure 3.9-1. Historic Properties in the APE

Alternative 1B – Alumni Hall Lot CCSS Building Alternative

A Phase IA archaeological investigation of the Alumni Hall Lot was conducted using detailed background research and examination of geotechnical studies to evaluate prior disturbance and assess the potential for the site to contain intact archaeological resources (NAVFAC Washington 2014a). The investigation found that the area of the Alumni Hall Lot is located in a portion of the Lower Yard that was the natural land surface prior to 1847 (Maryland Geological Survey 2001). This area was developed between the 1850s and 1880s and became known as Lockwoodville, a mostly African-American, working-class community (NAVFAC Washington 2013b). Four acres of Lockwoodville on the east side of Balch Road, including the Alumni Hall Lot site, were purchased by the Navy in 1873–1874 and the buildings demolished (NAVFAC Chesapeake 1996). The remainder of Lockwoodville was purchased by the Navy in 1889 and was razed to create Worden Field. Recent excavations of an archaeological site at Worden Field (Site 18AP78), across from the Alumni Hall Lot, recovered artifacts from under a layer of fill associated with the Worden Field parade ground; however, these artifacts were recovered from demolition debris and post-demolition fill and could not be associated with intact deposits of the former Lockwoodville neighborhood. Site 18AP78 was recommended not eligible for inclusion in the NRHP because there is limited to no potential for this site to provide information important to Lockwoodville (NAVFAC Washington 2013b).

By 1881, an armory was present in the lower lot, which was later removed. By the early 1900s, the area of the lower lot had been replaced with an artesian well and reservoir, which consisted of several underground concrete holding tanks (NAVFAC Washington 2013a). A WTP had been constructed on the northeast side of the lower lot along Decatur Road and several smaller structures were built along Balch Road by the 1920s (Library of Congress, Prints and Photographs Division 1981). Several feet of fill were also added to the site during this time. The plant was expanded by the 1960s but was demolished in the 1980s, creating a large amount of disturbance in the lower lot. The area of the lower lot was subsequently turned into parking for Alumni Hall and other buildings in this portion of the Lower Yard.

Previous soil borings conducted in the lower lot encountered obstructions associated with the concrete underground reservoirs and possible debris from the former WTP close to the surface (NSA Annapolis 2013a, Appendix B). Additional geotechnical survey was conducted at the Alumni Hall Lot in April 2014. Five borings were placed in the lower lot to a depth of between 5 and 75 feet. These borings were generally placed around the perimeter to avoid the water reservoir tanks under the majority of the parking lot. Results indicated that there is from 8 to 11 feet of fill under the asphalt parking lot. The fill generally consists of mixed sandy soils with trace amounts of gravels and brick fragments, as well as concrete debris. Heavy concrete debris was encountered at approximately 5 feet in depth in one of the borings (ECS Mid-Atlantic 2014b). This debris was likely associated with the concrete reservoirs or the demolition of the WTP in the 1980s. The depth of the reservoir tanks is unknown; however, their construction likely disturbed soils to a depth below the possibility for prehistoric sites in this location, and also likely destroyed any remains associated with the former Lockwoodville homes and the nineteenth century armory building. In addition, construction and demolition of the WTP created large amounts of ground disturbance in this area.

Alternative 2A – Alumni Hall Lot Parking Garage Alternative

The lower lot site for Alternative 2A is the same as described under Alternative 1B.

The upper lot of the Alumni Hall Lot site was also associated with the Lockwoodville neighborhood during the mid- to late nineteenth century, and following the purchase of the property by the USNA, the buildings on the lot were demolished. Buildings were then constructed on the upper lot by the USNA, including an armory, laundry, bakery, and powder house. These buildings were subsequently demolished

and fill was added to the site when a WTP was constructed on the northeast side of the Alumni Hall Lot. Tennis courts, and later, parking lots were placed on the upper lot.

Geotechnical survey conducted in April 2014 placed six borings in the upper lot to a depth of between 50 and 75 feet. Results indicated that there is from 8 to 12 feet of fill under the asphalt parking lot, with deeper fill on the northwest end of the lot. The fill generally consists of mixed sandy soils with trace amounts of gravels and brick fragments. Some oyster shell was noted in the fill of one of the borings; however, no other artifacts were recovered (ECS Mid-Atlantic 2014b). Trace amounts of brick recovered from the borings are likely associated with the demolition of the Lockwoodville residences and the USNA armory building.

Due to the amount of disturbance on both the upper and lower lots of the Alumni Hall Lot site, it is unlikely that any prehistoric sites or intact historic sites are located here. Although houses associated with the Lockwoodville neighborhood are known to have been present on the site prior to the USNA's acquisition of the land in the late nineteenth century, excavations of portions of the neighborhood in the adjacent Worden Field revealed remains that were completely disturbed by demolition and post-demolition activities. USNA buildings on the site following the demolition of Lockwoodville were utilitarian structures that likely would not yield artifacts associated with the daily life of the cadets.

Alternative 2B – Firehouse Site Parking Garage Alternative

A Phase IA archaeological investigation of the Firehouse Site was conducted using detailed background research and examination of geotechnical studies to evaluate prior disturbance and assess the potential for the site to contain intact archaeological resources (NAVFAC Washington 2014a). The investigation found that the area of the Firehouse Site appears to consist of made land and was a pool or part of a former channel associated with College Creek until sometime after 1901. Mapping shows that a road was constructed between 1893 and 1901 that cut the pool off from the main channel of the creek. By 1919, the majority of the pool was filled, leaving only a small remnant, which was filled at a later date (NAVFAC Washington 2013a). Available mapping and aerial photos indicate that this area has never been developed and never had any structures located on it (NETR 2009).

Soil borings at the Firehouse Site indicated the presence of fill layers of sand, mixed soils, and debris to a depth of approximately 5–6 feet. Water table was reached at 2–3 feet below the surface. Firm and dense sand was encountered below 17 feet in depth (NSA Annapolis 2013a, Appendix B).

Alternative 2C – Lawrence Field Parking Garage Alternative

The Lawrence Field area appears to have been cut and filled to create a level grade with Halligan Hall in the early 1900s. In a letter to the MHT in 2013 regarding the proposed placement of geothermal wells in the location of Lawrence Field, the Navy indicated that approximately 5 feet of fill soils were excavated in the area adjacent to Wainwright Road between 1913 and 1943. Portions of the field were also disturbed for the installation of porous drain tiles in 1922. Thus, the Navy determined there would be no adverse effects to historic properties as a result of the geothermal well project (NSA Annapolis 2013d). The MHT concurred that there would be no adverse effect to historic properties as a result of the proposed Halligan Hall energy repairs (MHT 2013). Soil borings at the Lawrence Field site indicate the presence of 2–5 feet of fill layers of sand, silt, and clay, over sandy clay, silt, and clayey sand. Firm and dense sand was encountered beneath this stratum (NSA Annapolis 2013a, Appendix B).

Due to the amount of ground disturbance that has taken place at the Lawrence Field site and the presence of fill, the potential for the discovery of archaeological sites is considered to be low to none.

3.9.1.2 Built Environment

The USNA was designated an NHL on July 4, 1961, and was automatically placed on the NRHP in 1966 when the Register was created by the passage of the NHPA. The USNA historic district is nationally significant for its pivotal role in American naval affairs and the education of naval officers in both military and academic studies, and for exemplifying the design principles of Beaux Arts architecture and the work of New York architect Ernest Flagg, who designed the plan of the main campus and its core buildings in the early twentieth century. Flagg's design included classically inspired monumental buildings arranged around a central yard (the Quadrangle) in rigid axial symmetry. Both the USNA NHL and NRHP historic districts share the same boundaries, which encompass the Lower Yard and much of the Upper Yard (Figure 3.9-1). The more than 100 contributing resources within the district include buildings, structures, and monuments (NSA Annapolis and NAVFAC Washington PWD Annapolis 2010). The NRHP nomination forms (two were completed in the 1970s) do not indicate a period of significance for the USNA.

In 2013, a historic landscape study was completed to identify landscape features within the USNA. The goal of the study was to determine which features, if any, are contributing resources to the USNA historic district. A period of significance of 1845 to 1975 was defined to guide the survey and evaluation efforts of the landscape study. This period of significance extends from the year of the Naval School's establishment in 1845 to the completion of construction of Rickover Hall (Building 590) in 1975. This period encompasses the Ernest Flagg plan in the early twentieth century as well as the John Carl Warnecke Master Plan in the late 1960s, which modernized the USNA campus. The following landscape features were included in the survey: topography, land use, spatial organization (e.g., axial arrangement, designed open spaces), circulation (roads and parking, pedestrian paths, boundary demarcations), vegetation, small scale features (e.g., flagpoles, light posts), and views and vistas (NAVFAC Washington 2013a). The conclusions and recommendations of the historic landscape study are pending review by the MHT.

The site of Alternative 1A, the Waffle Lot, and the site of Alternatives 1B and 2A, the Alumni Hall Lot, do not comprise or contain contributing resources to the USNA historic district. Contributing resources, however, are adjacent to each site. Alternative 1A is adjacent to two contributing buildings, Nimitz Library (Building 589) and Rickover Hall (Building 590) (NSA Annapolis 2014b). It is also adjacent to several contributing resources of the USNA historic landscape, including Rickover Terrace, Dewey Field, McNair and Holloway Roads, and the College Creek seawall (NAVFAC Washington 2013a) (Figure 3.9-2). In addition, the Waffle Lot site is within view of Maury Hall (Building 105), a contributing resource of the USNA historic district. All the buildings adjacent to Alternatives 1B and 2A are contributing to the USNA historic district except for Alumni Hall (Building 675) (Figure 3.9-3). Other contributing resources adjacent to Alternatives 1B and 2A include Worden Field and the Worden Field Gazebo, the bordering roads, and the 1903 brick wall demarcating the installation boundary (NAVFAC Washington 2013a).

The site of Alternative 2B, the Firehouse Site, includes Circle Court and a portion of O'Hare Road. Both roads are recommended as contributing resources to the USNA historic district because they are part of the historic circulation system of the Upper Yard (NAVFAC Washington 2013a). Bowyer Road, which borders the Firehouse Site, and the rest of the road system in the Upper Yard with the exception of Vandergrift Road are also considered to be contributing resources (Figure 3.9-4). The officers' quarters on the north side of the Firehouse Site (which includes Building 87 from 1868, the oldest building on the USNA), and the boathouse (Hubbard Hall; Building 260) to the south, are contributing resources, but the USNA firehouse (Building 446) is not.

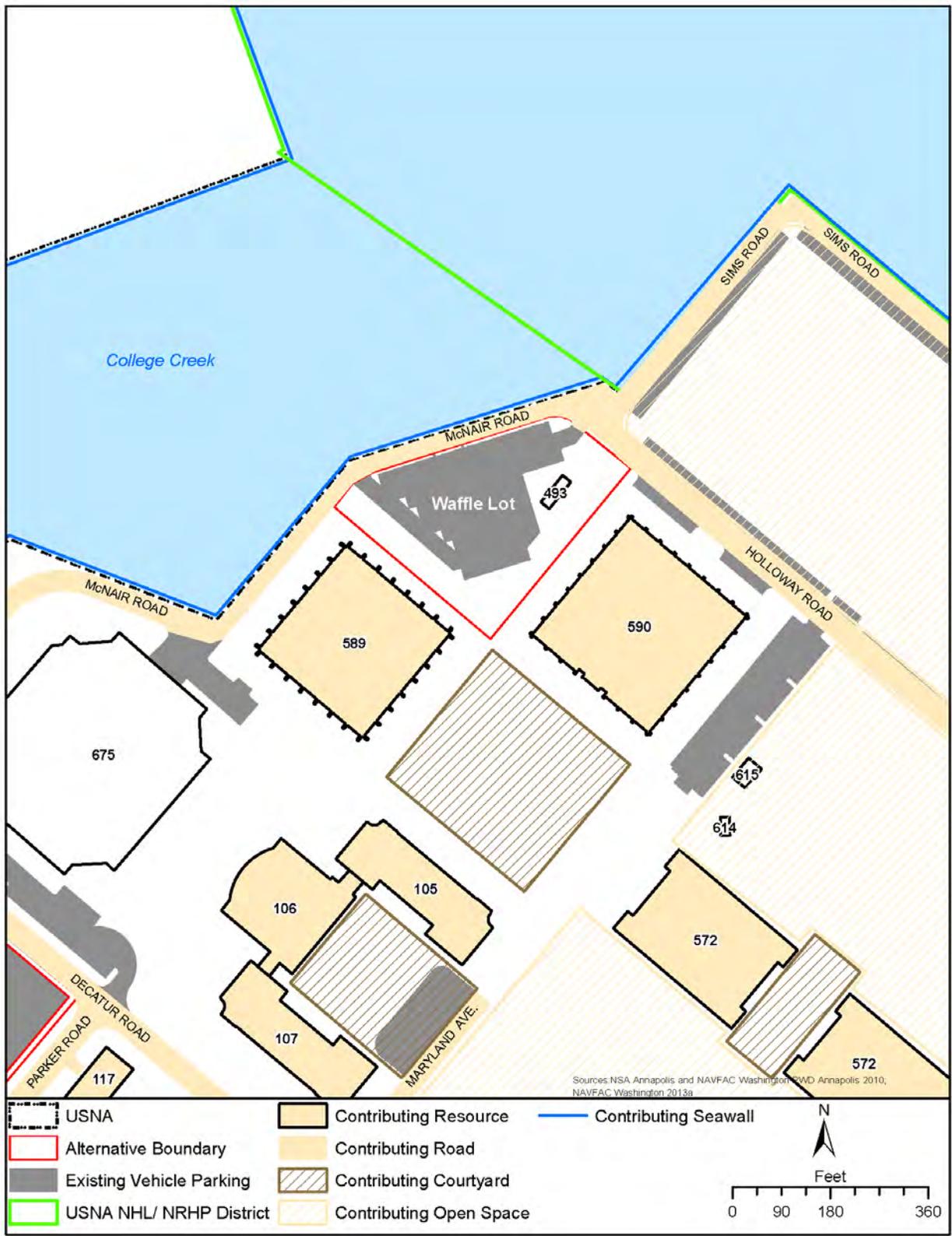


Figure 3.9-2. Contributing Resources Near the Waffle Lot

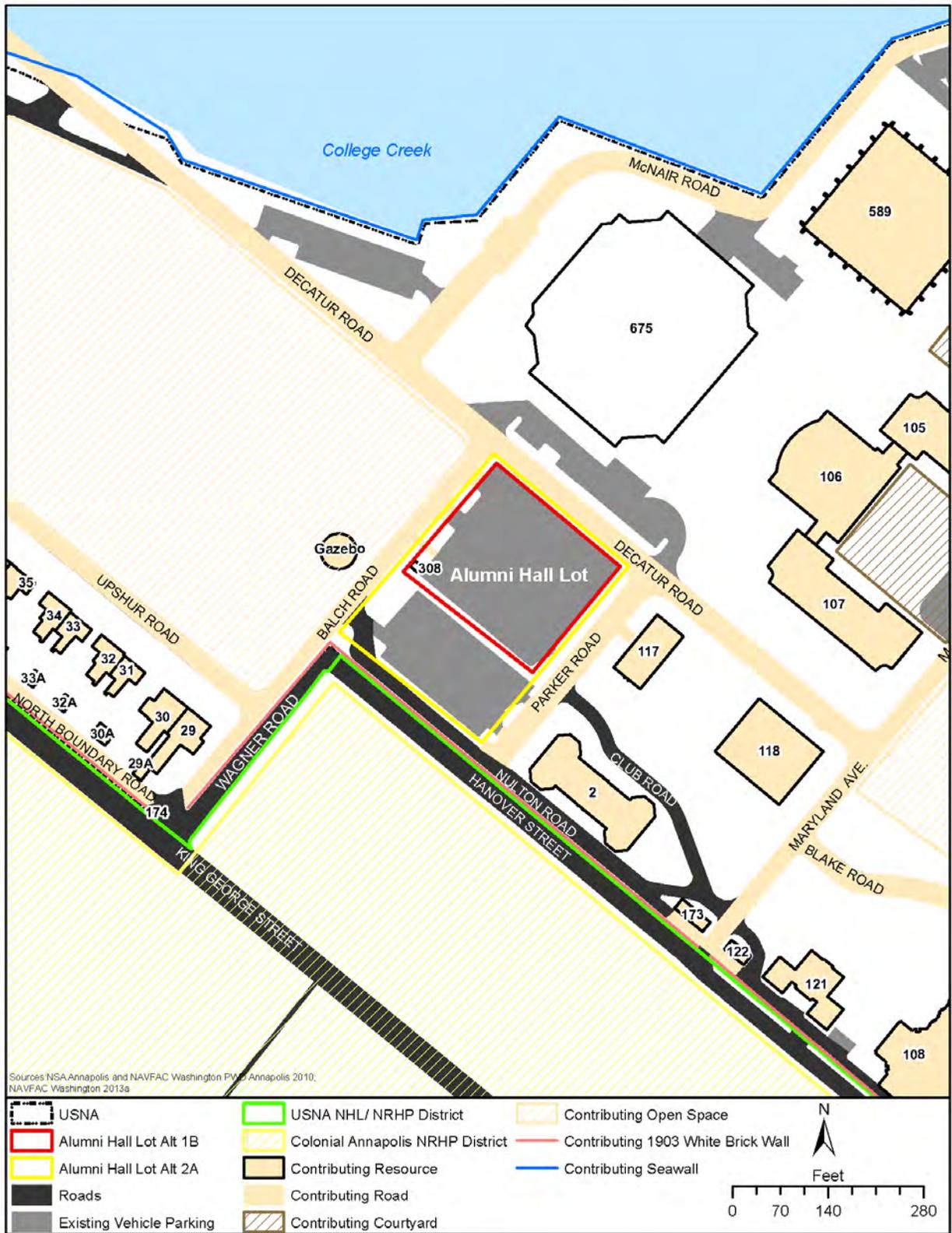


Figure 3.9-3. Contributing Resources Near the Alumni Hall Lot

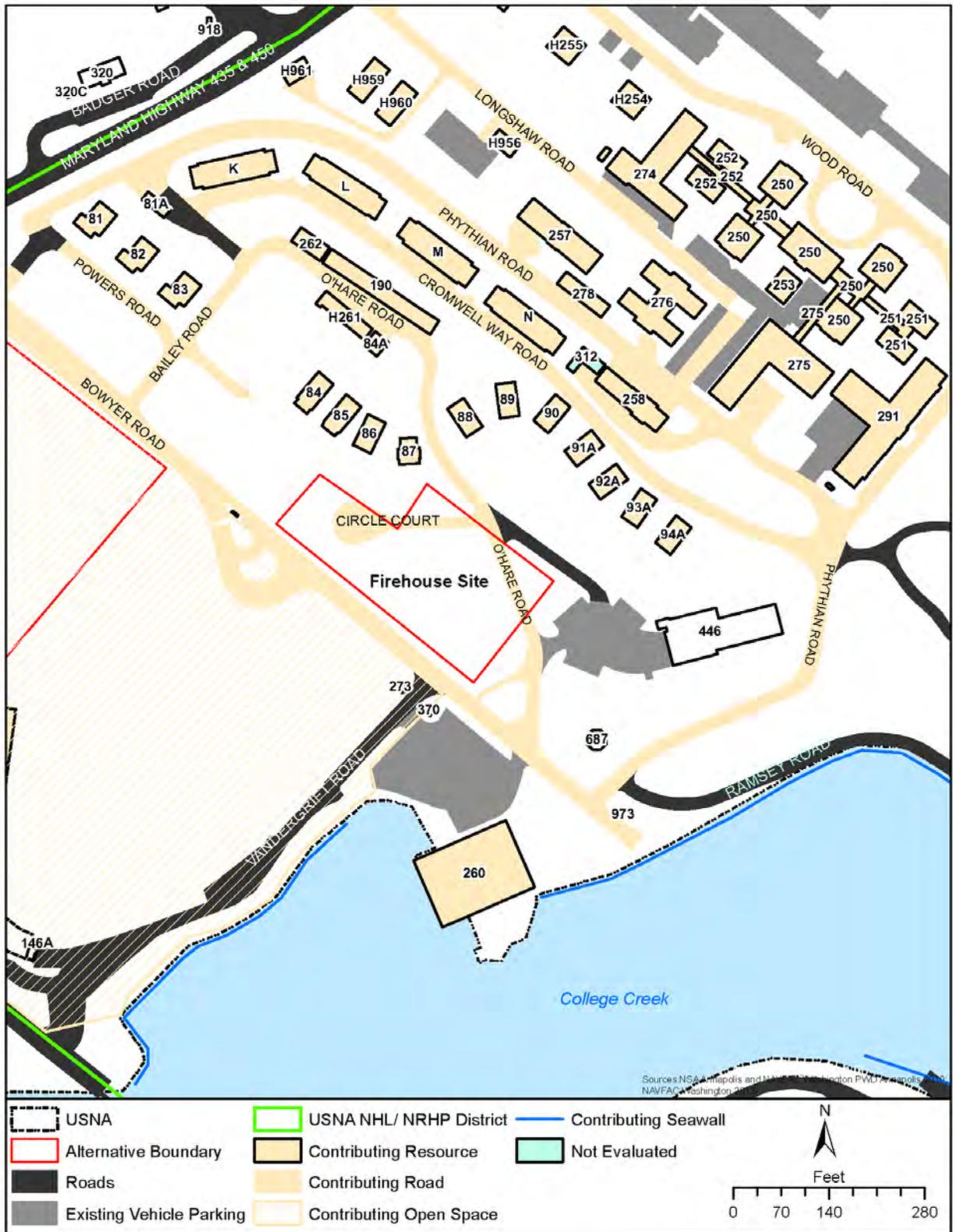


Figure 3.9-4. Contributing Resources In and Near the Firehouse Site

Lawrence Field, the site of Alternative 2C, is a contributing resource of the USNA historic district (Figure 3.9-5). Lawrence Field was originally part of the parade ground built in front of the Marine Barracks (present-day Halligan Hall) in 1903. When the Marine Barracks were converted to the Naval Postgraduate School in 1919, the parade ground was converted to a recreation area, with practice fields on the northwest half and a baseball stadium on the southeast half. The historic landscape study recommended Lawrence Field as a significant spatial element of the Upper Yard because it reflects the historical use of the area as a parade ground and its change in 1919 for USNA athletics. Furthermore, the view southeast from Halligan Hall across the open space of Lawrence Field toward College Creek and the Lower Yard was also identified by the historic landscape study as a contributing element to the historic landscape of the USNA district (NAVFAC Washington 2013a). A number of contributing resources are adjacent to Lawrence Field, including Bowyer and Wainwright Roads as part of the historic road system of the Upper Yard, Halligan Hall (Building 181), and the officer's housing to the northeast (Figure 3.9-5). In addition, south of Lawrence Field are three buildings outside of the USNA historic district boundaries that contribute to the NHL: two Public Quarters (Building 51, formerly the cottage for the stabler, and Building 92, formerly the Superintendent Gardner's Cottage) and Public Works Maintenance Storage (Building 194, formerly the Stable) (Figure 3.9-5).

The APE includes the Colonial Annapolis Historic District, which was designated an NHL in 1965 and included in the NRHP in 1966 (Figure 3.9-1). The district, as defined by the NRHP, was expanded in 1984. Colonial Annapolis attains national significance as the site of the Continental Congress in 1783–1784 and the Annapolis Convention in 1786, which led to the Constitutional Convention in 1787. The district is also nationally significant in the areas of architecture and urban planning as one of the first planned cities in colonial America, as a rare example of a modified baroque plan, and for its several outstanding examples of high Georgian design. As the capital of both the Colony and State of Maryland, the district also has state significance as the center of colonial and state government, politics, and commerce. Its large collection of intact residential, commercial, religious, educational, and civic buildings exemplifying popular architectural styles from the late seventeenth to the late nineteenth centuries also attain state significance. Finally, the district is also locally significant for the role of Annapolis as the seat of Anne Arundel County (Heintzelman 1974). The Colonial Annapolis Historic District is directly south of the Alumni Hall Lot, the site for Alternatives 1B and 2A (Figure 3.9-3).

The APE also includes the Peggy Stewart House, which is located on Hanover Street and faces the USNA (Figure 3.9-1). This 2½-story brick, Georgian-style house is listed in the NRHP for its association with several prominent individuals, including Thomas Stone, a signer of the Declaration of Independence; Daniel of St. Thomas Jenifer, a signer of the U.S. Constitution; and Anthony Stewart, a merchant who, in 1774, was forced to burn his own ship, the *Peggy Stewart*, after he paid duty on cargo arriving from England that included taxable tea. This house, built between 1761 and 1764, is also a contributing resource to the Colonial Annapolis Historic District. In addition to the Peggy Stewart House, the APE includes 14 other properties individually listed in the NRHP and that also contribute to the Colonial Annapolis Historic District (Table 3.9-1). These properties are farther removed from the USNA than the Peggy Stewart House.



Figure 3.9-5. Contributing Resources In and Near Lawrence Field

Table 3.9-1. Contributing Resources in the Colonial Annapolis Historic District that are also Individually Listed in the NRHP			
Name	Address	Description	Date Listed
Artisan's House	43 Pinckney St.	1½-story frame house representative of modest middle-class dwellings in Annapolis during the early 18th century	11/29/1972
Brice House	42 East St.	2½-story brick, five-part Georgian-style house with interiors attributed to William Buckland; built 1766–1773	4/15/1970
Callahan, John House	164 Conduit St.	2½-story brick, gable-end house exemplifying Georgian/Federal design and craftsmanship; associated with prominent Annapolitan, John Callahan	10/2/1973
Chase-Lloyd House	22 Maryland Ave.	3-story brick Georgian townhouse built 1769–1774, with interiors by William Buckland	4/15/1970
Creagh, Patrick House	160 Prince George St.	1½-story, brick house is an example of a small, freestanding, mid-18th century dwelling and of the work of local craftsman Patrick Creagh	1/29/1973
Hammond-Harwood House	Maryland Ave, and King George St.	2½-story, brick, five-part Georgian house completed in 1774 and attributed to William Buckland	10/15/1966
<i>Helianthus III</i> (yacht)	Compromise Street	Ketch-rigged wooden vessel from 1921; significant for its association with Nathanael Greene Herreshoff, a nationally renowned yacht designer	8/9/1984
House by the “Town Gates”	63 West St.	2½-story, five-bay brick house built in the second quarter of the 19th century on the site of the Annapolis “Town Gates”	6/19/1973
Maryland State House	State Circle	Late Georgian-style state house was the site of several historical events of national and state significance	10/15/1966
Mt. Moriah African Methodist Episcopal Church	84 Franklin St.	2½-story, brick, Gothic Revival-style church built in 1875 as the meeting hall for the First African Methodist Episcopal Church	1/25/1973
<i>Mustang</i> (brogan)	Dock St.	Built in 1907, this vessel is a late example of the Chesapeake Bay brogan	4/2/1980
Old City Hall and Engine House	211–213 Main St.	2½-story, brick vernacular Federal-style building was the first purpose-built home of the Annapolis city government	1/29/1973
Paca House and Garden	186 Prince George St.	2½-story, five-part, brick Palladian dwelling with reconstructed colonial rear garden; associated with William Paca, a significant individual in our history	12/23/1972
Peggy Stewart House	207 Hanover St.	2½-story brick, Georgian-style house built 1761–1764 and associated with several historically prominent individuals	11/7/1973
Scott, Upton House	4 Shipwright St.	2½-story brick dwelling representative of the transitional Georgian style	6/5/1975

Also located within the APE is the Ferry Point Farm (AA-948) (Figure 3.9-1). This property was recorded in the Maryland Inventory of Historic Properties in 1997 and was recommended eligible for inclusion in the NRHP for its association with the Brice family, one of Anne Arundel County's oldest and historically prominent families, and as a locally significant example of an early-nineteenth century vernacular farmhouse. No formal determination of eligibility has been completed for the Ferry Point Farm; however, for the purposes of this analysis, this property is being treated as eligible for listing in the NRHP. The property is located on the north shore of the Severn River, across from the Waffle Lot.

3.9.2 Environmental Consequences

3.9.2.1 Alternative 1A – Waffle Lot CCSS Building Alternative

Archaeological Resources

The area of the Waffle Lot is made land and did not exist prior to the 1960s and, therefore, there is no potential for prehistoric or historic archaeological sites. The location of two sets of bulkheads and possible old seawall within the site make it likely that any pre-existing maritime resources would have been destroyed at the time of or prior to the filling of the site. Implementation of Alternative 1A is anticipated to have No Effect on archaeological resources. MHT concurred with this finding in a letter dated September 26, 2014 (refer to Appendix C, *Agency Correspondence*).

Built Environment

Under Alternative 1A, the Navy would construct the CCSS building at the Waffle Lot. The building would comprise a plinth plus five stories. This configuration accommodates the amount of square footage required to meet the CCSS program requirements. Incorporating a plinth (an elevated ground story that is broader than the upper stories) into the design of the CCSS building continues an architectural precedent at the Lower Yard, as several existing academic buildings across its eastern edge, including Rickover Hall (Building 590) and Nimitz Library (Building 589), have a plinth. With a plinth, the CCSS building would be connected visually with the buildings along the waterfront, as well as functionally to allow for cross collaboration with cyber-related academic departments.

The upper five stories of the CCSS building would extend above the plinth in a single mass and have similar setbacks as Rickover Hall and Nimitz Library; the footprint and massing of both the plinth and the five stories would mirror the triangular configuration of the Waffle Lot site. This proposed building composition respects the existing spatial organization and architectural context of the waterfront edge of the Lower Yard. Furthermore, the height of each story would be the minimum possible so that the overall height of the CCSS building is compatible to Rickover Hall and Nimitz Library, and would not obstruct views of the USNA Chapel dome to and from the Severn River. Figure 3.9-6 depicts these massing concepts in a conceptual rendering of a bird's-eye view of the proposed CCSS building at the Waffle Lot from the Severn River.



Figure 3.9-6. Conceptual Rendering of Proposed CCSS Building at the Waffle Lot

Although the general height, footprint, and massing of the proposed CCSS building at the Waffle Lot has been identified, sufficient design information on the building style and materials is not available at this time in order for the Navy to make a determination of effect on the USNA historic district from implementation of Alternative 1A. For this same reason, the Navy is not able to make a determination of effect on the Ferry Point Farm, which is situated at a point on the north shore of the Severn River with direct views of the USNA waterfront, including the Waffle Lot site, to the south. However, the Navy has developed a Programmatic Agreement (PA) in consultation with the MHT, ACHP, National Park Service, and Annapolis Historic Preservation Division in order to govern the implementation of the project. The PA includes procedures for assessing effects and sets forth mitigation measures in case there would be an adverse effect to historic properties. A copy of the PA is included in Appendix C, *Agency Correspondence*.

Construction of the CCSS building at the Waffle Lot would not be expected to change the visual character or physical features within the setting of the Colonial Annapolis Historic District. The CCSS building would be similar in height to surrounding buildings. Furthermore, views from the northern portion of the historic district towards the Waffle Lot, which is approximately 1,100 feet away, would be blocked by several USNA buildings, including Alumni Hall and Nimitz Library. Therefore, implementation of Alternative 1A is anticipated to have No Adverse Effect to the Colonial Annapolis Historic District.

Implementation of Alternative 1A would not be expected to result in changes to the visual character or physical features within the current setting of any of the historic properties identified in Table 3.9-1. The CCSS building is not expected to be visible from any of these historic properties, as they are far removed from the Waffle Lot site (the closest is the Peggy Stewart House, at more than 1,300 feet to the south). Views of the CCSS building, the height of which would be compatible with the existing architectural context, would be effectively obscured by the numerous buildings that are between each of the historic properties and the Waffle Lot site. Implementation of Alternative 1A, therefore, is expected to have No Effect to the historic properties identified in Table 3.9-1.

In conclusion, effects to historic properties from implementation of Alternative 1A could not be fully determined due to insufficient design information. The Navy developed a PA in consultation with the Maryland SHPO, ACHP, National Park Service, and Annapolis Historic Preservation Division to implement procedures for assessing effects and to set forth mitigation measures in case there would be an adverse effect. With implementation of the PA, the impacts to historic properties would not be significant. Therefore, pursuant to NEPA, it is anticipated that Alternative 1A would have no significant impacts to cultural resources.

3.9.2.2 Alternative 1B – Alumni Hall Lot CCSS Building Alternative

Archaeological Resources

A WTP and underground concrete water reservoirs were constructed on the lower lot of the Alumni Hall Lot in the twentieth century, and were subsequently demolished in the 1980s. Therefore because of this previous disturbance, there is no potential for the presence of intact prehistoric or historic sites on the lower lot. Implementation of Alternative 1B, therefore, is anticipated to have No Effect on archaeological resources. MHT concurred with this finding in a letter dated September 26, 2014 (refer to Appendix C, *Agency Correspondence*).

Built Environment

As proposed under Alternative 1B, the CCSS building would be incompatible in size and scale with the USNA historic district. A five-story building would be built on the full extent of the lower lot of the Alumni Hall Lot site. Although the Navy would minimize story heights to the extent feasible, massing studies for this alternative project a building height of 85 feet, which is approximately 30 feet taller than the adjacent Alumni Hall (Building 675). Thus, the CCSS building proposed under Alternative 1B would visually overpower the three-story administration and academic buildings adjacent to the east and southeast, altering the overall physical character and appearance of this portion of the historic district. The development of open, surface parking lots with a five-story building would also block views east and southeast from Worden Field, a contributing feature of the historic landscape, towards the Lower Yard. Implementation of Alternative 1B, therefore, is anticipated to have an Adverse Effect to the USNA historic district because visual impacts would diminish its integrity of setting.

For these same reasons, visual impacts from a five-story CCSS building at the Alumni Hall Lot would also adversely affect the integrity of setting of the Colonial Annapolis Historic District, which is directly adjacent. South of the Alumni Hall Lot, along Hanover Street, the district primarily includes two- to three-story brick residences. In front of these residences on the north side of Hanover Street is the 1903 brick wall that demarcates the USNA boundary in this area. Nonetheless, current views northeast from the Hanover Street residences extend beyond the brick base perimeter wall into the USNA and include the upper stories of the three-story Naval Academy Club (Building 2; built 1905), and in the distance, Alumni Hall (Building 675; built 1991). Under Alternative 1B, views from the Hanover Street residences would be dominated by the upper stories of the CCSS building. The character of the physical features of the area as viewed from the Hanover Street residences would be negatively altered, diminishing the integrity of setting of the historic district. Implementation of Alternative 1B, therefore, is anticipated to have an Adverse Effect to the Colonial Annapolis Historic District.

For the same reasons described in the preceding paragraph, it is anticipated that Alternative 1B would have an adverse visual effect on the Peggy Stewart House. This house is located on the southwest side of Hanover Street, east of Maryland Avenue. Views northwest into the USNA from the house include a few small, two-story buildings and the three-story Naval Academy Club (Building 2). Although the Peggy Stewart House is more than 550 feet southeast of the Alumni Hall Lot, it is likely that the upper stories of

the CCSS building at the Alumni Hall Lot would be visible in the background, and because of its larger size and scale, would visually overpower the smaller buildings that front it, resulting in an adverse change to its integrity of setting. Therefore, implementation of Alternative 1B is anticipated to have an Adverse Effect to the Peggy Stewart House.

Alternative 1B is not expected to be visible from any of the other historic properties identified in Table 3.9-1. These properties are farther removed from the Alumni Hall Lot than the Peggy Stewart House and despite the five-story height of the CCSS building, views towards the Alumni Hall Lot would be effectively obscured by surrounding buildings. Therefore, implementation of Alternative 1B is expected to have No Effect to the other historic properties identified in Table 3.9-1 because there would be no substantial changes to the visual character or physical features within the current setting of these properties.

Alternative 1B is not expected to be visible from the Ferry Point Farm, as several existing USNA buildings stand between it and the Alumni Hall Lot. Therefore, implementation of Alternative 1B is anticipated to have No Effect on the Ferry Point Farm.

In conclusion, under Section 106 of the NHPA, implementation of Alternative 1B is anticipated to have an Adverse Effect on the USNA historic district, Colonial Annapolis Historic District, and Peggy Stewart House. The adverse effects would not be so severe as to jeopardize the NHL listing status of either historic district or any individually eligible resources or features. Therefore, pursuant to NEPA, it is anticipated that Alternative 1B would have no significant impacts to cultural resources.

3.9.2.3 Alternative 2A – Alumni Hall Lot Parking Garage Alternative

Archaeological Resources

As identified under Alternative 1B, there is no potential for the presence of intact archaeological resources on the lower lot due to previous disturbances. Although houses associated with the Lockwoodville neighborhood were present on the upper lot in the nineteenth century, subsequent construction and demolition of USNA buildings on the site have likely disturbed any possible remains. Therefore, implementation of Alternative 2A is anticipated to have No Effect on archaeological resources. MHT concurred with this finding in a letter dated September 26, 2014 (refer to Appendix C, *Agency Correspondence*).

Built Environment

Under Alternative 2A, the addition of a two-level, concrete parking garage at the Alumni Hall lower lot is not anticipated to be a visual intrusion in this part of the USNA historic district because the upper deck of the parking garage would be at the same elevation as the existing upper lot. A major portion of the structure would be below ground, so current views to and from the Alumni Hall Lot would still include parked cars, and thus, would remain unchanged. Both levels of the parking garage would be visible only at the northeast end along Decatur Road, which faces Alumni Hall (Building 675), a noncontributing resource to the district. The installation of an exterior cladding system of perforated zinc panels would further integrate the appearance of the parking garage with the surrounding architecture. In addition, the current relatively open views east from the officer's housing and Worden Field towards the center of the Lower Yard would largely persist, as the only visible features of the parking garage would be the top of the elevator/stair towers. The scale of these visible elements would be relatively small in comparison to adjacent contributing resources and would not significantly alter character-defining features of the district. Therefore, implementation of Alternative 2A is anticipated to have No Adverse Effect to the USNA historic district, as there would be no substantial changes to the character of significant physical

features in the immediate area that would diminish its historic integrity. In its letter dated December 16, 2014, MHT concurred with this finding and required continued consultation with the Navy on the design of the exterior zinc panels (refer to Appendix C, *Agency Correspondence*).

For the same reasons as described in the preceding paragraph, no adverse visual impacts to the Colonial Annapolis Historic District would be expected under Alternative 2A. As proposed under Alternative 2A, the upper deck of the parking garage would be at the same elevation as the existing upper lot. The only visible features of the parking garage would be the top of the two elevator/stair towers and the top of the light wells. The viewshed from the residences along Hanover Street includes the USNA brick base perimeter wall, so it is unlikely these elements of the parking garage would be visible beyond the wall. Nonetheless, even if partially visible, these elements are relatively small in scale and would not change the overall existing visual character within the setting of the historic district. Therefore, implementation of Alternative 2A is anticipated to have No Adverse Effect to the Colonial Annapolis Historic District. In its letter dated December 16, 2014, MHT concurred with this finding and required continued consultation with the Navy on the design of the exterior zinc panels (refer to Appendix C, *Agency Correspondence*).

Alternative 2A would have no visual impacts to the Peggy Stewart House or the other historic properties identified in Table 3.9-1. A two-level parking garage with the upper level built at grade with the existing Alumni Hall upper lot is not expected to be visible from any of these properties given the large distances and surrounding development between them. Implementation of Alternative 2A, therefore, is expected to have No Effect to the Peggy Stewart House or the other historic properties identified in Table 3.9-1 because there would be no changes to the visual character or physical features within the current setting of these properties.

Alternative 2A is not expected to be visible from the Ferry Point Farm, as it is sufficiently distant and would be blocked from view by several existing USNA buildings to the northeast. Therefore, implementation of Alternative 2A is anticipated to have No Effect on the Ferry Point Farm.

In conclusion, under Section 106 of the NHPA, implementation of Alternative 2A is anticipated to have No Adverse Effect on the USNA historic district or Colonial Annapolis Historic District, and No Effect on any of the historic properties identified in Table 3.9-1. Therefore, it is expected that Alternative 2A would have no significant impacts to cultural resources pursuant to NEPA.

3.9.2.4 Alternative 2B – Firehouse Site Parking Garage Alternative

Archaeological Resources

The area of the Firehouse Site is made land and consisted of a tidal pool or portion of College Creek prior to the early 1900s and, therefore, there is no potential for prehistoric archaeological sites. Mapping and aerial photos indicated that no buildings have stood on this location from the time the land was made until present. Implementation of Alternative 2B is anticipated to have No Effect on archaeological resources. MHT concurred with this finding in a letter dated September 26, 2014 (refer to Appendix C, *Agency Correspondence*).

Built Environment

Under Alternative 2B, direct impacts from construction of the parking garage at the Firehouse Site would have an Adverse Effect to the USNA historic district. Project construction would remove the aircraft exhibit, Circle Court, and a portion of O'Hare Road. Circle Court and O'Hare Road are contributing features of the historic landscape of the USNA, and their removal would permanently alter the historic layout of this part of the Upper Yard. In addition, visual impacts of construction from implementation of Alternative 2B also would adversely affect the historic integrity of the USNA district. Adjacent to several

contributing officers' quarters, the proposed parking garage would occupy what historically has been maintained as open space with views toward College Creek. The parking garage would block these historic views, as the top deck of parking would be 23 feet above Bowyer Road. Consequently, the integrity of setting of the USNA historic district would be diminished, as the physical features and visual character of the Upper Yard would be altered by the insertion of a four-level parking garage in place of open green space within the officers' housing area.

The Firehouse Site is visible to only a small portion of the Colonial Annapolis Historic District. Only one building, associated with St. John's College, is at the north end of the district. All other buildings on the St. John's College campus are situated farther south and oriented southwest toward St. John's Street or southeast toward College Avenue, away from the Upper Yard. Views from the Colonial Annapolis Historic District north to the Firehouse Site primarily would be obscured by Hubbard Hall (Building 260), which is situated between the district and the Firehouse Site. The more than 950-foot distance between the historic district and the Firehouse Site also would diminish the visibility of a four-level parking garage from the district. Implementation of Alternative 2B, therefore, is anticipated to have No Adverse Effect to the Colonial Annapolis Historic District, as there would be no substantial changes to the visual character or physical features within its current setting.

Impacts to the historic properties identified in Table 3.9-1 and to the Ferry Point Farm from Alternative 2B are anticipated to be the same as those described above under Alternative 2A. Therefore, implementation of Alternative 2B is anticipated to have No Effect on the historic properties identified in Table 3.9-1 or on the Ferry Point Farm.

In conclusion, implementation of Alternative 2B is anticipated to have an Adverse Effect on the USNA historic district under Section 106 of the NHPA. The adverse effects would not be so severe as to jeopardize the NHL listing status of the historic district or any individually eligible resources or features. Therefore, pursuant to NEPA, it is anticipated that Alternative 2B would have no significant impacts to cultural resources.

3.9.2.5 Alternative 2C – Lawrence Field Parking Garage Alternative

Archaeological Resources

Due to the amount of ground disturbance that has taken place at the Lawrence Field site and the presence of fill, the potential for the discovery of archaeological sites is considered to be low to none. In 2013, the Navy determined, in consultation with the MHT, that the proposed Halligan Hall energy repairs project would have no adverse effect to historic properties. Therefore, implementation of Alternative 2C would have No Effect on archaeological resources. MHT concurred with this finding in a letter dated September 26, 2014 (refer to Appendix C, *Agency Correspondence*).

Built Environment

The open space of Lawrence Field is a significant spatial element of the historic landscape of the Upper Yard, and thus is a contributing feature to the USNA historic district, as is the view from Halligan Hall across Lawrence Field toward the Lower Yard. Under Alternative 2C, a two-level parking garage would be built on the entire extent of Lawrence Field. The two existing ball fields would be relocated to the upper level of the parking structure, and parking would be provided at the ground level. Although this site would continue to be used for USNA athletics under this alternative, Lawrence Field would be developed, causing a substantial change to the historical design and spatial organization of this part of the Upper Yard. In addition, the historically open view southeast from Halligan Hall toward the Lower Yard would be eliminated by the parking garage. These changes would diminish the historic integrity of the USNA

historic district. Implementation of Alternative 2C, therefore, is expected to have an Adverse Effect to the USNA historic district.

Lawrence Field is visible to only a small portion of the Colonial Annapolis Historic District. Only one building, associated with St. John's College, is at the north end of the district. All other buildings on the St. John's College campus are situated farther south and oriented southwest toward St. John's Street or southeast toward College Avenue, away from the Upper Yard. Lawrence Field is more than 1,000 feet north of the Colonial Annapolis Historic District. At this distance, a two-level parking garage is unlikely to be visible. Furthermore, Bishop Stadium, which is situated between the district and Lawrence Field, would effectively obscure views north from the district to the proposed parking garage. Therefore, implementation of Alternative 2C is anticipated to have No Adverse Effect to the Colonial Annapolis Historic District, as there would be no substantial changes to the visual character or physical features within its current setting.

Impacts to the historic properties identified in Table 3.9-1 and to the Ferry Point Farm from Alternative 2C are anticipated to be the same as those described above under Alternative 2A. Therefore, implementation of Alternative 2C is expected to have No Effect on the historic properties identified in Table 3.9-1 or on the Ferry Point Farm.

In conclusion, implementation of Alternative 2C is anticipated to have an Adverse Effect on the USNA historic district under Section 106 of the NHPA. The adverse effects would not be so severe as to jeopardize the NHL listing status of the historic district or any individually eligible resources or features. Therefore, pursuant to NEPA, it is anticipated that Alternative 2C would have no significant impacts to cultural resources.

Section 106 Consultation

In accordance with Section 106 of the NHPA and its own procedures in the ICRMP for NSA Annapolis, the Navy consulted with the MHT and consulting parties concerning the effects to historic properties from the proposed action. The Navy initially notified MHT, the ACHP, the National Park Service, and the City of Annapolis Historic Preservation Division of the proposed action and requested their preliminary feedback in November 2012 (NSA Annapolis 2012b). The Navy formally initiated Section 106 consultation in March 2014. At that time, the Navy summarized the CCSS building and parking garage alternatives, and identified the preferred alternative as the Waffle Lot (Alternative 1A) for the CCSS Building and the Alumni Hall Lot for the parking garage (Alternative 2A). The Navy also submitted conceptual plans for Alternative 2A - Alumni Hall Lot Parking Garage Alternative, and requested a meeting to discuss the alternative sites, the massing of the buildings, and the affected viewsheds. In May 2014, the Navy submitted information on parking garage massing studies that had been conducted to MHT and the consulting parties, and identified the preferred alternative for the massing of the parking garage at the Alumni Hall Lot as a two-story parking garage on the lower lot with surface parking remaining on the upper lot.

On July 3, 2014, the Navy submitted to MHT and the City of Annapolis Historic Preservation Division the Phase IA Archaeological Investigations for the project. Based on the results of the Phase IA Archaeological Investigations, the Navy presented a finding of No Effect on archaeological resources from construction of the CCSS and parking garage. In a response dated September 26, 2014, the MHT concurred with this finding by stating that "archeological field investigations are *not warranted* for this undertaking" (Appendix C, *Agency Correspondence*).

The July 3, 2014 consultation with MHT also included submitting the 35 percent Design Concepts for the parking garage at the Alumni Hall Lot, which included construction drawings, color renderings, and

diagrammatic height comparisons between the parking garage and surrounding built environment. The Navy described modifications that had been made to the preferred alternative for the massing of the parking garage since the May 2014 consultation, noting reductions in the overall height of the garage elevator and stair towers and the upper level parapet wall, the distance between the parking garage and USNA perimeter wall, and plans for the exterior wall surfaces of the garage to feature perforated copper to tie into the surrounding architectural character of the campus. Noting these design modifications as well as other features that had been incorporated into the parking garage concept design to minimize the visual effect of the structure. In October 2014, after further consultation with MHT, the Navy provided the 100 percent design for the parking garage, indicating the location, massing, and height are the same as the 35 percent design, but the proposed cladding is perforated zinc metal panels instead of copper. Noting the muted gray of the zinc complements the material color palette of the historic USNA buildings, the Navy presented a finding of No Adverse Effect from the construction of the parking garage on the USNA NHL or the Colonial Annapolis Historic District NHL. In a letter dated December 16, 2014, MHT concurred with this finding and required continued consultation with the Navy on the design of the exterior zinc panels (*Appendix C, Agency Correspondence*).

Recognizing the effects to historic properties from construction of the CCSS building at the Waffle Lot will not be fully determined prior to approval of this undertaking, the Navy requested in a letter dated July 18, 2014 to develop a PA in consultation with the MHT in order to govern the implementation of the project. In a letter dated September 26, 2014, the MHT responded that development of a PA would be the best approach for establishing the design principles and procedures for ongoing coordination for the undertaking. As Alternative 1A has the potential to affect a National Historic Landmark, the ACHP participated in the consultation for the development of the PA (*Appendix C, Agency Correspondence*).

The PA includes procedures for assessing effects and sets forth mitigation measures in case there would be an adverse effect to historic properties from implementation of Alternative 1A. With mitigation, the impacts to historic properties would not be significant.

Copies of the PA and all Section 106 correspondence are provided in Appendix C, *Agency Correspondence*.

3.9.2.6 No Action Alternative

Under the No Action Alternative, the CCSS building and parking garage would not be constructed at the USNA. Cultural resources at the USNA would continue to be managed in accordance with the NSA Annapolis ICRMP. Therefore, there would be No Effect to cultural resources.

3.10 HUMAN HEALTH AND SAFETY

The affected environment for human health and safety includes the USNA, where construction workers as well as visitors, students, and employees could be affected by the implementation of the proposed action.

3.10.1 Affected Environment

This section describes the human health and safety within the affected environment associated with construction workers as well as visitors, students, and employees of the USNA. Human health and safety can be adversely affected by physical injury or harm that can occur directly or indirectly from an activity associated with the proposed action or through exposure to solid or hazardous materials and wastes used, generated, or encountered by activities associated with the proposed action. Improper storage, management, and disposal of hazardous materials and wastes can result in direct human exposure and/or

indirect exposure via contamination of groundwater, drinking water supplies, soil, and surface water. Potential human health and safety concerns associated with the proposed action include:

- worker and public safety hazards from construction and development activities such as traffic and overhead hazards
- hazardous materials and waste that might be utilized, generated, or exist at the sites proposed for development
- antiterrorism/force protection (AT/FP)

3.10.1.1 Worker and Public Safety Hazards

With the Occupational Safety and Health Act of 1970, Congress created the Occupational Safety and Health Administration (OSHA) to assure safe and healthful working conditions for working men and women. OSHA's mission is to ensure the safety and health of America's workers by setting and enforcing standards; providing training, outreach, and education; establishing partnerships; and encouraging continual improvement in workplace safety and health. OSHA standards are listed in 29 CFR Part 1910. The OSHA Process Safety Management of Highly Hazardous Chemicals (29 CFR § 110.119) is intended to prevent or minimize the consequences of a catastrophic release of toxic, reactive, flammable, or explosive highly hazardous chemicals by regulating their use, storage, manufacturing, and handling. The standard intends to accomplish its goal by requiring a comprehensive management program integrating technologies, procedures, and management practices.

General hazards to human health and safety found at the proposed alternative sites include moderately traveled roadways and open parking areas within the campus. Existing hazards are minimized through the use of overhead lighting, traffic calming measures such as traffic lights and signage, and pedestrian safety measures such as sidewalks, signals, and crosswalks.

3.10.1.2 Hazardous Material/Hazardous Wastes

A hazardous substance, pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA; 42 U.S.C. § 9601(14)), is defined as: "(a) any substance designated pursuant to Section 1321(b)(2)(A) of Title 33; (b) any element, compound, mixture, solution, or substance designated pursuant to Section 9602 of this title; (c) any hazardous waste having the characteristics identified under or listed pursuant to Section 3001 of the Resource Conservation and Recovery Act (RCRA) of 1976, as amended (42 U.S.C. § 6921); (d) any toxic pollutant listed under Section 1317(a) of Title 33; (e) any hazardous air pollutant listed under Section 112 of the CAA (42 U.S.C. § 7412); and (f) any imminently hazardous chemical substance or mixture with respect to which the Administrator of the USEPA has taken action pursuant to Section 2606 of Title 15. The term does not include petroleum, including crude oil or any fraction thereof, which is not otherwise specifically listed or designated as a hazardous substance, and the term does not include natural gas, natural gas liquids, liquefied natural gas, or synthetic gas usable for fuel (or mixtures of natural gas and such synthetic gas)."

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

OSHA (29 CFR § 1910.1200) further defines a hazardous material as any item or chemical which is a "health hazard" or "physical hazard," including the following:

- Chemicals that are carcinogens, toxic or highly toxic agents, reproductive toxins, irritants, corrosives, and agents that damage the liver, kidneys, nervous system, blood cells, lungs, skin, eyes, or mucous membranes;
- Chemicals that are combustible liquids, compressed gases, explosives, flammable liquids, flammable solids, organic peroxides, oxidizers, pyrophorics, unstable (reactive) or water-reactive; and
- Chemicals that, in the course of normal handling, use or storage, may produce or release dusts, gases, fumes, vapors, mists or smoke which have any of the above characteristics.

RCRA defines a hazardous waste in 42 U.S.C. § 6903, as “a solid waste, or combination of solid wastes, which because of its quantity, concentration, or physical, chemical, or infectious characteristics may (a) cause, or significantly contribute to an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness; or (b) pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, or disposed of, or otherwise managed.”

CERCLA is the primary federal law addressing the problem of releases of hazardous substances into the environment. CERCLA requires the federal government and other responsible parties to clean up contamination from the release of hazardous substances. It requires a response to protect human health and the environment when there is a release or threat of release of a hazardous substance into the environment or when there is a release of any pollutant or contaminant that might present an imminent and substantial danger to public health or welfare.

Hazardous materials and wastes at the USNA are managed in accordance with the facility’s Integrated Contingency Plan (ICP). The ICP contains the facility Tank Management Plan, hazardous substance inventory, and Spill Prevention Control and Countermeasures Plan. The ICP identifies hazardous materials storage areas and response facilities and provides the procedures for all aspects of hazardous materials management and reporting including spill response and training. According to the ICP, no oil storage tanks are documented on any of the proposed alternative sites and no large hazardous material spills have been recorded at any of the proposed alternative sites. Petroleum and solvent storage areas are located near the Waffle Lot and Firehouse Site and a spill response truck is located at the southern corner of Lawrence Field (USNA 2002). In all instances, the storage areas are located down gradient from the proposed alternative sites.

There is one oil/water separator located at the Alumni Hall Lot. Oil/water separators treat stormwater by trapping substances lighter than water (e.g., oils, solvents) and substances heavier than water (sand, debris) during storm events. As such, oils, solvents, and metals may be present within the apparatus and underlying soil. The Alumni Hall Lot is also reported to contain eight underground water storage tanks that are no longer in use. No hazardous materials or wastes are known to be associated with these tanks.

Electrical transformers are located at the Waffle Lot and Alumni Hall Lot and lighting fixtures and utilities are located at all of the proposed alternative sites. According to the ICP, the transformers associated with Rickover Hall and the substation are oil-free (USNA 2002). Electrical equipment and lighting, unless documented to be free of polychlorinated biphenyls (PCBs), are assumed to contain PCBs. PCBs are a group of chemical mixtures used as insulators in electrical equipment such as transformers and fluorescent light ballasts. Transformers and electrical equipment containing greater than 500 parts per million (ppm) PCBs, between 50 and 500 ppm PCBs, and less than 50 ppm PCB are considered PCB, PCB-contaminated, and non-PCB, respectively. PCB products with 0 to 49 ppm PCB are not subject to federal regulations and can be transferred, donated, sold, or otherwise processed under CFR § 101-42.1102-2.

Lighting and electrical equipment located on all the proposed alternative sites may also contain mercury. Mercury is a naturally occurring element that is found in air, water, and soil. Elemental, or metallic, mercury has properties that have led to its use in many different consumer and commercial products and industrial sectors. In the environment, microorganisms can change elemental mercury into methylmercury, a highly toxic form that builds up in fish, shellfish, and animals that eat fish, including humans. The USEPA has issued regulations that require industry to reduce mercury releases to air and water and to properly treat and dispose of mercury wastes. Light bulbs and mercury-containing equipment (i.e., switches, thermostats) are managed as universal waste as defined in 40 CFR Part 273 (USEPA 2013).

Asbestos containing materials (ACM) may be present in existing utility piping at all the proposed alternative sites. Asbestos is regulated by the USEPA with the authority promulgated under the Occupational Safety and Health Act, 29 U.S.C. § 669 et seq. Section 112 of the CAA regulates emissions of asbestos fibers to ambient air. The USEPA has established that any material containing more than 1 percent asbestos by weight is considered an ACM (15 U.S.C. § 2642[4]) and must be handled in accordance with the procedures outlined in 40 CFR Part 61, Subpart M.

The Firehouse Site is the only proposed alternative site that contains structures (i.e., decommissioned display aircraft). The aircraft displayed on the site has the potential to contain ACM and lead based paint.

The DoD has developed an Installation Restoration Program (IRP) to identify, characterize, and clean up past hazardous waste sites in response to CERCLA and RCRA. There are no known IRP sites within any of the proposed alternative sites. The nearest site is in Halligan Hall, which is adjacent to Lawrence Field.

Phase II Environmental Site Assessments were performed on both the Waffle Lot and Alumni Hall Lot in 2014 (NAVFAC Washington 2014c; 2014d). Soil and groundwater samples were collected and were analyzed for the following: Total Petroleum Hydrocarbons – Diesel Range Organics (TPH-DRO); Total Petroleum Hydrocarbons – Gasoline Range Organics (TPH-GRO); polycyclic aromatic carbons (PAHs); PCBs; VOCs; semi-volatile organic compounds (SVOCs); pesticides; herbicides; RCRA metals; and radionuclides. The results of the soil sampling determined the presence of low levels of petroleum contamination in underlying soils. For TPH-DRO, the results ranged from undetected to 37.9 milligrams per kilogram (mg/kg) at the Waffle Lot, and 9 to 50 mg/kg at the Alumni Hall Lot. These concentrations are below action levels and do not require remediation (NAVFAC Washington 2014c; 2012d).

A total of four groundwater monitoring wells were installed at the Waffle Lot and the Alumni Hall Lot. Once the wells were installed and developed, groundwater samples were collected. Groundwater samples collected beneath the Waffle Lot indicated that there are detectable dissolved petroleum products. The concentration of TPH – DRO in groundwater exceeds the MDE generic cleanup standard that is based on ingestion for residential property drinking water with on-site production. The USNA does not use the shallow aquifer for drinking water, rather drinking water for the USNA is provided from the Patapsco Aquifer, which is approximately 600 to 700 feet below the ground surface. Therefore, the EPA Region III Risk Based Regional Screening Level for TPH-DRO was used to determine health and safety risks. The EPA Region III Risk Based Regional Screening Levels for TPH-DRO is 1.5 mg/kg and the result of the sampling indicates concentrations of 0.28 mg/kg (NAVFAC Washington 2014c). Therefore, this concentration is below action levels and does not require remediation.

The analytical results for TPH-GRO, VOC, SVOC, PCB, pesticides, and herbicides were predominately found to be below the detection limit for the method or at very low concentrations at the Waffle Lot. The analytical results for metals did not indicate elevated concentrations and are typical of concentrations found in the soils of the coastal plain formations (NAVFAC Washington 2014c).

Groundwater beneath the Alumni Hall Lot was determined to contain concentrations of lead at a concentration of 87.6 micrograms per liter (ug/L) one of the samples. The maximum concentration level for lead in drinking water is 15 ug/L. A site-specific risk-based calculation, based on an adult dermal exposure to lead in groundwater, indicated that this concentration is substantially below the action level of 6,759 ug/L. Exceedances of the drinking water standard for arsenic, chromium, lead, and selenium were also detected in two groundwater samples. Similar to the Waffle Lot, the groundwater from the shallow aquifer is not used for drinking water. When compared against the EPA Region III risk based screening levels (10 ug/L, 100 ug/L, 15 ug/L, and 50 ug/L, respectively) or against site-specific risk based calculations (1,216 ug/L, 1,352 ug/L, 6,759 ug/L, and 676 ug/L, respectively), the detected concentrations were found to be below actionable concentrations (NAVFAC Washington 2014d).

The analytical results for TPH-GRO, VOC, SVOC, PCB, pesticides, and herbicides were found to be below the detection limit or at very low concentrations at the Alumni Hall Lot. The limited radionuclide survey did not identify elevated levels of radionuclides (NAVFAC Washington 2014d).

3.10.1.3 AT/FP

AT/FP is defined as defensive measures used to reduce the vulnerability of individuals and property to terrorist acts and the unification of security disciplines to protect service members, civilian employees, family members, facilities, and equipment. New facilities must comply with Unified Facilities Criteria contained in UFC 4-010-01, DoD Minimum Antiterrorism Standards for Buildings, dated October 8, 2003, and updated January 22, 2007.

The proposed alternative sites are currently surface parking lots, undeveloped, or used for recreational purposes. As such, existing AT/FP measures at the sites are minimal and primarily consist of surveillance cameras, fencing, and vehicle barriers (e.g., trees, shrubs, concrete blocks).

3.10.2 Environmental Consequences

3.10.2.1 Alternative 1A – Waffle Lot CCSS Building Alternative

Worker and Public Safety Hazards

To prevent unauthorized members of the public from entering the project site during construction, temporary fences would be installed around the perimeter of the construction site, and notification signs would be placed at all entrances to the site prior to the commencement of construction activity. In addition, construction workers would be clearly identifiable so as to prevent unauthorized persons from entering the site during construction. To minimize potentially significant safety hazards to construction workers and the public, a health and safety program would be implemented by the contractor to ensure construction workers are aware of the hazards associated with the project site and the safety measures that must be taken to prevent injury and hazardous conditions within and outside of the working environment. The program would identify and address safety issues such as site access, construction hazards, safe work practices, security, heavy equipment transportation, traffic management, emergency procedures, unknown hazards, and fire control. The program would identify requirements for temporary fencing around staging areas, storage yards, and excavation areas during construction, as well as measures to be taken during operation of the project to limit public access to potential hazards (e.g., permanent fencing, locked access).

Because unknown hazards may exist at the Waffle Lot site, a site-specific Health and Safety Plan would be prepared in compliance with the requirements of 29 CFR § 1926.65 Hazardous Waste Operations and Emergency Response, paragraph (b)(4) in the event that previously unknown environmental contamination is encountered. The site-specific Health and Safety Plan would identify the chain of

command and notification procedures, identify potential safety concerns, describe procedures and site controls that would be implemented upon discovery, identify exposure prevention measures and personal protective equipment requirements, specify the locations of medical aid kits, and outline the appropriate response action for emergencies. Adherence to the health and safety program and site-specific Health and Safety Plan would ensure that the construction activities under Alternative 1A would have no significant impacts to human health and safety.

The entire Waffle Lot site and the adjacent sections of both McNair and Holloway Roads would be closed to both vehicular and pedestrian traffic for the duration of the project. However, the portion of McNair Road adjacent to Nimitz Library and the portion of Holloway Road adjacent to Rickover Hall would be kept open or accessible at all times during construction to maintain existing fire department vehicle access to both existing buildings (NSA Annapolis 2013a). The existing pedestrian and vehicular routes would be fully restored after construction. As a result, there would be no significant impacts to human health and safety under Alternative 1A.

With regards to pedestrian access, crosswalks would be required at all roadway crossings around the Waffle Lot site. Crosswalk locations would be analyzed to determine the need for additional safety measures including raised crosswalks, wider crosswalks, additional signage, and/or pedestrian signalization. Elements such as landscaping would be used to encourage pedestrians to use designated sidewalks and paths to channel pedestrians to safe crossing locations (NSA Annapolis 2013a). As a result, Alternative 1A would have no significant impact to human health and safety.

Hazardous Materials and Wastes

The existing lighting, electrical substation, and generator located on the Waffle Lot would be removed and relocated to the corner of Holloway and Sims Roads at the western corner of Dewey Field (NSA Annapolis 2013a). The electrical transformers and equipment located on the Waffle Lot would be investigated for PCBs and mercury prior to their removal. All PCB or mercury containing equipment would be managed in accordance with applicable regulations to ensure no significant impacts to human health and safety. Petroleum products used to operate and maintain the generator would be removed prior to its relocation and managed in accordance with the ICP. Compliance with the procedures outlined in the ICP and regulatory agencies would minimize the risk of release to the environment. Therefore, there would be no significant impacts to human health and safety under Alternative 1A.

Construction activities would require the use of hazardous materials. The majority of the hazardous materials expected to be used are common to construction and include diesel fuel, gasoline, and propane to fuel the construction equipment; hydraulic fluids, oils, and lubricants; and welding gases, paints, solvents, adhesives, and batteries. The transport and use of hazardous materials would have the potential to result in accidental spills that could adversely impact soil, surface water, and groundwater on and adjacent to the Waffle Lot construction site or along transportation routes. Hazardous materials associated with construction activities would be delivered and stored in a manner that would prevent these materials from leaking, spilling, and potentially polluting soils, groundwater, and surface waters, and in accordance with applicable federal, state, and local environmental and public and occupational health and safety regulations. Adherence to the policies and procedures contained in the ICP would minimize the potential impacts from accidental releases during building construction. As a result, impacts to human health and safety from hazardous materials would be less than significant under Alternative 1A.

Hazardous waste would be generated during construction activities and would include but not be limited to empty containers, spent solvents, paints, sealants, adhesives, waste oil, spill cleanup materials (if used), lead-acid batteries from construction equipment, and various universal wastes (e.g., fluorescent bulbs, batteries). Construction contractors would be responsible for safely removing these construction-

generated wastes from the construction site and for arranging for recycling or disposal in accordance with applicable regulations. The amount of hazardous waste generated during project construction is anticipated to be less than 100 kilograms per month. The construction contractor would be responsible for determining their regulatory status regarding hazardous waste generation during construction, and obtaining and maintaining compliance in accordance with federal and state laws. Hazardous wastes associated with construction activities, including petroleum contaminated soil and groundwater from the Waffle Lot site, would be handled, stored, and disposed of in a manner that would minimize human exposure to these materials and prevent these materials from polluting soils, groundwater, and surface waters and in accordance with the ICP and applicable federal, state, and local environmental and human health and safety regulations. Adherence to these policies, procedures, and regulations would minimize the potential impacts from exposure and accidental releases during building construction. In the event of an accidental release, contaminated media would be treated on-site or would be promptly removed and disposed of in accordance with the ICP and applicable federal and state regulations. With the implementation of appropriate handling and management procedures, hazardous wastes generated during construction of the CCSS building would result in no significant impacts to human health and safety.

If suspected hazardous material (i.e., contaminated soil, ACM, PCBs) is encountered during construction, it would be the responsibility of the construction contractor, supervised by the Navy, to determine whether the material meets the criteria of hazardous waste. Work would cease upon discovery of the suspect material and the USNA Fire Station and the USNA Environmental Office would be notified, as appropriate (USNA 2002). Once the suspected hazardous material is properly characterized, the Navy and construction contractors would manage the waste in accordance with applicable federal and state laws and regulations. Compliance with applicable federal and state laws and regulations would ensure that no significant impacts to human health and safety would occur.

Small amounts of hazardous materials are anticipated to be used for the general maintenance of the CCSS building. The materials would be present in mechanical rooms, boiler rooms, electrical spaces, and storage rooms and would include items such as paints, aerosols, oils, and solvents. Small amounts of hazardous wastes are also anticipated to be generated by the operation of the CCSS building and would include items such as empty paint containers, spent aerosol cans, and waste oils and solvents. Hazardous waste volumes are not anticipated to exceed 100 kilograms per calendar month. All hazardous materials and wastes generated by the CCSS building would be managed in accordance with the ICP and applicable federal and state regulations. As a result, there would be no significant impacts to human health and safety under Alternative 1A.

AT/FP

The proposed CCSS building would provide AT/FP features in compliance with AT/FP regulations, and physical security mitigation in accordance with UFC 4-010-01, DoD Minimum Antiterrorism Standards for Buildings. Specifically, interior AT/FP measures would include standard force protection measures such as mass notification systems, emergency shut-offs for ventilation systems, laminated windows, blast resistant window and door frames, emergency lighting and signage, and progressive collapse provisions. AT/FP features would also include additional hardening of the CCSS building due to the waterfront setting. Exterior AT/FP measures would include security systems such as intrusion detection and prevention. Therefore, no impacts to human health and safety under Alternative 1A would result.

3.10.2.2 Alternative 1B – Alumni Hall Lot CCSS Building Alternative

Worker and Public Safety Hazards

Site security and worker and public safety at the Alumni Hall Lot site would be managed as described under Alternative 1A. The entire site would be closed to vehicular and pedestrian traffic for the duration of construction. Balch Road, Decatur Road, Parker Road, and Club Road would remain in service during and after construction; however, Decatur Road may intermittently be reduced to a single lane until construction is completed. The existing pedestrian and vehicular routes in the immediate area would be fully restored after construction and new sidewalks on the northwest side of the parking garage would be installed for additional pedestrian circulation. Vehicle access along Decatur Road, Parker Road, Nulton Road, and Balch Road would provide the required fire department access along all four sides of the perimeter of the proposed CCSS building (NSA Annapolis 2013a). As a result, there would be no significant impacts to human health and safety under Alternative 1B.

Hazardous Materials and Wastes

The management of hazardous materials and wastes generated during construction under this alternative would be the same as described under Alternative 1A. Construction of the CCSS building at the Alumni Hall Lot site would require the removal of a shed containing electrical panels that service the bandstand at Worden Field, an electrical transformer, and an oil/water separator. On-site utilities would also need to be removed and rerouted.

Similar to Alternative 1A, the transformers and electrical equipment located on the Alumni Hall Lot would be investigated for PCBs and mercury prior to their removal. All PCB and mercury containing equipment would be managed in accordance with applicable regulations to ensure no significant impacts to human health and safety under Alternative 1B.

By removal of the oil/water separator, contaminated soil or sediment might be encountered. Any sediment within the oil/water separator would need to be properly characterized to determine appropriate handling and disposal procedures. Additionally, underlying soil might also require characterization if contamination from oil/water separator leaks is suspected. Proper management of contaminated media in accordance with the ICP and applicable federal and state regulations would ensure no significant impacts to human health and safety would occur under Alternative 1B.

Hazards associated with the removal of utilities would be the same as described under Alternative 1A and would be managed as described under that alternative. There would be no significant impacts to human health and safety.

Operation of the CCSS building under Alternative 1B would have the same impacts as described under Alternative 1A. Therefore, no significant impacts to human health and safety would result.

AT/FP

Impacts to AT/FP under Alternative 1B would be the same as described under Alternative 1A and thus, no significant impacts to human health and safety would result.

3.10.2.3 Alternative 2A – Alumni Hall Lot Parking Garage Alternative

Worker and Public Safety Hazards

Impacts to human health and safety under Alternative 2A would be the same as described under Alternative 1B and would not be significant.

Hazardous Materials and Wastes

The management of hazardous materials and wastes generated during construction under this alternative would be the same as described under Alternative 1A.

Small amounts of hazardous materials are anticipated to be used for the general maintenance of the proposed parking garage. The materials would include items such as paints and solvents. Once utilized, these items would be discarded as hazardous waste and managed in accordance with the ICP and applicable regulations. As a result, there would be no significant impacts to human health and safety under Alternative 2A.

AT/FP

UFC 4-010-01, DOD Minimum Antiterrorism Standards considers parking structures to be “parking areas” and therefore the structures themselves are exempt from AT/FP provisions. However, adjacent existing buildings are still required to comply with the provisions of the UFC, and modifications (hardening) to these existing buildings may be required should the parking garage encroach upon existing building standoff distances. Under Alternative 2A, a parking garage at the Alumni Hall Lot would be outside the required standoff distances of existing inhabited buildings, and no hardening would be necessary (NSA Annapolis 2013a). As a result, impacts to human health and safety would not be significant.

3.10.2.4 Alternative 2B – Firehouse Site Parking Garage Alternative

Worker and Public Safety Hazards

Site security and worker and public safety at the Firehouse Site would be managed as described under Alternative 1A. The entire Firehouse Site would be closed to vehicular and pedestrian traffic for the duration of the project. Bowyer Road and O’Hare Road would remain in service during and after construction. New sidewalks on the northwest side of the proposed parking garage would be installed for additional pedestrian circulation. Pedestrian egress from the parking garage would be placed in different locations around the parking garage. Sidewalks would be constructed at all egress locations and new crosswalks across Bowyer Road would be constructed to connect to existing sidewalks along Bowyer Road and provide pedestrian access to the majority of the campus. Vehicle access along Bowyer and O’Hare Roads would provide the required fire department access along two sides of the perimeter of the proposed parking garage. As a result, impacts to human health and safety under Alternative 2B would not be significant.

Hazardous Materials and Wastes

The management of hazardous materials and wastes generated during construction under this alternative would be the same as described under Alternative 1A.

Lighting equipment located on the Firehouse Site would be investigated for PCBs and mercury prior to their removal. All PCB and mercury containing equipment would be managed in accordance with applicable regulations to ensure no significant impacts to human health and safety.

Relocation of the existing display aircraft is not anticipated to result in the release of contaminants to the environment. The aircraft would be relocated in such a manner as to not disturb any ACM or lead based paint that may be present on the aircraft.

Hazards associated with the removal of utilities would be the same as described under Alternative 1A and would be managed as described under that alternative. As a result, impacts to human health and safety would not be significant under Alternative 2B.

Operation of the parking garage under Alternative 2B would have the same impacts as described under Alternative 2A. As a result, impacts to human health and safety would not be considered significant.

AT/FP

Under Alternative 2B, a parking garage at the Firehouse Site would be outside the required standoff distances of existing inhabited buildings, and no hardening would be necessary (NSA Annapolis 2013a). As a result, impacts to human health and safety would not be significant.

3.10.2.5 Alternative 2C – Lawrence Field Parking Garage Alternative

Worker and Public Safety Hazards

Site security and worker and public safety at the Lawrence Field site would be managed as described under Alternative 1A. Bowyer Road and Wainwright Road would remain in service during and after construction. New sidewalks on the northwest side of Lawrence Field would be installed for additional pedestrian circulation around the proposed parking garage. Sidewalks and crosswalks would be provided along the face of the parking garage in order to convey pedestrian traffic from the garage to the existing sidewalk, crosswalks, and pedestrian path across the bridge to the Lower Yard. Vehicle access along Wainwright and Bowyer Roads would provide the required fire department access along two sides of the perimeter of the proposed parking garage (NSA Annapolis 2013a). As a result, impacts to human health and safety under Alternative 2C would not be significant.

Hazardous Materials and Wastes

The management of hazardous materials and wastes generated during construction under this alternative would be the same as described under Alternative 1A.

Lighting equipment located on the Lawrence Field site would be investigated for PCBs and mercury prior to their removal. All PCB and mercury containing equipment would be managed in accordance with applicable regulations to ensure no significant impacts to human health and safety.

Implementation of Alternative 2C would have no impact on the IRP site in Halligan Hall.

Hazards associated with the removal of utilities would be the same as described under Alternative 1A and would be managed as described under that alternative. As a result, impacts to human health and safety under Alternative 2C would not be significant.

Operation of the parking garage under Alternative 2C would have the same impacts as described under Alternative 2A. As a result, impacts to human health and safety would not be significant.

AT/FP

Under Alternative 2C, a parking garage at Lawrence Field would be outside the required standoff distances of existing inhabited buildings, and no hardening would be necessary (NSA Annapolis 2013a). As a result, impacts to human health and safety would not be significant.

3.10.2.6 No Action Alternative

Under the No Action Alternative, a building for the CCSS and a parking garage would not be constructed at the USNA. Current mechanisms and procedures with regards to public safety, hazardous materials and wastes, and AT/FP would remain in place. As a result, there would be no impacts to public health and safety.

3.11 SOCIOECONOMIC RESOURCES

NSA Annapolis is located in the Maryland state capital of Annapolis, in Anne Arundel County, approximately 30 miles south of Baltimore and 33 miles east of Washington, D.C. The study area for socioeconomic resources includes the city of Annapolis.

3.11.1 Affected Environment

The city of Annapolis is part of the Baltimore-Columbia-Towson, MD Metropolitan Statistical Area, which in turn is part of the Washington-Baltimore-Arlington, DC-MD-VA-WV-PA Combined Statistical Area. Metropolitan Statistical Areas have at least one urbanized core area of 50,000 or more population, plus adjacent areas that have a high degree of social and economic integration with the core as measured by commuting ties. Combined Statistical Areas represent larger geographic regions that reflect broader social and economic interactions, such as wholesaling, commodity distribution, and weekend recreational activities (Office of Management and Budget 2013).

The Annapolis 2012 population was 38,620, up 0.6 percent from 2010 (Table 3.11-1). The city's population grew by 7.1 percent between 2000 and 2010. The 2012 population estimate for Anne Arundel County was 550,488, up 2.4 percent from 2010. The county's population grew by 9.8 percent from 2000 to 2010. The comparable rates for the state are 1.9 percent growth from 2010 to 2012 and 9.0 percent growth between 2000 and 2010 (U.S. Census Bureau 2014a). Annapolis has been growing slower than Anne Arundel County and the state of Maryland.

Table 3.11-1. Population Characteristics			
	Annapolis	Anne Arundel County	Maryland
Population			
2012	38,620	550,488	5,884,868
2010	38,394	537,656	5,773,552
2000	35,838	489,656	5,296,486
Race and Ethnicity (percent), 2010¹			
White	60.1	76.9	58.2
Black/African American	26.0	16.1	29.4
American Indian/ Alaska Native	0.3	0.4	0.4
Asian	2.1	3.7	5.5
Native Hawaiian/ Other Pacific Islander	-	0.1	0.1
Hispanic or Latino origin ²	16.8	6.6	8.2

Source: U.S. Census Bureau 2014a.

Notes: ¹One race. Data presented reflects most reported race and ethnicity categories; percentages may not add to 100% due to rounding.

²Hispanic origin may be of any race.

The Annapolis population is predominantly white (60 percent), with Black/African Americans making up the largest minority group (26 percent) (Table 3.11-1). Asians make up the next largest minority group (2 percent). American Indians/Alaska Natives and Native Hawaiians/Other Pacific Islanders both comprise less than 1 percent of the population. Hispanics and Latinos (who may be of any race) make up approximately 17 percent of the population (U.S. Census Bureau 2014a). The racial make-up of Annapolis is more diverse than Anne Arundel County and similar to the state of Maryland. Culturally, Annapolis has more than twice the percentage of Hispanics or Latinos than Anne Arundel County and the state.

The Annapolis total labor force is approximately 22,700 (U.S. Census Bureau 2014b). The industries employing the most civilian workers include educational services and health care (20.4 percent); professional, scientific, and management services (17.8 percent); public administration (12.1 percent); retail trade (9.1 percent); and construction (6.2 percent) (U.S. Census Bureau 2014b).

As shown in Table 3.11-2, the 2013 seasonally unadjusted unemployment rate for Annapolis was 5.6 percent, down from 5.9 percent in 2012 (Maryland Department of Labor, Licensing and Regulation 2014). The 2013 Anne Arundel County unemployment rate was 5.4 percent, down from 5.6 percent in 2012. The comparable rates for the state of Maryland were 6.0 percent in 2013 and 6.5 percent in 2012 (U.S. Bureau of Labor Statistics 2013). Both Annapolis and Anne Arundel County have lower rates than the state.

Table 3.11-2. Economic Characteristics			
	Annapolis	Anne Arundel County	Maryland
<i>Unemployment Rates¹</i>			
2013	5.6%	5.4%	6.0%
2012	5.9%	5.6%	6.5%
<i>Income²</i>			
Per Capita	\$43,153	\$40,323	\$36,056
Mean Family	\$119,562	\$121,094	\$110,686
Families Below Poverty Level	8.1%	4.0%	6.5%
Individuals Below Poverty Level	10.9%	5.9%	9.4%

Sources: Maryland Department of Labor, Licensing and Regulation 2014, U.S. Bureau of Labor Statistics 2013, U.S. Census Bureau 2014b.

Notes: ¹Not seasonally adjusted. ²2008-2012 American Community Survey 5-year estimates.

Per capita income in the city of Annapolis is approximately \$43,153 and the mean family income is \$119,562 (Table 3.11-2). The Anne Arundel County per capita income is \$40,323, and the mean family income is \$121,094. Per capita income in Maryland is approximately \$36,056, and the mean family income is \$110,686 (U.S. Census Bureau 2014b). The percentage of families and people whose income in the previous 12 months was below the poverty level is 8.1 percent and 10.9 percent, respectively, in Annapolis. In Anne Arundel County, it is 4.0 percent and 5.9 percent, respectively. The comparable rates for the state of Maryland are 6.5 percent and 9.4 percent (U.S. Census Bureau 2014b). While the city of Annapolis has a higher per capita income than Anne Arundel County and the state, it also has a greater percentage of families and individuals living below the poverty level.

NSA Annapolis employs approximately 4,373 military and civilian personnel, including approximately 600 USNA faculty. Approximately 4,000 Midshipmen attend the USNA (NAVFAC Washington 2012b). A 2010 study determined that NSA Annapolis generated a total of \$677.5 million in economic activity in Maryland and created or supported 8,886 jobs with an estimated \$348.6 million in employee compensation (Maryland Department of Business and Economic Development 2010).

3.11.2 Environmental Consequences

Potential socioeconomic impacts of the proposed action would include spending within the study area directly or indirectly related to construction of an approximately 206,000 SF multistory building and parking garage, and the addition of an estimated 40 new faculty and staff members.

The total cost for project construction is to be determined. Project construction would begin in 2015 with the parking garage. Construction of the CCSS building would begin in late 2016 after the parking garage is completed and would take approximately two years, finishing in late 2018.

3.11.2.1 Alternative 1A – Waffle Lot CCSS Building Alternative

Under Alternative 1A, the increase in construction spending would generate direct construction jobs in the study area. Given the total dollar amount and the construction timeframe, additional construction workers may move into the area in response to the direct job impacts in construction. Construction spending would also generate additional indirect jobs and income, benefitting the economy. It would be expected that most of the indirect jobs, such as in retail, accommodation, food, and transportation services, would be filled by unemployed workers in the study area. While there may be some population

in-migration to the study area as a result of construction spending, it would not be expected to significantly affect short- or long-term population trends. Overall, construction spending would result in short-term beneficial socioeconomic impacts in the study area.

The increase of 40 new faculty and staff positions would be less than 1 percent of the employment in the study area and 1 percent of the existing military and civilian positions at NSA Annapolis. Even assuming that all 40 positions would be filled by newcomers to the study area accompanied by their families, the increase in the study area population would be minor. There would be no impacts to short- or long-term study area population trends as a result of the proposed positions.

Study area earnings would increase due to the 40 proposed faculty and staff positions. Some of these earnings would be paid to taxes, and some would be saved and invested, but most would be spent on consumer goods and services in the area. In turn, these earnings would generate additional indirect jobs and income benefitting the study area economy. It would be expected that most of the indirect jobs would be filled by unemployed workers in the study area, and no changes to study area population trends would result. While long-term payrolls would increase due to the proposed faculty and staff positions, the amount would be minor in the context of the study area. Overall, the increase in NSA Annapolis faculty and staff would result in nominal long-term beneficial socioeconomic impacts in the study area.

Implementation of Alternative 1A would have beneficial impacts to socioeconomics.

3.11.2.2 Alternative 1B – Alumni Hall Lot CCSS Building Alternative

The socioeconomic impacts of Alternative 1B would be the same as described for Alternative 1A because the total cost of the proposed action, construction duration, and number of new faculty and staff would be the same. Therefore, implementation of Alternative 1B would have beneficial impacts to socioeconomics.

3.11.2.3 Alternative 2A – Alumni Hall Lot Parking Garage Alternative

The socioeconomic impacts of Alternative 2A would be the same as described for Alternative 1A because the total cost of the proposed action, construction duration, and number of new faculty and staff would be the same. Therefore, implementation of Alternative 2A would have beneficial impacts to socioeconomics.

3.11.2.4 Alternative 2B – Firehouse Site Parking Garage Alternative

The socioeconomic impacts of Alternative 2B would be the same as described for Alternative 1A because the total cost of the proposed action, construction duration, and number of new faculty and staff would be the same. Therefore, implementation of Alternative 2B would have beneficial impacts to socioeconomics.

3.11.2.5 Alternative 2C – Lawrence Field Parking Garage Alternative

The socioeconomic impacts of Alternative 2C would be the same as described for Alternative 1A because the total cost of the proposed action, construction duration, and number of new faculty and staff would be the same. Therefore, implementation of Alternative 2C would have beneficial impacts to socioeconomics.

3.11.2.6 No Action Alternative

Under the No Action Alternative, the CCSS building and parking garage would not be constructed at the USNA. Therefore, implementation of the No Action Alternative would have no impacts to socioeconomics.

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4.0 CUMULATIVE IMPACTS

According to CEQ regulations, the analysis of cumulative impacts in an EA should consider the potential environmental impacts resulting from “the incremental impacts of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes such other actions” (40 CFR § 1508.7). Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. A cumulative impact results from the additive effect of all projects in the same geographical area. Generally, an impact can be considered cumulative if: a) effects of several actions occur in the same locale, b) effects on a particular resource are the same in nature, and c) effects are long term in nature. The common factor key to cumulative assessment is identifying any potential temporally and/or spatially overlapping or successive effects that may significantly affect resources in the analysis areas.

To analyze cumulative impacts, a NEPA document must identify a cumulative impacts region for impacts of a proposed action and other past, present, and reasonably foreseeable future actions. In this EA, the Navy has identified all actions within and adjacent to the USNA. A description of past, present, and reasonably foreseeable future actions in the cumulative effects region follows. To the extent that details regarding such actions exist and the actions have a potential to interact with the proposed action described in this EA, these actions are included in the cumulative impact analysis.

4.1 PAST, PRESENT AND REASONABLY FORESEEABLE FUTURE ACTIONS

This section identifies past, present, and reasonably foreseeable future actions not related to the proposed action that have the potential to cumulatively impact the resources in the affected environment for the USNA. An overview of these actions is presented to emphasize components of the activities that are relevant to the cumulative impact analysis. Geographic distribution, duration, and intensity of similar activities were considered when determining whether a particular activity may contribute cumulatively and significantly to the impacts of the proposed action on the resources identified in the EA. Table 4.1-1 summarizes which past, present, and reasonably foreseeable future projects have the potential for cumulative impacts to the resources affected by the proposed action.

Table 4.1-1. Summary of Projects and Resources for Cumulative Impacts Analysis											
Project	Geology, Topography, and Soils	Water Resources	Biological Resources	Land Use	Air Quality	Noise	Transportation	Infrastructure and Utilities	Cultural Resources	Human Health and Safety	Socioeconomic Resources
Past and Present Actions											
WTP Upgrades (fiscal year [FY] 2014)	X	X	X		X			X			
Navy Exchange, Commissary, Health Clinic (FY2014–2015)	X	X	X		X	X	X	X		X	X
Repair of Building 274 Exterior Parapet Wall (FY2014)		X			X	X			X		
WWTP Upgrades (FY2015)	X	X	X		X			X		X	
Reasonably Foreseeable Future Actions											
Halligan Hall (Building 181) Energy Repairs (FY2015)	X				X	X	X	X	X		
Ricketts Hall of Fame (FY2015)					X	X	X	X	X		
Minor Repair/Upgrade Projects to USNA Facilities (FY2015–2017)					X	X	X	X			
Bancroft Hall Watershed Improvements (FY2016)	X	X			X	X	X	X			
Brownson Road Watershed Improvements (FY2016)	X	X			X	X	X	X			
New Football Facility (FY2018–2019)	X	X	X		X	X	X	X	X		
New USNA Alumni Association and Naval Academy Foundation Facility (FY2018/2019)	X	X	X		X	X	X	X	X	X	

WTP Upgrades (FY2014). The purpose of this project is to implement water savings initiatives associated with the installation’s WTP. The main purpose of the upgrade is to recycle potable water back to the head of the WTP instead of discharging this water to the City of Annapolis. The scope of work includes the conversion of the existing waste holding tank to a gravity thickener and construction of one gravity thickener, a centrifuge building, pumping stations for the gravity thickeners and recycled water, polymer system, and associated mechanical equipment (NSA Annapolis 2014d).

Navy Exchange (NEX), Commissary, Health Clinic (FY2014–2015). An EA was prepared by the Navy to assess the potential environmental impacts of constructing and operating a new NEX and Commissary and a new Health Clinic at the North Severn Complex of NSA Annapolis. Located adjacent to Kinkaid and Greenbury Point Roads, the complex includes a one-story building with an 88,000 SF NEX and a 51,500 SF Commissary, a three-story 105,500 SF Health Clinic (two stories and a basement story wholly belowground), and a supporting 550-space parking area. The NEX and Commissary replace the existing facilities at North Severn; the existing NEX and Commissary buildings and their associated parking would be reused. The new Health Clinic at North Severn will replace the existing Health Clinic located at the USNA (NAVFAC Washington 2011a). The NEX/Commissary opened in September 2014, and construction of the Health Clinic is expected to be completed in 2015.

Repair of Building 274 Exterior Parapet Wall (FY2014). The Navy prepared an EA to assess the potential impacts of the repair of the parapet wall and damaged brick face on the exterior corners of Building 274, the Primary Care Outpatient Clinic. The project comprises replacing the existing parapet wall with a new, matching brick and mortar structure, and repairing damaged brick below the cornice at the building corners with salvaged original brick from the parapet (NSA Annapolis 2013b).

WWTP Upgrades (FY2015). The Navy prepared an EA to evaluate the potential environmental impacts of upgrading the NSA Annapolis North Severn WWTP to comply with current and future regulatory

requirements and meet future treatment demand. The Preferred Alternative for the proposed action consisted of new construction, demolition, and conversion projects at the North Severn WWTP, and installation of a water reuse conservation system (NAVFAC Washington 2012a).

Halligan Hall (Building 181) Energy Repairs (FY2015). This project consists of replacing the existing steam service and heating and air conditioning system in Halligan Hall (Building 181) with a more energy efficient ground source heat pump, also known as a geothermal well system. Approximately 190 6-inch-diameter wells would be installed at a depth of up to 400 feet below Lawrence Field for the proposed ground source heat pump system. The project also includes restoring and selectively replacing the existing windows to improve the building's thermal performance. The entire project would be completed in phases (NSA Annapolis 2013c, 2013d).

Ricketts Hall of Fame (FY2015). This project consists of a 13,000 SF addition to the second floor of Ricketts Hall (Building 566).

Minor Repair/Upgrade Projects to USNA Facilities (FY2015–2017). The Navy anticipates several minor repairs/upgrades to USNA facilities between FY2015 and FY2017. The following facilities are slated for repairs: MacDonough Hall (Building 102), Stribling Walk, the Perry Center (Building 571) roof, Rickover Hall (Building 590) building systems, the water main lining at the Lower Yard, and the Perry Center water distribution system. In addition, there are several energy projects, including upgrades of variable frequency drives and lighting systems in various buildings, installation of building automation systems for Buildings 628 and 675, and high efficiency water retrofits on various buildings, to be completed in two phases. One other project involves replacing the Chapel (Building 108) roof.

Bancroft Hall Watershed Improvements (FY2016). This project consists of the construction of below grade cisterns at Bancroft Hall that would collect stormwater. The stormwater would then be reused for irrigation, cooling or other “purple” water uses.

Brownson Road Watershed Improvements (FY2016). This project consists of the construction of below grade cisterns at Brownson Road that would collect stormwater. The stormwater would then be reused for irrigation, cooling or other “purple” water uses.

New Football Facility (FY2018–2019). The Navy is currently considering two options for this project. One is to construct a new football facility on the Lower Yard. The second option is to construct an addition to Ricketts Hall (Building 566).

New USNA Alumni Association (NAAA) and Naval Academy Foundation (NAF) Facility (FY2018–2019). The NAAA and NAF are proposing to construct a new headquarters facility at the Upper Yard. The project is anticipated to involve demolition of Buildings 51, 92, and 194, which are contributing resources to the USNA historic district although outside the boundary line.

4.2 POTENTIAL CUMULATIVE IMPACTS BY ENVIRONMENTAL RESOURCE AREA

Where feasible, the cumulative impacts were assessed using quantifiable data; however, for many of the resources included for analysis, quantifiable data is not available and a qualitative analysis was undertaken. The analytical methodology presented in Chapter 3, which was used to determine potential impacts to the various resources analyzed in the EA, was also used to determine cumulative impacts.

4.2.1 Geology, Topography, and Soils

The study area for geology, topography, and soils cumulative impacts includes those areas that would be disturbed by proposed construction activities at the USNA and associated downstream surface waters.

None of the cumulative projects identified in Table 4.1-1 would have impacts to the same topographical area as the proposed action; therefore, the cumulative impact analysis only assesses the potential cumulative impact to geology and soils.

Geology

Of the projects identified in Table 4.1-1, only the NEX, Commissary, and Health Clinic, Halligan Hall Energy Repairs, Bancroft Hall and Brownson Road Watershed Improvements, the New Football Facility, and the New NAAA and NAF Facility projects have the potential to contribute to cumulative geology impacts. However, to address minor short-term impacts to geology by these projects, BMPs such as erosion and sediment controls have been or would be implemented throughout construction.

The deep pile foundations that would be required for any of the alternatives under the proposed action would not result in significant impacts to the geology of the area due to the localized area of impact and the unconsolidated deposits found at each site.

When combined with past, present, and reasonably foreseeable future projects, implementation of Alternative 1A or 1B in combination with either Alternative 2A, 2B, or 2C would not result in significant cumulative impacts to geology.

Soils

The projects identified in Table 4.1-1 that have the potential for cumulative impacts to soils include the WTP Upgrades, NEX, Commissary, and Health Clinic, WWTP Upgrades, Halligan Hall Energy Repairs, Bancroft Hall and Brownson Road Watershed Improvements, the New Football Facility, and the New NAAA and NAF Facility projects. These projects would result in minor short-term temporary impacts to soils as a result of construction activities, and minor long-term impacts due to compaction from grading. Erosion and sedimentation plans have been or would be developed for each project in accordance with state and local regulations and the potential impacts would be managed through the use of appropriate BMPs for each site.

The Halligan Hall Energy Repairs project would result in short-term temporary impacts to soils as a result of installation of a geothermal well field at Lawrence Field. Typically, potential impacts of this type of project would be managed through the use of appropriate BMPs. Therefore, it is assumed that impacts to soils would not be significant.

It is anticipated that the proposed action would result in minor impacts to soils as a result of construction activities such as clearing, grading, and compaction. It is anticipated that these impacts would be managed through the use of appropriate BMPs to prevent erosion and sedimentation.

When combined with past, present, and reasonably foreseeable future projects, implementation of Alternative 1A or 1B in combination with either Alternative 2A, 2B, or 2C would not result in significant cumulative impacts to soils.

4.2.2 Water Resources

The study area for water resources cumulative impacts includes those areas that would be disturbed by proposed construction activities at the USNA and associated downstream surface waters. The WTP Upgrades, NEX, Commissary, and Health Clinic, WWTP Upgrades, Building 274 Exterior Parapet Wall Repair, Bancroft Hall and Brownson Road Watershed Improvements, the New Football Facility, and the New NAAA and NAF Facility projects would have potential cumulative water resources impacts.

The WTP Upgrades could have negligible short-term stormwater impacts on surface waters during construction. Implementation of BMPs and a construction stormwater management plan would minimize impacts. The project would result in a beneficial impact as the upgrade is to recycle potable water back to the head of the WTP instead of discharging this water to the City of Annapolis. The system upgrades also would result in water savings. The project would have no impacts to floodplains, and would be consistent with Maryland's CZMP.

The NEX, Commissary, and Health Clinic Project would result in a net increase of 13 acres of impervious surface as well as potential impacts to surface and groundwater associated with stormwater runoff. The increase in impervious surface and any increases in overland runoff would be addressed through the development and implementation of a stormwater management plan for site design. Erosion, runoff, and sedimentation would be addressed through the implementation of BMPs during construction. The project would have no impacts to floodplains, and would be consistent with Maryland's CZMP.

The WWTP Upgrades could have negligible short-term impacts on surface water as a result of stormwater runoff during construction; the impacts would be minimized through implementation of BMPs and a construction stormwater management plan. The project would result in positive effects to stormwater management as the upgrades to the WWTP system include above- and belowground storage tanks that result in a decrease in impervious surface in the project area. The system upgrades also would result in long-term positive effects to water quality and groundwater. The project would have no impacts to floodplains, and would be consistent with Maryland's CZMP.

The Building 274 Exterior Parapet Wall Repair would implement BMPs to ensure that any short-term impacts to coastal surface waters by the project are negligible. The project would have no impacts to floodplains. Impacts to historic coastal resources were mitigated.

The Bancroft Hall and Brownson Road Watershed Improvement projects would result in a beneficial impact on water resources. Cisterns would be constructed to collect stormwater for reuse in irrigation, cooling, or other "purple" water uses.

The New Football Facility and the New NAAA and NAF Facility projects would have negligible short-term impacts on surface waters during construction. Implementation of BMPs and a construction stormwater management plan would minimize impacts. These projects would have no impacts to floodplains, and would be consistent with Maryland's CZMP.

Construction for the proposed action would have the potential to have minor impacts to surface and groundwater associated with erosion, runoff, and sedimentation. Implementation of BMPs would minimize these impacts. An increase in impervious surface area under Alternative 2B would be minimized through the development and implementation of an ESCP and a stormwater management plan. Implementation of either Alternative 1A and/or 2B would have impacts to the floodplain; however, the design of the buildings would incorporate flood mitigation measures to minimize the impacts. The proposed action would be consistent with Maryland's CZMP.

When combined with past, present, and reasonably foreseeable future projects, implementation of Alternative 1A or 1B in combination with either Alternative 2A, 2B, or 2C would not result in significant cumulative impacts to water resources.

4.2.3 Biological Resources

The study area for biological resources cumulative impacts includes the USNA and contiguous land and tidal waters. Of the projects identified in Table 4.1-1, the WTP Upgrades, NEX, Commissary, and Health Clinic, the WWTP Upgrades, the New Football Facility, and the New NAAA and NAF Facility have potential impacts to biological resources. These projects would generate noise during construction and operations. Construction-related noise has the potential to temporarily disturb wildlife in the immediate vicinity of the project areas. Construction of these projects would result in minor impacts to vegetation and wildlife habitat. No impacts to state- or federally listed rare, threatened, or endangered species are anticipated.

Under the proposed action, potential impacts to vegetation, wildlife, or wildlife habitat during construction and operations would be minor. The proposed action would have no impacts to federally listed threatened, endangered, or candidate species.

When combined with past, present, and reasonably foreseeable future projects, implementation of Alternative 1A or 1B in combination with either Alternative 2A, 2B, or 2C would not result in significant cumulative impacts to biologicals.

4.2.4 Land Use

The study area for land use cumulative impacts includes USNA. The projects listed in Table 4.1-1 would not impact land use on the USNA campus.

The proposed action would be consistent with current land use categorization in the USNA under all the alternatives. Impacts to the use of recreational fields would occur during construction of Alternative 1A and/or Alternative 2C, and to parking during construction of Alternative 2A.

When past, present, and reasonably foreseeable future projects are analyzed together with the proposed action, significant cumulative impacts to land use from the implementation of Alternative 1A or 1B in combination with either Alternative 2A, 2B, or 2C would not occur.

4.2.5 Air Quality

The study area for air quality cumulative impacts is Anne Arundel County, within the Metropolitan Baltimore Intrastate AQCR, which is classified nonattainment for the 8-hour ozone and the annual PM_{2.5}. All the projects identified in Table 4.1-1 would likely contribute to short-term and temporary air quality impacts during construction. Based on the nature of the projects it is anticipated that minor, short-term emissions associated with construction equipment and fugitive dust would occur. No new sources of long-term emissions would be created, and short-term emissions would not exceed *de minimis* levels.

Air emissions calculated for the proposed action showed that the construction and operation of the CCSS building and parking garage would result in a minor increase in air emissions. The short-term and long-term impacts would be well below *de minimis* levels.

When past, present, and reasonably foreseeable future projects are analyzed together with the proposed action, there would be no significant cumulative impacts to Anne Arundel County or regional air quality from implementation of Alternative 1A or 1B in combination with either Alternative 2A, 2B, or 2C.

4.2.6 Noise

The study area for noise cumulative impacts includes the land and population in the vicinity of the USNA. Of the projects identified in Table 4.1-1, none have the potential for long-term noise impacts within the study area for noise cumulative impacts. Activities associated with the construction activities for the NEX, Commissary, and Health Clinic, the Building 274 Exterior Parapet Wall Repairs, the Halligan Hall Energy Upgrades, the Ricketts Hall of Fame, Minor Repair/Upgrade Projects to USNA Facilities, Bancroft Hall and Brownson Road Watershed Improvements, the New Football Facility, and the New NAAA and NAF Facility at the USNA would result in short-term noise impacts that are anticipated to occur over intermittent periods during FY2014 and FY2019.

Construction of the proposed action would occur between calendar years 2015 and 2018. Operation of construction equipment and construction activities such as land clearing and excavation would result in minor short-term noise impacts. In addition, significant short-term impacts to noise receptors located within the vicinity of the construction site would occur during pile driving activities. Noise attenuation measures would be implemented to minimize the noise impacts from pile driving. Under Alternative 2B or 2C, the increase in automobile traffic using the parking garage would result in a minor increase in local noise.

Proposed construction projects at the USNA could contribute cumulatively to the potential noise impacts associated with the proposed action. However, it is assumed that construction-related noise impacts generated from the projects would be short in duration. The potential for the construction-related noise to overlap both in time and geographic extent of impact is remote. When past, present, and reasonably foreseeable future projects are analyzed together with the proposed action, significant cumulative impacts to the noise environment from the implementation of Alternative 1A or 1B in combination with either Alternative 2A, 2B, or 2C would not occur.

4.2.7 Transportation

The study area for transportation cumulative impacts includes the area roadways surrounding the USNA. Of the projects listed in Table 4.1-1, the NEX, Commissary, and Health Clinic, Halligan Hall Energy Repairs, Ricketts Hall of Fame, Minor Repair/Upgrade Projects to USNA Facilities, Bancroft Hall and Brownson Road Watershed Improvements, the New Football Facility, and the New NAAA and NAF Facility have the potential for cumulative impacts to transportation in the study area. Minor temporary impacts would be expected due to construction vehicles, road closures, and parking area closures; however, these impacts would not contribute to permanent increases in transportation.

Under the proposed action, there are anticipated to be temporary impacts to traffic during construction, and minor post-construction increases in traffic associated with the operation of the CCSS building from the additional 40 new faculty and staff. Impacts would be reduced through implementation of avoidance and minimization measures identified in Section 3.8.2, *Environmental Consequences*. Following construction, there are expected to be minor beneficial impacts to pedestrian routes under Alternative 1A, an increased walking distance for pedestrians under Alternative 2B or 2C, and no impacts to pedestrian access under Alternative 1B or 2A.

Proposed construction projects at the USNA could contribute cumulatively to the potential transportation impacts associated with the proposed action. However, impacts from construction-related traffic

generated from the projects would be short in duration. When past, present, and reasonably foreseeable future projects are analyzed together with the proposed action, implementation of Alternative 1A or 1B in combination with either Alternative 2A, 2B, or 2C would not result in significant cumulative impacts to transportation.

4.2.8 Infrastructure and Utilities

The study area for infrastructure and utilities cumulative impacts includes the USNA. Of the projects identified in Table 4.1-1, the WTP Upgrades, the NEX, Commissary, and Health Clinic, the WWTP Upgrades, the Halligan Hall Energy Repairs, the Ricketts Hall of Fame, the Minor Repair/Upgrade Projects to USNA Facilities, the Bancroft Hall and Brownson Road Watershed Improvements, the New Football Facility, and the New NAAA and NAF Facility would affect infrastructure and utilities.

The WTP Upgrades project would result in a beneficial impact to water supply because it would reduce water use.

Operations of the NEX, Commissary, Health Clinic, and addition to the Ricketts Hall of Fame would result in a minor increase in demand on the water supply, electricity, natural gas, telecommunications systems, wastewater conveyance, and solid waste disposal in the study area. It is anticipated the increased demand would be provided without major upgrades to existing utility systems. The project design incorporates stormwater management features to maintain current outflows for most of the site.

Under the WWTP Upgrades project, the plant would continue to operate during construction, so there would be no reduction in capacity for the duration of the project. Operation of the WWTP after completion of the upgrades would not increase the demand on the water supply, electricity, natural gas, or telecommunications systems in the study area.

The Halligan Hall Energy Repairs would have a beneficial impact to electricity as a result of the replacement of the existing mechanical/heating system with an energy efficient ground source heat pump system. Minor repairs/upgrades to USNA facilities, such as high energy water retrofits and upgrades of variable frequency drives and lighting systems in various buildings, would be a beneficial impact to water supply and electricity.

The Bancroft Hall and Brownson Road Watershed Improvement projects would result in a beneficial impact to water supply. Cisterns would be constructed to collect stormwater for reuse; therefore, the project would reduce water use.

Operations of the New Football Facility and the New NAAA and NAF Facility would result in a minor increase in demand on the water supply, electricity, natural gas, and telecommunications systems. It is anticipated the increase in demand would be met without difficulty.

Implementation of the proposed action would result in a minor increase in demand for water supply, wastewater conveyance, electrical supply, fiber optic/telecommunications, natural gas, and solid waste disposal. Capacity exists within each of the current systems to meet the demands without major upgrades (only a minor upgrade to electrical switchgear would be required under Alternative 2B or 2C). There would be no significant impacts to stormwater management under any of the action alternatives. Therefore, impacts to infrastructure and utilities under the proposed action would not be significant.

When combined with past, present, and reasonably foreseeable future projects, implementation of Alternative 1A or 1B in combination with either Alternative 2A, 2B, or 2C would not result in significant cumulative impacts to infrastructure and utilities.

4.2.9 Cultural Resources

The study area for cultural resources cumulative impacts includes the USNA and adjacent areas. Of the projects identified in Table 4.1-1, the Building 274 Exterior Parapet Wall Repair, Halligan Hall Energy Repairs, Ricketts Hall of Fame, New Football Facility, and New NAAA and NAF Facility would likely contribute to cultural resources impacts.

The repair of the exterior parapet wall of Building 274, a contributing resource to the USNA historic district, was determined to have an adverse effect to Building 274 and the USNA historic district because the proposed project involves deconstruction of the original parapet wall. The Navy developed a Memorandum of Agreement with MHT to mitigate the adverse effects to both historic properties (NSA Annapolis 2013b).

The proposed energy repairs to Halligan Hall (Building 181), a contributing resource to the USNA historic district, have been designed to conform to the Secretary of the Interior's *Standards for the Treatment of Historic Properties*. In addition, the installation of a geothermal well field at Lawrence Field as part of the proposed energy repairs would not affect archaeological resources due to substantial previous disturbances at the site. Therefore, the Navy determined, in consultation with the MHT, that the project would have no adverse effect to historic properties (NSA Annapolis 2013d; MHT 2013).

The Ricketts Hall of Fame has the potential to adversely affect the USNA historic district. Although Ricketts Hall is a noncontributing resource to the district, the addition of a second story to the building may result in adverse visual impacts to the district from the introduction of new visual elements within its setting.

The New Football Facility has the potential to affect the USNA historic district as well as archaeological resources if new construction is proposed at the Lower Yard. The project is in the early planning stage at this time; therefore, sufficient details on potential impacts are not available and it is premature to conduct further analysis of potential cumulative impacts of this project on cultural resources.

The New NAAA and NAF Facility would include demolition of Buildings 51, 92, and 194, all of which are contributing resources to the USNA historic district. Therefore, this project would have an Adverse Effect to the district.

Under the proposed action, Alternatives 1B, 2B, and 2C are anticipated to have an Adverse Effect to the USNA historic district. None of the proposed action alternatives have the potential to affect NRHP-eligible or listed archaeological resources.

When past, present, and reasonably foreseeable future projects are analyzed together with the proposed action, implementation of Alternative 1B in combination with either Alternative 2A, 2B, or 2C has the potential for cumulative impacts to the USNA historic district. Any potential significant impacts to this historic property would be mitigated through development of a Memorandum of Agreement with the Maryland SHPO. For these reasons, it is expected that any cumulative impacts to the USNA historic district would be less than significant pursuant to NEPA.

Of the projects identified in Table 4.1-1, only the Chapel roof repair project is anticipated to have an Adverse Effect to the Colonial Annapolis Historic District and the Peggy Stewart House. The visual impacts, however, would be temporary and short-term, lasting only for the duration of the repairs. Under the proposed action, Alternative 1B is anticipated to have an Adverse Effect to the Colonial Annapolis Historic District and the Peggy Stewart House. Therefore, when past, present, and reasonably foreseeable future projects are analyzed together with the proposed action, implementation of Alternative 1B in

combination with either Alternative 2A, 2B, or 2C has the potential for cumulative impacts to the Colonial Annapolis Historic District and Peggy Stewart House. However, because impacts to the district from reasonably foreseeable future projects would be temporary and short-term, implementation of the proposed action would not result in significant cumulative impacts to the Colonial Annapolis Historic District and Peggy Stewart House or other cultural resources.

4.2.10 Human Health and Safety

The study area for human health and safety cumulative impacts includes the USNA. Of the projects identified in Table 4.1-1, the NEX, Commissary, and Health Clinic, the WWTP Upgrades, and the New NAAA and NAF Facility have the potential to have impacts to human health and safety. These projects have the potential to use or disturb hazardous materials or toxic substances during construction; however, impacts would be avoided by following all applicable federal and state regulations. Likewise, potential impacts from transport and disposal of other hazardous waste would be avoided by following all applicable guidance and regulations. It is not expected that contaminated media (i.e., soil, groundwater, IRP sites) would be encountered during construction of either project. In the event contaminated media is encountered, it would be removed and disposed of in accordance with applicable regulations or treated so as to reduce any potential hazards to human health and the environment. Both projects would manage worker and public safety under existing programs during construction.

Under the proposed action, the potential impacts from the use of hazardous materials and transport and disposal of hazardous waste for construction activities would be avoided by following all applicable federal, state, and local regulations, and adhering to the policies and procedures of the ICP. Although contaminated media is not expected to be encountered during construction, impacts from any potential hazards discovered at any of the alternative sites would be addressed through development and implementation of site-specific Health and Safety Plans.

Like the proposed action, the new facilities for the NEX, Commissary, and Health Clinic would comply with DoD AT/FP building standards in UFC 4-010-01. For the other projects identified in Table 4.1-1, consideration of AT/FP measures either would not apply or would not be affected.

When combined with past, present, and reasonably foreseeable future projects, implementation of Alternative 1A or 1B in combination with either Alternative 2A, 2B, or 2C would not result in significant cumulative impacts to human health and safety.

4.2.11 Socioeconomics

The study area for socioeconomics cumulative impacts includes the city of Annapolis. Of the projects listed in Table 4.1-1, only the NEX, Commissary, and Health Clinic would generate long-term socioeconomic effects. Temporary increases in local economic activity during construction of the NEX, Commissary, and Health Clinic may be additive with the construction spending under the proposed action. The NEX, Commissary, and Health Clinic project would result in increased employment opportunities and income to the study area from construction and additional jobs during construction and subsequent operations. The proposed action would employ 40 faculty and staff. Military and civilian personnel payrolls would increase and some of these earnings would be spent on consumer goods and services, which would “ripple” through the economy. These additive cumulative effects would be beneficial to the study area.

When past, present, and reasonably foreseeable future projects are analyzed together with the proposed action, implementation of Alternative 1A or 1B in combination with either Alternative 2A, 2B, or 2C

would result in beneficial short- and long-term cumulative socioeconomic impacts to the study area. There would be no significant adverse cumulative impacts to socioeconomics to the study area.

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5.0 OTHER NEPA CONSIDERATIONS

5.1 CONSISTENCY AND COMPLIANCE WITH FEDERAL, STATE, AND LOCAL PLANS, POLICIES, AND REGULATIONS

The proposed action and alternatives have been assessed to determine their consistency and compliance with applicable environmental regulations and other plans, policies, and controls. This assessment indicates the proposed action and action alternatives would not conflict with the objectives of applicable plans, policies, and regulations. A summary of this compliance status is provided in Table 5.1-1.

Table 5.1-1. Summary of Applicable Environmental Regulations and Regulatory Compliance			
Plans, Policies, and Controls	Regulatory Authority	Compliance Status	EA Section
NEPA (42 U.S.C. § 4341 et seq.) CEQ regulations implementing NEPA (40 CFR Parts 1500–1508) DoN procedures for implementing NEPA (32 CFR Part 775)	Navy	This EA has been prepared in accordance with NEPA, CEQ regulations implementing NEPA, and Navy NEPA procedures. Public participation and review have been conducted in compliance with NEPA.	Entire EA
EO 12898, <i>Environmental Justice</i> (59 Federal Register 7629)	Navy and USEPA	There are no low income or minority populations in the area that would be affected; therefore, the proposed action would not result in Environmental Justice concerns	1.4.2
EO 13045, <i>Protection of Children from Environmental Health Risks and Safety Risks</i> (62 Federal Register 19883)	Navy and USEPA	The proposed action would not result in environmental human health risks or safety risks and would not disproportionately impact the health and safety of children	1.4.2
CWA (33 U.S.C. § 1251 et seq.) and Safe Drinking Water Act (42 U.S.C. § 300f et seq.)	USEPA, USACE, and MDE	Permits under CWA Sections 401 and 404 are not required. Erosion and stormwater runoff during construction of the project would be managed in accordance with an ESCP and stormwater management plan. Under Alternatives 2B and 2C, adherence to applicable federal and state stormwater and erosion BMPs would be applied following construction.	3.2
EO 11988, <i>Floodplain Management</i> (42 Federal Register 26951)	Federal Emergency Management Agency	Alternatives 1B, 2A, and 2C would not impact floodplains or floodplain management at the USNA. Impacts to floodplain capacity as a result of implementation of Alternative 1A or 2B would be minimized through compliance with the eight-step process detailed in EO 11988. During final design, a technical study would be prepared to assess impacts of new construction on flood heights and threats to public safety.	3.2
CZMA (16 U.S.C. § 1451 et seq.)	MDE	The proposed action is consistent with the enforceable policies of the Maryland CZMP and would not increase impacts to coastal resources.	3.2
ESA (16 U.S.C. § 1531 et seq.)	USFWS and MDNR	The Navy determined that the proposed action would not affect threatened or endangered species or designated critical habitat protected under the ESA. The USFWS had no comments on the proposed action.	3.3
MBTA (16 U.S.C. § 703 et seq.)		The proposed action would not impact migratory birds.	3.3

Table 5.1-1. Summary of Applicable Environmental Regulations and Regulatory Compliance			
Plans, Policies, and Controls	Regulatory Authority	Compliance Status	EA Section
CAA (42 U.S.C. § 7401 et seq.)	USEPA and MDE	The proposed action would not create a major regional source of air pollutants or affect the current attainment status at USNA. Implementation of the proposed action would be in compliance with all applicable local and regional air agency rules and regulations.	3.5
Noise Control Act of 1972 and Quiet Communities Act of 1978	Navy	Due consideration to noise impacts presented in this EA ensured consistency with these Acts.	3.6
Control of Noise Pollution (Code of Maryland Regulations 26.02.03)	MDE	Due consideration to noise impacts presented in this EA ensured consistency with these regulations.	
NHPA, as amended (16 U.S.C. § 470 et seq.)	MHT	The proposed action would not affect archaeological resources; MHT concurred with this finding. Execution of the PA between the Navy, MHT, and ACHP would mitigate adverse effects to historic built resources, in the event an adverse effect is determined.	3.9
Archaeological Resources Protection Act of 1979 (16 U.S.C. § 470 et seq.); Final Uniform Regulations (32 CFR Part 229)	MHT	The proposed action would not affect archaeological resources. MHT concurred with this finding.	3.9
OSHA Standards (29 CFR Part 1910)	OSHA	A Health and Safety Program, including Site-specific Health and Safety Plans in the event unanticipated environmental hazards are discovered during construction, would be implemented by the construction contractors.	3.10
RCRA (42 U.S.C. § 6901 et seq.)	USEPA	The proposed action would not result in significant hazardous materials and wastes related impacts. Management protocols for hazardous substances would follow existing regulations and the installation's ICP policies and procedures for like materials.	3.10
CERCLA (42 U.S.C. § 9601 et seq.)	USEPA	The proposed action would not impact IRP sites.	3.10

5.2 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES

NEPA requires that environmental analysis include identification of any irreversible or irretrievable commitments of resources that would be used if the proposed action is approved and implemented. The term “resources” (both renewable and nonrenewable) means the natural and cultural resources committed to, or lost by, the action, as well as labor, funds, and materials committed to the action.

The permanent use and subsequent loss of nonrenewable resources, such as oil, natural gas, and iron ore, are considered irreversible because nonrenewable resources cannot be replenished by natural means. An action that causes a loss in the value of an affected resource that cannot be restored (e.g., disturbance of an archaeological site) is considered an irretrievable commitment of resources. Similarly, the consumption of a renewable resource that would be lost for a period of time (e.g., wetlands) is also considered an irretrievable commitment of resources. Renewable natural resources include water, lumber, and soil, all of which can be replenished by natural means within a reasonable timeframe.

Implementation of either CCSS building alternative in combination with any of the parking garage alternatives would involve irreversible and irretrievable commitments of nonrenewable and renewable resources. Construction and demolition activities under the proposed action would expend resources such as labor, fuels, and construction materials. The operation of the new CCSS building would require energy to heat, cool, and light the building and power its equipment and data systems. Maintenance of the CCSS building and parking garage would require the expenditure of fuel and certain types of materials.

The total amount of construction materials (e.g., metal, concrete, glass, etc.) required for the proposed action is relatively small when compared to the resources available in the region. The construction materials and energy required for facility development and operations are not in short supply. Moreover, their use would not have an adverse impact on the continued availability of these resources and the energy resource commitment is not anticipated to be excessive in terms of region-wide usage. Furthermore, construction would comply, to the extent practicable, with the requirement of EO 13423, *Strengthening Federal Environmental, Energy, and Transportation Management*, and with LEED standards to minimize irreversible or irretrievable effects to multiple nonrenewable and renewable resources.

5.3 RELATIONSHIP BETWEEN LOCAL SHORT-TERM USES OF THE ENVIRONMENT AND THE ENHANCEMENT OF LONG-TERM PRODUCTIVITY

NEPA requires analysis of the relationship between a project's short-term impacts on the environment and the effects those impacts may have on the maintenance and enhancement of the long-term productivity of the affected environment. Impacts that narrow the range of beneficial uses of the environment are of particular concern.

Potential short-term impacts resulting from construction of the CCSS building and parking garage would include increased traffic from construction vehicles and congestion associated with temporary shifts in traffic circulation patterns, and a temporary increase in air pollution emissions and noise in the vicinity of the affected areas. In addition, three of the action alternatives would have short-term impacts to land use during construction (loss of current land uses such as recreational fields and parking).

From a long-term perspective, the proposed action would forward the mission of the CCSS in providing cyber warfare instruction and training, and strengthen the USNA mission of developing and preparing the next leaders for naval service and the future security of our nation. A long-term positive impact of fulfilling these missions for the proposed action would be realized in the local economy from the increase in construction spending and NSA Annapolis personnel. Some long-term negative impacts of fulfilling these missions for the proposed action would include alteration of existing drainage patterns within the floodplain, and minor increases in traffic volume. Under Alternative 2B or 2C, the increase in automobile traffic using the parking garage would result in a minor increase in local noise. Pending the results of Section 106 consultation, which is ongoing, implementation of Alternative 1B potentially would have adverse visual effects to the historic setting of the USNA historic district, the Colonial Annapolis Historic District, and the Peggy Stewart House, and Alternatives 2B and 2C potentially would have an adverse effect to the USNA historic district. Measures to avoid construction and operational impacts would be implemented to the extent possible, but where avoidance is not prudent or feasible, measures to minimize or mitigate impacts would be implemented.

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APPENDIX A
FEDERAL COASTAL CONSISTENCY DETERMINATION

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ACRONYMS AND ABBREVIATIONS

CCSS	Center for Cyber Security Studies
CFR	Code of Federal Regulations
CZMA	Coastal Zone Management Act
CZMP	Coastal Zone Management Program
DoD	Department of Defense
DoN	Department of the Navy
EA	Environmental Assessment
MOU	Memorandum of Understanding
NEPA	National Environmental Policy Act of 1969
U.S.	United States
U.S.C.	United States Code
USNA	United States Naval Academy

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1.0 INTRODUCTION

This document provides the State of Maryland with the Department of the Navy's (DoN or Navy) Federal Coastal Consistency Determination under Section 307 of the Coastal Zone Management Act (CZMA), 16 United States Code (U.S.C.) § 1451 et seq., as amended, and 15 Code of Federal Regulations (CFR) Part 930, Subpart C, and in accordance with the Memorandum of Understanding (MOU) between the State of Maryland and the United States (U.S.) Department of Defense (DoD), for the proposed action to construct and operate a Center for Cyber Security Studies (CCSS) and supporting parking garage at the United States Naval Academy (USNA) in Annapolis, Maryland (Figure 1).

The USNA is located entirely within Maryland's coastal zone. Under Section 307 of the CZMA, federal activities within or outside the coastal zone that are reasonably likely to affect the use of lands, waters, or natural resources of the coastal zone must be consistent to the maximum extent practicable with the enforceable policies of states with approved coastal zone management programs. The State of Maryland has a federally approved Coastal Zone Management Program (CZMP), which was last updated in 2011. Maryland's CZMP addresses coastal hazards, growth management, habitat and living resources, non-point source pollution, non-tidal wetlands, provision of public access, and tidal wetlands, and it encompasses several state laws and regulatory programs, of which the Clean Water Act is specifically applicable to the proposed action. In accordance with Section 307 of the CZMA, the Navy has analyzed the proposed action for consistency with Maryland's CZMP. The MOU between the State of Maryland and the DoD, signed on May 8, 2013, outlines the application and implementation of certain enforceable policies of Maryland's CZMP for federal actions. This Federal Coastal Consistency Determination analyzed the proposed action relative to the agreements outlined in the MOU.

2.0 PROJECT DESCRIPTION

The purpose of the proposed action is to effectively implement the cyber curriculum by providing dedicated classrooms, laboratories, and secure project spaces, and meet associated parking requirements at the USNA. Construction of the CCSS building and parking garage is needed to address current shortfalls in academic instruction space to support the cyber education program and to replace parking that would be lost due to the proposed construction of the CCSS building on an existing parking lot, provide additional parking for cyber-related staff, and improve the existing parking deficit at the USNA.

The proposed action would provide dedicated and secure space for the cyber curriculum at the USNA, inclusive of a supporting parking garage. A new approximately 206,000 square foot multistory building would be constructed at the Lower Yard to house the CCSS. The proposed building would house classrooms, laboratories, lecture halls, faculty offices, a Sensitive Compartmented Information Facility, an observatory, and rooftop multipurpose space for the new cyber curriculum. The CCSS would also house three existing academic departments that would comprise the focus of the cyber curriculum: Computer Sciences, Electrical and Computer Engineering, and Weapons and Systems Engineering. The number of midshipmen attending the USNA would not increase as a result of the proposed action, but 40 additional faculty and staff would be added to support the CCSS program.

The parking garage is proposed to be a multi-level, concrete structure. Design and construction of both new facilities would implement practical energy efficient and sustainable solutions. The CCSS building, in particular, would achieve, at a minimum, Leadership in Energy and Environmental Design (LEED) Silver certification.

Project construction would begin in early or mid-2015 with the parking garage. Construction of the CCSS building would begin after the parking garage is completed and would take approximately two years, beginning in late 2016 and finishing in late 2018.

The Navy has prepared an Environmental Assessment (EA) to evaluate the potential environmental impacts associated with the proposed construction and operation of the CCSS building and associated parking garage in accordance with the National Environmental Policy Act of 1969 (NEPA), as amended (42 U.S.C. §§ 4321–4370h), the Council on Environmental Quality regulations for implementing NEPA (40 CFR Parts 1500–1508), DoN Procedures for Implementing NEPA (32 CFR Part 775), and the Chief of Naval Operations Instruction 5090.1D, *Environmental Readiness Program* and its implementing policy guidance contained in OPNAV M-5090.1, Reference (c), Chapter 10, *Environmental Readiness Program Manual* (January 2014). The EA analyzed two action alternatives for the CCSS building and three action alternatives for the parking garage, along with the No Action Alternative (Figure 2). The following alternatives comprise the Preferred Alternative:

Preferred Alternative

- **Alternative 1A – Waffle Lot CCSS Building Alternative**

The CCSS building would be constructed at the Waffle Lot, a surface parking lot used by faculty and academic staff between Nimitz Library (Building 589) and Rickover Hall (Building 590) at the Lower Yard (Figure 3).

Development of the Waffle Lot site for the CCSS building would require removing the entire parking lot, concrete sidewalks and stairs, and site appurtenances (e.g., light poles, signs) between the parking lot and Nimitz Library and Rickover Hall. An existing electrical switching station and an emergency generator for Rickover Hall in the east portion of the parking lot would be removed and relocated. The portions of McNair Road and Holloway Road and their sidewalks that are adjacent to the Waffle Lot site would be closed to both vehicular and pedestrian traffic for the duration of construction; however, the portions of the roadways and sidewalks adjacent to Nimitz Library and Rickover Hall would remain in service during construction. The existing pedestrian and vehicular routes in the immediate area would be fully restored after construction. A new sidewalk on the north side of the CCSS building would be installed for additional pedestrian circulation. A construction staging area would be provided either at the intramural field on the northeast side of Holloway Road or on a barge along College Creek.

Under Alternative 1A, the Waffle Lot would accommodate an approximately 206,000 SF building for the CCSS. The building would have a plinth (an elevated base story broader than the upper stories) plus five stories, and its footprint and massing would have the same triangular configuration as the site. The building would be supported by a deep pile foundation due to the weak soils at the site.

- **Alternative 2A – Alumni Hall Lot Parking Garage Alternative**

Development of the Alumni Hall Lot for a parking garage would involve constructing a two-level garage on the lower lot and incorporating surface parking on the upper lot into the structure (Figure 4). The parking garage would be an open parking structure of cast-in-place post-tensioned concrete and have a deep pile foundation. Exterior cladding would consist of a system of perforated zinc panels to blend with surrounding architectural elements. The upper deck of the parking garage would be built at grade with, and connected to, the upper lot, which would be removed and rebuilt in the same footprint and at the same elevation as the existing surface lot. Access to both the upper lot and the upper deck of the parking garage would be provided from Balch Road and from Parker Road. The lower level of the parking garage would be accessed via a ramp from Balch Road. An elevator and three sets of stairs would provide pedestrian access. Alternative 2A would provide a total of 378 parking spaces: 142 spaces on the lower level of the

parking garage and 236 spaces on the upper level of the parking garage and the upper lot combined. Construction staging areas would be along Balch and Nulton Roads.

No Action Alternative

Under the No Action Alternative, a building for the CCSS and a parking garage would not be constructed at the USNA. The No Action Alternative fails to meet the purpose and need for the proposed action as stated above.

2.1 PUBLIC PARTICIPATION

The Navy held a public scoping meeting for the CCSS building and parking garage project on February 5, 2014, in Annapolis. The scoping meeting was conducted in an open house format designed to inform the public about the proposed action and NEPA process, and allow the public to identify to USNA and Navy representatives issues and concerns about the proposed action. During the scoping meeting, the USNA Superintendent gave a presentation on the CCSS and the objectives of the proposed action. Following the presentation, the public was provided the opportunity to ask questions and comment on the project. Twenty-two individuals signed in at the meeting, including one elected official. A total of 10 comments were received during the scoping period from February 5 to March 7, 2014. One comment concerned rising sea levels.

On June 3, 2014, the Navy released the Draft EA for a 45-day public comment period. The public comment period provides members of the community an opportunity to review the Draft EA and provide comments on the findings in the document. The Navy published a notice of availability of the Draft EA and public meeting in *The Capital* for three consecutive days, beginning on June 1, 2014. The USNA Public Affairs office also issued a press release about the public meeting on the USNA website (http://www.usna.edu/PAO/press_releases/) as well as a notice on the USNA Facebook page (<https://www.facebook.com/USNavalAcademy>). Copies of the Draft EA were available at the Annapolis Area Library at 1410 West Street in Annapolis, Maryland. In addition, an electronic copy of the Draft EA was available on the USNA Public Affairs Office website (<http://www.usna.edu/PAO/>).

The public meeting was held on June 18, 2014 and was conducted in an open house format to provide the public an opportunity to ask questions or discuss concerns they might have after their review of the Draft EA with USNA and Navy representatives. During the meeting, the USNA Superintendent gave a presentation on the Center for Cyber Security Studies, and answered questions following the presentation. A total of 16 individuals signed in at the meeting, including one elected official. The public comment period began on June 3 and ended on July 18, 2014. A total of five comments were received during the public comment period. One comment expressed support for the project. The other comments were generally related to transportation or cultural resources.

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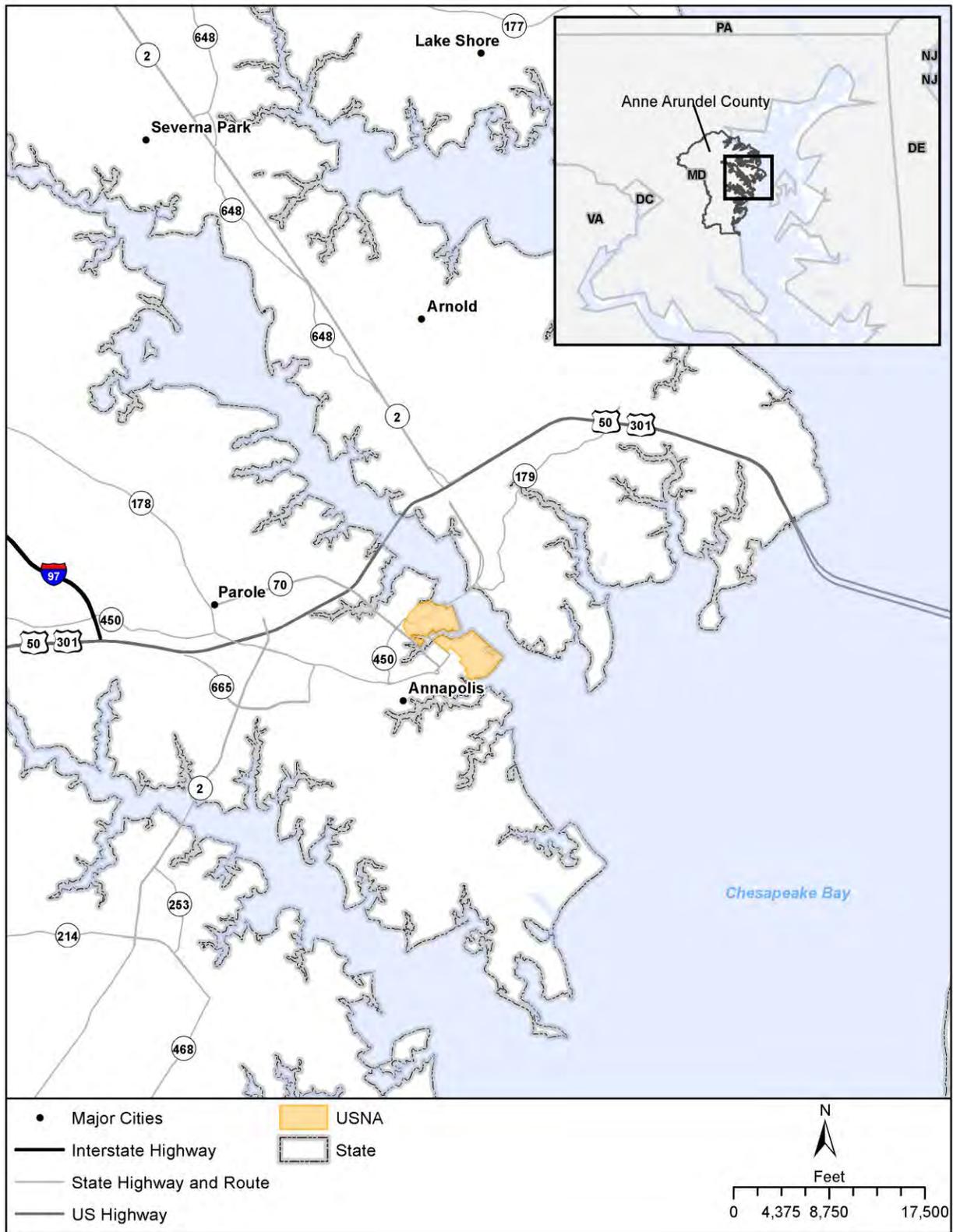


Figure 1. Location of USNA



Figure 2. Proposed Action Alternatives



Figure 3. Waffle Lot CCSS Building Alternative (Preferred)



Figure 4. Alumni Hall Lot Parking Garage Alternative (Preferred)

3.0 SUMMARY OF ANTICIPATED EFFECTS TO ENVIRONMENTAL RESOURCES

As assessed in the EA, the following resources have the potential to be affected by the proposed action: geology, topography, and soils; water resources; biological resources; land use; air quality; noise; transportation; infrastructure and utilities; cultural resources; human health and safety, and socioeconomic resources. The anticipated impacts to these environmental resources from the Preferred Alternative are discussed in detail in the following sections. As evaluated in the EA, the Preferred Alternative would have some short- and long-term impacts; however, none of the impacts would be significant.

3.1 GEOLOGY, TOPOGRAPHY, AND SOILS

Implementation of the Preferred Alternative would not have significant impacts to geology or topography; however, short-term impacts to soils would be expected as a result of construction activities (i.e., clearing, grading, compaction, and potential erosion and sedimentation of exposed soils). These impacts would be avoided and minimized through implementation of appropriate Best Management Practices, such as erosion control barriers.

Alternative 1A would disturb 1.4 acres of land, and Alternative 2A would disturb 1.9 acres of land.

3.2 WATER RESOURCES

Implementation of the Preferred Alternative is not expected to result in significant impacts to water resources. Impacts to surface waters would be avoided and minimized through compliance with Clean Water Act requirements and observance of the building permit process, which requires an Erosion and Sediment Control Plan and a stormwater management plan approved by the Maryland Department of the Environment prior to the issuance of building or grading permits.

Impacts to floodplains differ among the alternatives, depending on whether they are located within the 100-year floodplain. Alternative 1A is located within the 100-year floodplain and would incorporate design measures that would prevent long-term adverse alteration of existing drainage patterns or creation or modification of flood hazard conditions.

Groundwater is protected under the wellhead protection program, managed by the Naval Support Activity Annapolis Environmental Department, and demand is not expected to impact groundwater supply or interfere with groundwater recharge. Therefore, there would be no significant impacts to groundwater for any of the alternatives.

Potential impacts to the coastal zone would be avoided and minimized through the following processes and procedures: compliance with runoff treatment requirements; adherence to CZMA and CZMA Maryland-DoD MOU practices; permit submittals and issuance (i.e., stormwater management plans, erosion control plans, and National Pollutant Discharge Elimination System permits); and adherence to Navy Low Impact Development Policy, the Energy Independence and Security Act Section 438, and Maryland Department of the Environment's Maryland Stormwater Management Guidelines for State and Federal Projects (2010), Maryland Stormwater Management Design Manual Volumes I and II (2009), and Erosion and Sediment Control Guidelines for State and Federal Projects (2004).

All areas not receiving impervious materials would receive topsoil, fertilizer, and seed or plantings in accordance with the Soil Erosion and Sediment Control regulations and best practices for the growth of landscape material. All plants selected for landscaping would be regionally native plants. The Navy's

design contractor would employ a Landscape Architect registered in the State of Maryland who would prepare a landscape plan that is in accordance with the USNA Installation Appearance Plan and would complement the existing campus landscaping.

3.3 BIOLOGICAL RESOURCES

Implementation of the Preferred Alternative would not have significant impacts to vegetation or wildlife, and would have no impacts to rare, threatened, or endangered species. Concurrence with these findings is pending reviews by the Maryland Department of Natural Resources and the U.S. Fish and Wildlife Service.

3.4 LAND USE

Implementation of the Preferred Alternative would not have significant impacts to land use; however, short-term impacts would be expected during construction (loss of current land uses such as parking). The proposed action would be consistent with current land use categorization under all the alternatives.

3.5 AIR QUALITY

Implementation of the Preferred Alternative would not have significant impacts to air quality; however, short-term impacts would be expected as a result of construction activities. General Conformity Rule *de minimis* thresholds would not be exceeded, nor would the Metropolitan Baltimore Intrastate Air Quality Control Region thresholds be exceeded for any criteria pollutant.

3.6 NOISE

Implementation of the Preferred Alternative would have significant short-term noise impacts from construction-related pile driving; however, noise attenuation measures per internal DoD and military service component noise abatement policies would be employed to minimize this impact. In addition, less than significant short-term noise impacts would result from land clearing, excavation, and other construction equipment.

3.7 TRANSPORTATION

Implementation of the Preferred Alternative would not have significant impacts to transportation; however, short-term impacts would be expected as a result of construction activities. Temporary impacts to traffic during construction and operational minor increases in traffic are expected. Minor beneficial impacts to pedestrian routes following construction are anticipated for Alternative 1A. There would be no impacts to pedestrian access under Alternative 2A.

3.8 INFRASTRUCTURE AND UTILITIES

Implementation of the Preferred Alternative would not have significant impacts to water supply, wastewater, electrical supply, fiber optic/telecommunications, natural gas, or solid waste. Short-term impacts may occur under Alternative 1A while water service lines are rerouted and under Alternative 2A while the high-temperature hot water line is rerouted. Alternative 1A would also require the existing switchgear and generator to be relocated.

3.9 CULTURAL RESOURCES

The Navy consulted with the Maryland Historical Trust (MHT) (the Maryland State Historic Preservation Office), the Advisory Council on Historic Preservation, the National Park Service, and the Annapolis Historic Preservation Division on the effects of the Preferred Alternative on historic properties. Alternatives 1A and 2A would have no effect to National Register of Historic Places (NRHP)-listed or eligible archaeological resources. The Maryland SHPO concurred in a letter dated September 26, 2014. Under Alternative 2A, the Navy determined the proposed parking garage would have no adverse effect on NRHP-listed or -eligible architectural resources, as the garage, at two stories tall, would be lower in height than adjacent buildings, and would be banked into the existing site. In addition, the installation of an exterior cladding system of perforated zinc panels would contribute to the compatibility of the garage with the surrounding architectural character. The effects to NRHP-listed or -eligible architectural resources from implementation of Alternative 1A could not be fully determined due to insufficient design information; therefore, the Navy is developing a Programmatic Agreement in consultation with MHT to implement procedures for assessing effects and to set forth mitigation measures in case there would be an adverse effect. With mitigation, the impacts to NRHP-listed or -eligible architectural resources would not be significant; therefore, there would be no significant impacts to cultural resources under the Preferred Alternative.

3.10 HUMAN HEALTH AND SAFETY

Implementation of the Preferred Alternative would not have significant impacts to human health and safety because of the implementation of a site-specific Health and Safety Plans, adherence to the Integrated Contingency Plan, and incorporation of design features in compliance with DoD antiterrorism/force protection standards.

3.11 SOCIOECONOMIC RESOURCES

Implementation of the Preferred Alternative would not have significant impacts to population, but would have short-term beneficial impacts due to construction spending and long-term beneficial impacts to the tax base.

4.0 CONSISTENCY DETERMINATION

This section describes the expected effects, if any, of the Preferred Alternative with regard to the relevant Maryland CZMP enforceable policies as clarified by the MOU between the DoD and the State of Maryland. As shown by these analyses, the proposed action would be consistent to the maximum extent practicable with the policies. Certain Maryland enforceable coastal policies are identified in the MOU for Federal Coastal Consistency Determinations by the DoD, which are underlined in the lists below.

4.1 GENERAL POLICIES

4.1.1 Core Policies

The proposed action would comply with the core policies of Maryland's enforceable coastal policies effective April 8, 2011, and the MOU dated May 8, 2013.

The proposed action would not affect:

- The degree of purity of air resources which will protect the health, general welfare, and property of the people of the State of Maryland

- Noise which may jeopardize health, general welfare, or property, or which degrades the quality of life (noise abatement measures would be implemented for the proposed action in accordance with internal DoD and military service component noise abatement policies)
- The unique ecological, geological, scenic, and contemplative aspects of State wild lands or their future use and enjoyment
- The safety, order, and natural beauty of State parks and reserves, forests, scenic preserves, parkways, historical monuments, or recreational areas
- Water appropriation and use
- Natural character and scenic value of rivers or waterways
- Scenic or wild rivers due to dams or other structures that would impede the natural flow
- The dune line along the Atlantic Coast
- The integrity and natural character of Assateague Island
- Non-tidal waters that dredge, fill, bulkhead, or change the shoreline; construct or reconstruct a dam; or create a waterway
- Soils such that soil erosion would occur that would impact natural resources and wildlife; alter flood control; prevent impairment of dams and reservoirs; maintain navigability of rivers and harbors; affect the tax base, public lands, and the health, safety, and general welfare of the people of the State of Maryland
- The Port of Baltimore by introducing hazardous materials
- Operations on the Outer Continental Shelf

4.1.2 Water Resources

The proposed action would not affect water quality and is consistent with the following policies:

- No addition, introduction, leaks, spills, or emitting of liquid, gaseous, solid, or other substances that will pollute any waters of the State of Maryland
- Protection of waters of the State for water contact recreation, fish, and other aquatic life and wildlife, as well as shellfish harvesting and recreational trout waters
- No construction, installation, modification, extension, or alteration of an outlet that could cause or increase the discharge of pollutants into the waters of the State
- Use of best available technology for permitted discharges into State waters
- Control of thermal discharges
- Storage of pesticides in compliance with Department of Defense Instruction 4150.07, “DoD Pest Management Program”
- Development or redevelopment of land for residential, commercial, industrial, or institutional purposes shall use small-scale non-structural stormwater management practices and site planning that mimic natural hydrologic conditions
- Used oil would not be dumped into sewers, drainage systems, or waters of the State, or onto private or public land
- Toxic material or material with the potential for being toxic will be managed by applying for and complying with permits required under the Clean Water Act and relevant sections of Code of Maryland Regulations 26.08.03.01

4.1.3 Flood Hazards

Alternative 1A would result in construction or substantial improvements of residential, commercial, or industrial structures in the 100-year frequency floodplain and below the water surface elevation of the 100-year flood; however, per Section 2.04 of the MOU, the DoD and the State of Maryland agree that this policy does not establish absolute prohibitions against development on DoD lands by federal agencies. The Navy will implement the eight-step process established in Executive Order 11988, *Floodplain Management*, to provide for analysis and public notice if development within the 100-year floodplain is unavoidable. The eight-step process is as follows:

1. Determine if a proposed action is in the base floodplain (that area which has a 1 percent or greater chance of flooding in any given year)
2. Conduct early public review, including public notice
3. Identify and evaluate practicable alternatives to locating in the base floodplain, including alternative sites outside of the floodplain
4. Identify impacts of the proposed action
5. If impacts cannot be avoided, develop measures to minimize the impacts and restore and preserve the floodplain, as appropriate
6. Re-evaluate alternatives
7. Present the findings and a public explanation
8. Implement the action

The Preferred Alternative would not affect flood hazards and is consistent with the following policies:

- No projects in coastal tidal and non-tidal floodplains which would create additional flooding upstream or downstream, or which would have an adverse impact upon water quality or other environmental factors
- Floodplain encroachments would be designed to provide a minimum of 1 foot of freeboard above the elevation of the 100-year frequency flood event
- There would be no unlined earth channels or lined channels that would change the tractive force associated with the 2-year and the 10-year frequency flood events
- No Category II, III, or IV dams would be built
- No channelization will be used as a flood control technique
- The project will achieve the purposes intended

Development will not increase the downstream peak discharge for the 100-year frequency storm event in the College Creek watershed and its tributaries.

4.2 COASTAL RESOURCES

The proposed action would not affect the following coastal resources, as described in Maryland's enforceable coastal policies and clarified in the MOU between DoD and the State of Maryland:

4.2.1 The Chesapeake and Atlantic Coastal Bays Critical Area

Per the MOU, the DoD and State of Maryland agree to continue discussing appropriate measures to demonstrate consistency with Maryland's enforceable coastal policies related to the Chesapeake Bay and Atlantic Coastal Bays Critical Areas, including the development and maintenance of a List of *de minimis* and Environmentally Beneficial Activities (addressed in Section 1.04 of the MOU).

4.2.2 Tidal Wetlands

No tidal wetlands have been identified within or immediately adjacent to the Preferred Alternative sites by either the National Wetland Inventory or the Maryland Department of Natural Resources. Therefore, no impacts to tidal wetlands would occur as a result of the Preferred Alternative.

4.2.3 Non-Tidal Wetlands

No non-tidal wetlands have been identified within or immediately adjacent to the Preferred Alternative sites by either the National Wetland Inventory or the Maryland Department of Natural Resources. Therefore, no impacts to non-tidal wetlands would occur as a result of the Preferred Alternative.

4.2.4 Forests

There are no forests within the Preferred Alternative sites. Therefore, no impacts to forests would occur as a result of the Preferred Alternative.

4.2.5 Historical and Archaeological Sites

USNA was designated a National Historic Landmark on July 1961 and was automatically placed on the National Register of Historic Places in 1966 and has more than 100 contributing resources within the district, including buildings, structures, and monuments. In addition, the USNA is adjacent to the Colonial Annapolis Historic District, which was designated a National Historic Landmark in 1965 and included in the National Register of Historic Places in 1966. This district was expanded in 1984 and is directly south of the Alumni Hall Lot, the site for Alternative 2A. The area of potential effects for the proposed action also includes 16 other historic properties: 15 contributing resources of the Colonial Annapolis Historic District that are individually listed in National Register of Historic Places, and one property on the north shore of the Severn River that is considered to be eligible for National Register listing.

No known archaeological sites are located within the proposed alternative sites. Portions of the USNA have been disturbed by activities at the installation, and other areas rest on created land.

Per Section 2.08 of the MOU, the proposed action will be determined consistent with Maryland's Historical Preservation Program and enforceable policies relating to historic preservation by meeting Section 106 consultation requirements. The Navy and the Maryland Historical Trust are developing a Programmatic Agreement to govern implementation of the project and complete the Navy's Section 106 responsibilities for the undertaking.

4.2.6 Living Aquatic Resources

There are no reasonably foreseeable effects on living aquatic resources.

4.3 COASTAL USES

4.3.1 Mineral Extraction

The proposed action does not involve mineral extraction activities.

4.3.2 Electrical Generation and Transmission

The proposed action does not involve electrical generation or transmission.

4.3.3 Tidal Shore Erosion Control

The proposed action does not involve a tidal shore erosion project.

4.3.4 Oil and Natural Gas Facilities

The proposed action does not involve oil and natural gas facilities.

4.3.5 Dredging and Disposal of Dredged Material

The proposed action would not involve dredging activities or require the disposal of dredged material.

4.3.6 Navigation

The proposed action has no potential to affect navigation.

4.3.7 Transportation

The proposed action is not a transportation facility project.

4.3.8 Agriculture

The proposed action does not involve agricultural land management activities or agricultural operations.

4.3.9 Development

The proposed action would include new buildings, but would not result in new demand or require increased capacity for water, sewer, or solid waste disposal services. The proposed action would comply with the enforceable policies of the Maryland CZMP.

4.3.10 Sewage Treatment

The proposed action does not involve sewage treatment.

5.0 CONCLUSION

Based upon the description of the proposed action, the locations where the actions would occur, and the above discussion of the proposed action as it relates to the State of Maryland's enforceable coastal policies and the environmental analysis included in the *Environmental Assessment for the Center for Cyber Security Studies, United States Naval Academy, Annapolis, Maryland*, the Navy has determined that the Preferred Alternative for the proposed action, Alternatives 1A and 2A, is consistent to the maximum extent practicable with the enforceable policies of the Maryland CZMP.

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**APPENDIX B
AIR QUALITY**

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**AIR QUALITY CONFORMITY APPLICABILITY ANALYSIS FOR THE
CENTER FOR CYBER SECURITY STUDIES (MILCON P621),
UNITED STATES NAVAL ACADEMY, ANNAPOLIS, MARYLAND**

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ACRONYMS AND ABBREVIATIONS

CAA	Clean Air Act
CCSS	Center for Cyber Security Studies
CFR	Code of Federal Regulations
CO	carbon monoxide
CO ₂	carbon dioxide
g	grams
g/hp-hr	grams per horse power hour
GCR	General Conformity Rule
hp	horse power
lb(s)	pound(s)
mph	miles per hour
NAAQS	National Ambient Air Quality Standards
NO ₂	nitrogen dioxide
NO _x	nitrogen oxide
PM _{2.5}	particulate matter with a diameter of 2.5 microns or less
PM ₁₀	particulate matter with a diameter less than 10 microns
SF	square feet
SIP	State Implementation Plan
SO ₂	sulfur dioxide
USEPA	United States Environmental Protection Agency
USNA	United States Naval Academy
VOC(s)	volatile organic compound(s)

1.0 INTRODUCTION

The Clean Air Act (CAA) requires federal actions in air pollutant nonattainment or maintenance areas to conform to the applicable State Implementation Plan (SIP). The SIP is designed to achieve or maintain an attainment designation of air pollutants, as defined by the National Ambient Air Quality Standards (NAAQS). The regulations governing this requirement are found in 40 Code of Federal Regulations (CFR) Part 93, also known as the General Conformity Rule (GCR). The threshold (*de minimis*) emission rates have been established for actions with the potential to have significant air quality impacts. A project/action that would be located in an area designated as nonattainment or a maintenance area and exceeding the *de minimis* thresholds must have a general conformity determination prepared to address significant impacts.

Pursuant to the requirements of the GCR, this document was prepared to determine the applicability of the GCR to the proposed action to construct and operate a Center for Cyber Security Studies (CCSS) and a supporting parking garage at the United States Naval Academy (USNA) in Annapolis, Maryland. The proposed CCSS building would be approximately 206,000 square feet (SF) and would provide dedicated classrooms, laboratories, faculty offices, and secure project spaces for the new cyber curriculum. The proposed project also includes construction of a multi-level concrete parking garage.

The purpose of the proposed action is to effectively implement the cyber curriculum by providing dedicated classrooms, laboratories, and secure project spaces, and meet associated parking requirements at the USNA. The proposed action is needed to address current shortfalls in academic instruction space to support the CCSS and to replace parking that would be lost due to the proposed construction of the CCSS building on an existing parking lot, provide additional parking for cyber-related staff, and improve the existing parking deficit at the USNA.

The USNA is in the Metropolitan Baltimore Intrastate Air Quality Control Region (40 CFR § 81.28). This Air Quality Control Region is designated as nonattainment for the 8-hour ozone and the annual PM_{2.5} (particulate matter less than 2.5 microns) standards. Thus, the *de minimis* thresholds for the ozone precursor pollutants, nitrogen oxides (NO_x) and volatile organic compounds (VOCs) apply, as well as PM_{2.5} and its precursor sulfur dioxide (SO₂).

Potential emissions that could result from the proposed action were calculated for all applicable criteria pollutants emitted for every year during which the construction activities would occur; however, the conformity analysis focused on VOCs, NO_x, PM_{2.5}, and SO₂.

1.1 PROJECT DESCRIPTION

The proposed action would provide dedicated and secure space for the cyber curriculum at the USNA, inclusive of a supporting parking garage. A new approximately 206,000 SF multistory building would be constructed at the Lower Yard to house the CCSS as well as three existing academic departments that would comprise the focus of the cyber curriculum: Computer Sciences, Electrical and Computer Engineering, and Weapons and Systems Engineering. The CCSS building would house classrooms, teaching and research laboratories, lecture halls, a Sensitive Compartmented Information Facility with specialized learning and support spaces, study rooms, offices, an observatory, and a rooftop multipurpose space. The number of midshipmen attending the USNA would not increase as a result of the proposed action, but 40 additional faculty and staff would be added to support the CCSS program.

This project also includes construction of a parking garage. The number of parking spaces in the parking garage would depend on the size and location of the site under each alternative, as described in

Environmental Assessment Section 2.1.2, *Parking Garage Alternatives*. Nonetheless, the number of parking spaces provided by each of the garage alternatives in Section 2.1.2 would replace parking that would be lost due to construction of the CCSS building on an existing parking lot, accommodate the parking requirement (40 spaces) for CCSS faculty and staff, and improve the existing parking deficit at the USNA.

Project construction would begin in early or mid-2015 with the parking garage. Construction of the CCSS building would begin after the parking garage is completed and would take approximately two years, beginning in late 2016 and finishing in late 2018. After construction of the CCSS building is completed, the computer sciences, electrical and computer engineering, and weapons and systems engineering departments would relocate to the new CCSS building, and their vacated spaces would be back-filled primarily with project-based learning laboratories to address the shortfall of academic instruction space at the USNA.

Two alternatives for the construction of the CCSS building achieve the project requirements: the Waffle Lot and the Alumni Hall Lot. Under Alternative 1A, the Waffle Lot would accommodate an approximately 206,000 SF facility for the CCSS. The building would have a plinth (an elevated base story broader than the upper stories) plus five stories, and its footprint and massing would have the same triangular configuration as the site. Under this alternative, 111 parking spaces would be displaced. Under Alternative 1B, development of the Alumni Hall Lot for the CCSS building would involve construction of a five-story, rectangular building on the lower lot. Encompassing the full extent of the lower lot would maximize the size of the building and provide 206,000 SF of space; however, 147 parking spaces would be permanently displaced.

Three alternative sites could accommodate the requirements for the parking garage: Alumni Hall Lot, Firehouse Site, and Lawrence Field. Alternative 2A, the Alumni Hall Lot, is an alternative for both the proposed CCSS building and the new parking garage. Development of the Alumni Hall Lot for a parking garage would include construction of a two-level garage on the lower lot and rebuilding the surface parking at the existing upper lot on the same footprint and at the same elevation to connect to the upper deck of the parking garage. The parking garage and upper lot would provide a combined total of 378 parking spaces. Under Alternative 2B, a four-level parking garage with 536 spaces would be constructed on the Firehouse Site. Implementation of Alternative 2C would involve developing the entire extent of Lawrence Field with a two-level garage with 584 parking spaces at grade level and two ball fields relocated to the upper level.

1.2 AIR QUALITY

Air quality is defined as the ambient air concentrations of specific criteria pollutants determined by the United States Environmental Protection Agency (USEPA) to be of concern to the health and welfare of the general public. These criteria pollutants include ozone, carbon monoxide (CO), nitrogen dioxide (NO₂), SO₂, particulate matter less than 10 microns (PM₁₀), PM_{2.5}, and lead. Two types of NAAQS have been established by the USEPA for these criteria air pollutants. Primary ambient air quality standards are designed to protect public health with an adequate margin of safety. Secondary ambient air quality standards are designed to protect public welfare-related values including property, materials, and plant and animal life. The maximum primary and secondary standards (concentrations) of criteria pollutants are listed in 40 CFR Part 50, and apply throughout the United States.

1.3 FEDERAL REQUIREMENTS

Section 176(c) of the CAA, as amended, requires federal agencies to ensure that actions undertaken in nonattainment or maintenance areas are consistent with the CAA and with federally enforceable air quality management plans. The CAA places responsibility on individual states to achieve and maintain the NAAQS through USEPA-approved SIPs.

Under the GCR (40 CFR Part 93, Subpart B), emissions of criteria pollutants and their precursors (the ozone precursors VOCs and NO_x, PM_{2.5}, the PM_{2.5} precursor SO₂, and PM₁₀) that are associated with a proposed action that is in a nonattainment area for a given pollutant must be below *de minimis* emission rates for that pollutant to be exempt from a formal conformity determination. *De minimis* rates for the NAAQS pollutants of concern are listed in Table 1. Proposed actions that contribute less than these amounts and have no other conformity requirements are exempt from the GCR. Proposed actions that exceed the pollutant *de minimis* thresholds in any given year must undergo a detailed analysis and a formal conformity determination is required. Finally, mitigation would be required if the detailed analysis indicates an exceedance of the *de minimis* levels for any of the pollutants of concern.

Table 1. Criteria Pollutant *de Minimis* Emission Rates

	<i>de Minimis</i> Thresholds in Tons/Year	
	Criteria Pollutant	Precursor
VOCs		50 ¹
NO _x		100
PM _{2.5}	100	
SO ₂		100
PM ₁₀	100	

Source: 40 CFR § 93.153

¹The Metropolitan Baltimore Air Quality Control Region is located in an ozone transport region and the VOC threshold is reduced to 50 tons/year.

2.0 METHODOLOGY

In accordance with 40 CFR Part 93, Subpart B, the incremental increase in emissions above the existing conditions has been considered and includes reasonably foreseeable direct and indirect emissions. The total of direct and indirect emissions from the proposed action has been evaluated to assess whether or not it would exceed any of the applicable *de minimis* thresholds.

Emissions resulting from the proposed action were estimated based on the expected number, type, and duration of construction operations on an annual basis to complete the proposed action. According to preliminary estimates, the proposed action would require at a minimum, the equipment identified in Attachment 1.

The years 2015–2018, during which construction activities would occur, were evaluated to assess estimated emissions.

3.0 PROCEDURE AND CALCULATIONS

The following procedures were used to determine the applicability of the GCR. Direct and indirect emissions and reasonably foreseeable emissions are defined in the following paragraphs. Emissions are caused by the federal action if they would otherwise not occur in the absence of the federal action.

Reasonably foreseeable direct and indirect emissions can be estimated based on acceptable techniques using assumptions about the type and quantity of equipment to be used.

Direct emissions: Direct emissions are caused by the action itself, such as the reasonably foreseeable emissions from the construction of a facility on government property.

Indirect emissions: Those emissions that are caused by the federal action, but that may occur later in time and/or may be farther removed in distance from the federal action itself but are still reasonably foreseeable. Typically, indirect emissions will include two types: (1) emissions from mobile sources that are associated with the federal action but that are not owned or operated by the federal agency (e.g., employee vehicles, delivery trucks); and (2) emissions from the actions of private entities under a federal lease, permit, or approval.

3.1 EMISSIONS CALCULATIONS

Operation emissions calculations performed for the proposed action include heavy duty diesel construction equipment and heavy duty highway vehicles such as concrete trucks, dump trucks, and delivery trucks. Emissions associated with commuting construction workers were not included because the workers would likely be employed elsewhere in the region if not working on the proposed action projects.

Non-road diesel engine emissions were calculated as follows:

$$EP = EF \times HP \times LF \times h \times CF$$

Where:

EP = emissions per pollutant in pounds (lbs)

EF = Emission Factor (grams per horse power hour [g/hp-hr])

HP = engine horse power (hp)

LF = engine load factor

h = total hours operated

CF = conversion factor for grams (g) to lb

On-road engine emissions for road travel were calculated as follows:

$$EP = T \times S \times EF$$

Where:

EP = emissions per pollutant in lbs

T = time in hours

S = speed in miles per hour (mph)

EF = pollutant emission factor in lbs/mile

Attachment 1 contains the complete calculations for all of the equipment included in the proposed action.

3.2 CONSTRUCTION EQUIPMENT

Construction equipment used is based on information contained in the Cyber Warfare Building Feasibility Study: Final Feasibility Analysis (Naval Support Activity Annapolis 2013) regarding building layout and design. Additionally, equipment data were obtained from the USEPA's Median Life, Annual Activity,

and Load Factor Values for Nonroad Engine Emissions Modeling (2010), and Exhaust and Crankcase Emission Factors for Nonroad Engine Modeling – Compression-Ignition (2010). Equipment productivity rates were obtained from National Estimator 2010, published by Craftsman Book Company. Emission factors for delivery trucks, dump trucks, and concrete trucks are from the USEPA’s Motor Vehicle Emissions Simulator (MOVES) 2010 model.

3.3 OPERATIONAL COMMUTER EMISSIONS

The emissions from staff commuters are from mobile sources and would be subject to GCR requirements. The results of this calculation are included in the annual emissions totals. The emissions were calculated for annual totals based on the year the CCSS becomes fully operational, which is 2019. Detailed calculations can be found in Attachment 1.

3.4 ASSUMPTIONS

Assumptions used in this conformity applicability analysis include:

- Small amounts of clearing would be required for the CCSS building construction at either of the two alternative sites.
- Where no sidewalks were identified, an estimate of 10 percent of the foundation square footage of the building was used to estimate sidewalk square footage.
- Construction activities would occur during normal business hours (7:30 a.m. to 5 p.m.) Monday through Friday.
- Interior paints meeting Leadership in Energy and Environmental Design (LEED) requirements would be used (< 200 g/liter for primer, <150 g/liter for non-flat, < 50 g/liter for flat).
- Delivery truck requirements would be 75 percent less for the parking garage compared to the academic building delivery requirements (full build-out).
- For faculty and staff commuter emissions, a worst-case scenario was used and assumed each of the additional faculty and staff members drove their own vehicle to work every day, and that this trip constituted a 40-mile round trip.
- Additionally, it was assumed that all 40 employees work a full year and not an academic calendar year.

The construction assumptions and details can be found in Tab G of Attachment 1. References for the analysis can be found in Tab I of Attachment 1.

4.0 RESULTS AND CONCLUSION

Total emissions were calculated for construction of the CCSS building, each of the parking garage alternatives, and t commuting faculty and staff once the CCSS building begins operations. The emissions calculations for all alternatives are provided in Attachment 1. The conformity determination considers the scenario that would generate the maximum emissions. Comparing the maximum scenario to the general conformity *de minimis* thresholds evaluates the worst case air quality emissions for the proposed action. For construction, 2016 would be the year of maximum emissions with the exception of VOC emissions, which are greatest in 2018 when interior painting activities occur. The combination of Alternative 1A with the parking garage at Lawrence Field (Alternative 2C) would result in the greatest construction

emissions. Similarly, the combination of Alternative 1B with the parking garage at Lawrence Field (Alternative 2C) would result in the greatest construction emissions. The maximum estimated emissions are provided in Table 2.

Table 2. Maximum Estimated Annual Emissions Compared to *de Minimis* Thresholds

Construction Activity	Tons/Year			
	VOCs	NO _x	PM _{2.5}	SO ₂
Alternative 1A and Alternative 2C	0.86	9.84	1.37	0.21
Alternative 1B and Alternative 2C	0.85	9.77	1.39	0.21
Annual Faculty and Staff Vehicles	0.23	0.95	0.04	0.00
<i>de minimis</i> Thresholds	50	100	100	100

As indicated in Table 2, the emissions generated as a result of implementation of the proposed action under any of the alternatives would not exceed the GCR *de minimis* threshold levels for VOCs, NO_x, PM_{2.5}, or SO₂. Based on the maximum annual emission estimates identified in Table 2, a general conformity determination is not required because the total maximum annual direct and indirect emissions for the proposed action are below the *de minimis* thresholds.

**Attachment 1:
Air Emissions Calculation Tables**

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TAB A. CONSTRUCTION ALTERNATIVE SUMMARIES

Table 1. Alternatives 1A and 2A

Year	VOC Tons/yr	CO Tons/yr	NO _x Tons/yr	SO ₂ Tons/yr	PM ₁₀ Tons/yr	PM _{2.5} Tons/yr	CO ₂ Metric Tons/yr
2015	0.16	0.73	1.91	0.04	2.07	0.31	176
2016	0.34	1.65	4.21	0.09	5.12	0.75	390
2017	0.18	0.92	2.30	0.05	3.05	0.43	214
2018	0.86	0.92	2.30	0.05	0.15	0.14	214

Table 2. Alternatives 1A and 2B

Year	VOC Tons/yr	CO Tons/yr	NO _x Tons/yr	SO ₂ Tons/yr	PM ₁₀ Tons/yr	PM _{2.5} Tons/yr	CO ₂ Metric Tons/yr
2015	0.28	1.47	3.45	0.08	1.58	0.36	326
2016	0.46	2.39	5.75	0.12	4.64	0.79	540
2017	0.18	0.92	2.30	0.05	3.05	0.43	214
2018	0.86	0.92	2.30	0.05	0.15	0.14	214

Table 3. Alternatives 1A and 2C

Year	VOC Tons/yr	CO Tons/yr	NO _x Tons/yr	SO ₂ Tons/yr	PM ₁₀ Tons/yr	PM _{2.5} Tons/yr	CO ₂ Metric Tons/yr
2015	0.61	2.88	7.54	0.16	5.07	0.94	688
2016	0.79	3.80	9.84	0.21	8.12	1.37	902
2017	0.18	0.92	2.30	0.05	3.05	0.43	214
2018	0.86	0.92	2.30	0.05	0.15	0.14	214

Table 4. Alternatives 1B and 2B

Year	VOC Tons/yr	CO Tons/yr	NO _x Tons/yr	SO ₂ Tons/yr	PM ₁₀ Tons/yr	PM _{2.5} Tons/yr	CO ₂ Metric Tons/yr
2015	0.28	1.47	3.45	0.08	1.58	0.36	326
2016	0.47	2.41	5.68	0.12	4.82	0.81	538
2017	0.19	0.94	2.23	0.05	3.23	0.45	212
2018	0.85	0.94	2.23	0.05	0.15	0.14	212

Table 5. Alternatives 1B and 2C

Year	VOC Tons/yr	CO Tons/yr	NOx Tons/yr	SO₂ Tons/yr	PM₁₀ Tons/yr	PM_{2.5} Tons/yr	CO₂ Metric Tons/yr
2015	0.61	2.88	7.54	0.16	5.07	0.94	688
2016	0.80	3.82	9.77	0.21	8.30	1.39	900
2017	0.19	0.94	2.23	0.05	3.23	0.45	212
2018	0.85	0.94	2.23	0.05	0.15	0.14	212

TAB B. CONSTRUCTION EMISSIONS: ALTERNATIVE 1A – WAFFLE LOT CCSS BUILDING ALTERNATIVE

Table 1. Clearing - Alternative 1A, Waffle Lot CCSS Building Alternative
Clearing 0.4 Acres

Off-road Equipment	Hours of Operation	Engine HP	Load Factor	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO ₂ g/hp-hr	PM ₁₀ g/hp-hr	PM _{2.5} g/hp-hr	CO ₂ g/hp-hr
Dozer	5	145	0.58	0.38	1.41	4.17	0.12	0.30	0.29	536
Loader/Backhoe	5	87	0.21	1.43	7.35	6.35	0.15	1.06	1.03	692
Small Backhoe	5	55	0.21	1.43	7.35	6.35	0.15	1.06	1.03	692
				VOC lb	CO lb	NOx lb	SO ₂ lb	PM ₁₀ lb	PM _{2.5} lb	CO ₂ lb
Dozer				0.34	1.22	3.59	0.10	0.25	0.25	461
Loader w/ integral Backhoe				0.28	1.37	1.19	0.03	0.20	0.19	129
Small backhoe				0.18	0.87	0.75	0.02	0.13	0.12	82

On-road Equipment	Hours of Operation	Engine HP	Speed (mph)	VOC lb/mile	CO lb/mile	NOx lb/mile	SO ₂ lb/mile	PM ₁₀ lb/mile	PM _{2.5} lb/mile	CO ₂ lb/mile
Dump Truck	2	230	16	0.0015	0.0080	0.0361	0.0000	0.0015	0.0015	3.4385
				VOC lb	CO lb	NO _x lb	SO ₂ lb	PM lb	PM _{2.5} lb	CO ₂ lb
Dump Truck				0.05	0.28	1.24	0.00	0.05	0.05	118
Subtotal in lbs				1	4	7	0	1	1	790
Clearing Grand Total in Tons				0.00	0.00	0.00	0.00	0.00	0.00	
Clearing Grand Total in Metric Tons										0.4

**Table 2. Pavement Demolition - Alternative 1A, Waffle Lot CCSS Building Alternative
Demo Asphalt/Concrete- Year**

Off-road Equipment	Hours of Operation	Engine HP	Load Factor	Emission Factors						
				VOC	CO	NOx	SO ₂	PM ₁₀	PM _{2.5}	CO ₂
				g/hp-hr	g/hp-hr	g/hp-hr	g/hp-hr	g/hp-hr	g/hp-hr	g/hp-hr
Crawler Dozer w/attachments	154	125	0.58	0.34	1.21	4.08	0.12	0.23	0.22	535.79
Air Compressor	154	49	0.59	0.33	2.54	4.53	0.13	0.54	0.53	595.16
Excavator	53	380	0.59	0.31	2.50	4.51	0.13	0.55	0.54	595.21
				Annual Emissions						
				VOC	CO	NOx	SO ₂	PM ₁₀	PM _{2.5}	CO ₂
				lb	lb	lb	lb	lb	lb	lb
Crawler Dozer w/attachments				8.92	29.77	100.60	2.84	5.57	5.41	13,211
Wheel mounted air compressor				3.39	24.99	44.51	1.26	5.33	5.17	5,852
Excavator				8.64	65.58	118.37	3.36	14.50	14.06	15,633

On-road Equipment	Hours of Operation	Engine HP	Speed (mph)	VOC	CO	NOx	SO ₂	PM ₁₀	PM _{2.5}	CO ₂
				lb/mile	lb/mile	lb/mile	lb/mile	lb/mile	lb/mile	lb/mile
Dump Truck	120	230	27	0.0015	0.0080	0.0361	0.0000	0.0015	0.0015	3.4385
				VOC	CO	NOx	SO ₂	PM ₁₀	PM _{2.5}	CO ₂
				lb	lb	lb	lb	lb	lb	lb
Dump Truck				4.97	26.27	117.85	0.06	4.92	4.76	11,235
Subtotal in lbs				25	147	381	8	30	29	45,930
Asphalt Demo Grand Total in Tons				0.01	0.07	0.19	0.00	0.02	0.01	
Asphalt Demo Grand Total in Metric Tons										21

Table 3. Site Prep - Alternative 1A, Waffle Lot CCSS Building Alternative

Site Prep - Excavate/Fill 9,078 CY 4,300 CY hauled
 Trenching 15,520 Linear feet (LF); Assume 3 ft deep, 1 ft wide 1,724 CY
 Grading 7,792 Square yards (SY)

Off-road Equipment	Hours	Engine HP	Load Factor	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO ₂ g/hp-hr	PM ₁₀ g/hp-hr	PM _{2.5} g/hp-hr	CO ₂ g/hp-hr
Excavator	30	243	0.59	0.34	1.21	4.03	0.12	0.22	0.22	536
Skid Steer Loader	36	160	0.23	0.38	1.47	4.34	0.12	0.31	0.30	536
Dozer (Rubber Tired)	33	145	0.59	0.38	1.41	4.17	0.12	0.30	0.29	536
Scraper Hauler Excavator	16	365	0.58	0.38	1.42	4.19	0.12	0.30	0.29	536
Grader	2.77	285	0.58	0.34	1.21	4.07	0.12	0.23	0.22	536
Backhoe/Loader	25	87	0.59	0.35	1.25	4.23	0.12	0.24	0.23	536
				VOC lb	CO lb	NOx lb	SO ₂ lb	PM lb	PM _{2.5} lb	CO ₂ lb
Excavator				3.46	11.57	38.54	1.10	2.13	2.07	5,125
Skid Steer Loader				1.19	4.33	12.78	0.34	0.90	0.87	1,578
Dozer (Rubber Tired)				2.46	8.77	25.89	0.71	1.84	1.78	3,323
Scraper Hauler Excavator				2.89	10.32	30.44	0.84	2.16	2.09	3,895
Grader				0.37	1.22	4.10	0.12	0.23	0.22	540
Backhoe/loader				1.02	3.48	11.80	0.32	0.67	0.65	1,494

On-road Equipment	Hours	Engine HP	Speed (mph)	VOC lb/mile	CO lb/mile	NOx lb/mile	SO ₂ lb/mile	PM ₁₀ lb/mile	PM _{2.5} lb/mile	CO ₂ lb/mile
Dump Truck (12 CY)	221	230	16	0.0015	0.0080	0.0361	0.0000	0.0015	0.0015	3.4385
Delivery Truck	39	265	45	0.0015	0.0080	0.0361	0.0000	0.0015	0.0015	3.4385
				VOC lb	CO lb	NOx lb	SO ₂ lb	PM lb	PM _{2.5} lb	CO ₂ lb
Dump Truck (12 CY)				5.45	28.82	129.25	0.06	5.39	5.22	12,321
Delivery Truck				2.66	14.04	62.98	0.03	2.63	2.55	6,004
Subtotal in lbs				19	83	316	4	16	15	34,280
Site Prep Grand Total in Tons				0.01	0.04	0.16	0.00	0.01	0.01	
Site Prep Grand Total in Metric Tons										16

Table 4. Gravel Work - Alternative 1A, Waffle Lot CCSS Building Alternative
2,989 CY

Off-road Equipment	Hours	Engine HP	Load Factor	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO ₂ g/hp-hr	PM ₁₀ g/hp-hr	PM _{2.5} g/hp-hr	CO ₂ g/hp-hr
Dozer	30	185	0.59	0.34	1.21	4.08	0.12	0.23	0.22	536
Wheel Loader for Spreading	37	87	0.59	0.35	1.25	4.23	0.12	0.24	0.23	536
Compactor	116	103	0.43	0.36	1.34	4.45	0.12	0.26	0.25	536
				VOC lb	CO lb	NOx lb	SO ₂ lb	PM ₁₀ lb	PM _{2.5} lb	CO ₂ lb
Dozer				2.60	8.68	29.35	0.83	1.63	1.58	3,854
Wheel Loader for Spreading				1.55	5.28	17.90	0.49	1.01	0.98	2,265
Compactor				4.28	15.14	50.35	1.30	2.91	2.82	6,059

On-road Equipment	Hours	Engine HP	Speed (mph)	VOC lb/mile	CO lb/mile	NOx lb/mile	SO ₂ lb/mile	PM ₁₀ lb/mile	PM _{2.5} lb/mile	CO ₂ lb/mile
Dump Truck	386	230	26	0.001521	0.008042	0.036070	1.80E-05	0.001504	0.001458	3.438541
				VOC lb	CO lb	NOx lb	SO ₂ lb	PM ₁₀ lb	PM _{2.5} lb	CO ₂ lb
Dump Truck				15.16	80.12	359.38	0.18	14.99	14.52	34,259
Subtotal in lbs				23	109	457	3	21	20	46,437
Gravel Work Grand Total in Tons				0.01	0.05	0.23	0.00	0.01	0.01	
Gravel Work Grand Total in Metric Tons										21.1

Table 5. Concrete Work - Alternative 1A, Waffle Lot CCSS Building Alternative

Foundation Work 15,483 CY
 Sidewalks, etc. 108 CY
 Total 15,591 CY

Off-road Equipment	Hours of Operation	Engine HP	Load Factor	Emission Factors						
				VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO ₂ g/hp-hr	PM ₁₀ g/hp-hr	PM _{2.5} g/hp-hr	CO ₂ g/hp-hr
Concrete Mixer	821	3.5	0.43	0.69	3.04	6.17	0.13	0.54	0.52	588
Concrete Truck	742	300	0.43	0.38	1.75	6.18	0.11	0.27	0.26	530
				Annual Emissions						
				VOC lb	CO lb	NOx lb	SO ₂ lb	PM lb	PM _{2.5} lb	CO ₂ lb
Concrete Mixer				1.97	8.29	16.81	0.34	1.47	1.43	1,603
Concrete Truck				84.39	368.61	1,305.39	24.07	56.73	55.03	111,884
Subtotal in lbs				82	377	1,322	24	58	56	113,487
Concrete Work Grand Total in Tons				0.04	0.19	0.66	0.01	0.03	0.03	
Concrete Work Grand Total in Metric Tons										51

Table 6. Building Construction - Alternative 1A, Waffle Lot CCSS Building Alternative

58,551 SF Foundation
 206,000 SF Total

Off-road Equipment	Hours of Operation	Engine HP	Load Factor	Emission Factors						
				VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO ₂ g/hp-hr	PM ₁₀ g/hp-hr	PM _{2.5} g/hp-hr	CO ₂ g/hp-hr
Crane	1,030	330	0.58	0.25	1.22	5.26	0.11	0.21	0.20	530
Concrete Truck	1,030	300	0.43	0.19	1.45	4.32	0.12	0.21	0.20	536
Diesel Generator	824	40	0.43	0.26	1.41	3.51	0.11	0.23	0.22	536
Telehandler	2,060	99	0.59	0.51	3.94	4.93	0.13	0.52	0.51	595
Scissors Lift	1,648	83	0.59	0.51	3.94	4.93	0.13	0.52	0.51	595
Skid Steer Loader	1,030	67	0.59	1.69	7.97	6.70	0.15	1.19	1.15	691
Pile Driver	3,019	260	0.43	0.46	1.55	5.90	0.11	0.31	0.30	530
All Terrain Forklift	41	84	0.59	0.51	3.94	4.93	0.13	0.52	0.51	595
				Annual Emissions						
				VOC lb	CO lb	NOx lb	SO ₂ lb	PM lb	PM _{2.5} lb	CO ₂ lb
Crane				112.45	530.03	2,286.04	49.58	90.28	87.57	230,482
Concrete Truck				57.87	426.08	1,265.66	33.79	61.54	59.69	157,087
Diesel Generator				8.64	44.02	109.62	3.37	7.25	7.03	16,754
Telehandler				142.33	1,045.10	1,307.52	33.93	138.24	134.09	157,734
Scissors Lift				95.46	700.96	876.96	22.76	92.72	89.94	105,793
Skid Steer Loader				159.97	715.21	601.23	13.34	106.74	103.54	62,015
Pile Driver				363.62	1,154.81	4,392.02	84.78	233.57	226.56	394,136
All Terrain Forklift				2.42	17.74	22.19	0.58	2.35	2.28	2,677

On-road Equipment	Hours of Operation	Engine HP	Speed (mph)	VOC lb/mile	CO lb/mile	NOx lb/mile	SO ₂ lb/mile	PM lb/mile	PM _{2.5} lb/mile	CO ₂ lb/mile
Delivery Truck	4,944	265	40	0.0015	0.0080	0.0361	0.0000	0.0015	0.0015	3.4385
				VOC lb	CO lb	NOx lb	SO ₂ lb	PM lb	PM _{2.5} lb	CO ₂ lb
Delivery Truck				300.86	1590.38	7133.21	3.57	297.52	288.29	680,006
Subtotal in lbs				895	4634	10861	242	733	711	1,126,682
Building Construction Grand Total in Tons				0.45	2.32	5.43	0.12	0.37	0.36	
Building Construction Grand Total in Metric Tons										511

Table 7. Paving - Alternative 1A, Waffle Lot CCSS Building Alternative

Pavement - Surface Area 18,202 SF 337 CY
 Paving - HMA 1,115 Cubic feet (CF)

Off-road Equipment	Hours of Operation	Engine HP	Load Factor	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO ₂ g/hp-hr	PM g/hp-hr	PM _{2.5} g/hp-hr	CO ₂ g/hp-hr
Grader	56	145	0.59	0.38	1.41	4.16	0.12	0.30	0.29	536
Roller	84	401	0.59	0.34	2.46	5.53	0.12	0.34	0.33	536
Paving Machine	111	164	0.59	0.38	1.44	4.25	0.12	0.30	0.29	536
Asphalt Curbing Machine	11	130	0.59	0.40	1.57	4.57	0.12	0.32	0.31	536
				VOC lb	CO lb	NOx lb	SO ₂ lb	PM lb	PM _{2.5} lb	CO ₂ lb
Grader				4.17	14.85	43.75	1.21	3.11	3.02	5,632
Roller				15.68	107.41	241.39	5.03	14.77	14.33	23,368
Paving Machine				9.52	34.31	101.13	2.74	7.13	6.92	12,740
Asphalt Curbing Machine				0.78	2.96	8.61	0.22	0.60	0.58	1,010

On-road Equipment	Hours of Operation	Engine HP	Speed (mph)	VOC lb/mile	CO lb/mile	NOx lb/mile	SO ₂ lb/mile	PM lb/mile	PM _{2.5} lb/mile	CO ₂ lb/mile
Dump Truck	67	230	17	0.0015	0.0080	0.0361	0.0000	0.0015	0.0015	3.4385
Water Truck	2	230	10	0.0015	0.0080	0.0361	0.0000	0.0015	0.0015	3.4385
				VOC lb	CO lb	NOx lb	SO ₂ lb	PM lb	PM _{2.5} lb	CO ₂ lb
Dump Truck				1.71	9.04	40.53	0.02	1.69	1.64	3,864
Water Truck				0.03	0.14	0.64	0.00	0.03	0.03	61

Hot Mix Asphalt (HMA)	Volume of HMA (CF)	Weight of HMA (tons)	VOC lb/ton asphalt	VOC lb	CO lb	NOx lb	SO ₂ lb	PM ₁₀ lb	PM _{2.5} lb	CO ₂ lb
Standard HMA	1,115	81	0.04	3.23	-	-	-	-	-	-
Subtotal in lbs				34	169	436	9	27	27	46,675
Paving Grand Total in Tons				0.02	0.08	0.22	0.00	0.01	0.01	
Paving Grand Total in Metric Tons										21.2

Table 8. Fugitive Dust Emissions for Alternative 1A, Waffle Lot CCSS Building Alternative

Year	PM ₁₀ tons/acre/mo	Acres	Days of Disturbance	PM ₁₀ Total	PM _{2.5} / PM ₁₀ Ratio	PM _{2.5} Total
2016	0.42	1.54	90	2.9	0.1	0.3
2017	0.42	1.54	90	2.9	0.1	0.3

Table 9. Interior Painting Emissions for Alternative 1A, Waffle Lot CCSS Building Alternative

Year	Interior SF	Coverage per gal	Primer VOC lb/gal	finish coat VOC lb/gal	Total VOC lb	Total VOC Tons
2018	373,277	300	0.70	0.4	1,369	0.7

Table 10. Total Construction Emissions for Alternative 1A, Waffle Lot CCSS Building Alternative

Year	VOC Tons/yr	CO Tons/yr	NOx Tons/yr	SO ₂ Tons/yr	PM ₁₀ Tons/yr	PM _{2.5} Tons/yr	CO ₂ M Tons/yr
2016	0.2	0.9	2.3	0.0	3.1	0.4	214
2017	0.2	0.9	2.3	0.0	3.1	0.4	214
2018	0.9	0.9	2.3	0.0	0.1	0.1	214

TAB C. CONSTRUCTION EMISSIONS: ALTERNATIVE 1B – ALUMNI HALL LOT CCSS BUILDING ALTERNATIVE

Table 1. Clearing - Alternative 1B, Alumni Hall Lot CCSS Building Alternative

Clearing 0.45 Acres

Off-road Equipment	Hours of Operation	Engine HP	Load Factor	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO ₂ g/hp-hr	PM ₁₀ g/hp-hr	PM _{2.5} g/hp-hr	CO ₂ g/hp-hr
Dozer	5	145	0.58	0.38	1.41	4.17	0.12	0.30	0.29	536
Loader/Backhoe	5	87	0.21	1.43	7.35	6.35	0.15	1.06	1.03	692
Small Backhoe	5	55	0.21	1.43	7.35	6.35	0.15	1.06	1.03	692
				VOC lb	CO lb	NOx lb	SO ₂ lb	PM ₁₀ lb	PM _{2.5} lb	CO ₂ lb
Dozer				0.38	1.37	4.04	0.11	0.29	0.28	518
Loader w/ integral Backhoe				0.32	1.55	1.33	0.03	0.22	0.22	145
Small backhoe				0.20	0.98	0.84	0.02	0.14	0.14	92

On-road Equipment	Hours of Operation	Engine HP	Speed (mph)	VOC lb/mile	CO lb/mile	NOx lb/mile	SO ₂ lb/mile	PM ₁₀ lb/mile	PM _{2.5} lb/mile	CO ₂ lb/mile
Dump Truck	2	230	16	0.0015	0.0080	0.0361	0.0000	0.0015	0.0015	3.4385
				VOC lb	CO lb	NOx lb	SO ₂ lb	PM lb	PM _{2.5} lb	CO ₂ lb
Dump Truck				0.06	0.31	1.40	0.00	0.06	0.06	133
Subtotal in lbs				1	4	8	0	1	1	889
Clearing Grand Total in Tons				0.00	0.00	0.00	0.00	0.00	0.00	
Clearing Grand Total in Metric Tons										0.5

**Table 2. Pavement Demolition - Alternative 1B, Alumni Hall Lot CCSS Building Alternative
Demo Asphalt/Concrete- Year**

63,765 SF

1,307 CY

Off-road Equipment	Hours of Operation	Engine HP	Load Factor	Emission Factors						
				VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO ₂ g/hp-hr	PM ₁₀ g/hp-hr	PM _{2.5} g/hp-hr	CO ₂ g/hp-hr
Crawler Dozer w/attachments	154	125	0.58	0.34	1.21	4.08	0.12	0.23	0.22	535.79
Air Compressor	154	49	0.59	0.33	2.54	4.53	0.13	0.54	0.53	595.16
Excavator	53	380	0.59	0.31	2.50	4.51	0.13	0.55	0.54	595.21
				Annual Emissions						
				VOC lb	CO lb	NOx lb	SO ₂ lb	PM ₁₀ lb	PM _{2.5} lb	CO ₂ lb
Crawler Dozer w/attachments				8.92	29.77	100.60	2.84	5.57	5.41	13,211
Wheel mounted air compressor				3.39	24.99	44.51	1.26	5.33	5.17	5,852
Excavator				8.64	65.58	118.37	3.36	14.50	14.06	15,633

On-road Equipment	Hours of Operation	Engine HP	Speed (mph)	VOC lb/mile	CO lb/mile	NOx lb/mile	SO ₂ lb/mile	PM ₁₀ lb/mile	PM _{2.5} lb/mile	CO ₂ lb/mile
Dump Truck	120	230	27	0.0015	0.0080	0.0361	0.0000	0.0015	0.0015	3.4385
				VOC lb	CO lb	NOx lb	SO ₂ lb	PM ₁₀ lb	PM _{2.5} lb	CO ₂ lb
Dump Truck				4.97	26.27	117.85	0.06	4.92	4.76	11,235
Subtotal in lbs				25	147	381	8	30	29	45,930
Asphalt Demo Grand Total in Tons				0.01	0.07	0.19	0.00	0.02	0.01	
Asphalt Demo Grand Total in Metric Tons										21

Table 3. Site Prep - Alternative 1B, Alumni Hall Lot CCSS Building Alternative

Site Prep - Excavate/Fill 9,078 CY
 Trenching 15,520 LF Assume 3 ft deep, 1 ft wide
 Grading 7,792 SY 4,300 CY hauled
 1,724 CY

Off-road Equipment	Hours	Engine HP	Load Factor	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO ₂ g/hp-hr	PM ₁₀ g/hp-hr	PM _{2.5} g/hp-hr	CO ₂ g/hp-hr
Excavator	16	243	0.59	0.34	1.21	4.03	0.12	0.22	0.22	536
Skid Steer Loader	19	160	0.23	0.38	1.47	4.34	0.12	0.31	0.30	536
Dozer (Rubber Tired)	18	145	0.59	0.38	1.41	4.17	0.12	0.30	0.29	536
Scraper Hauler Excavator	0	365	0.58	0.38	1.42	4.19	0.12	0.30	0.29	536
Grader	3	285	0.58	0.34	1.21	4.07	0.12	0.23	0.22	536
Backhoe/Loader	0	87	0.59	0.35	1.25	4.23	0.12	0.24	0.23	536
				VOC lb	CO lb	NOx lb	SO ₂ lb	PM lb	PM _{2.5} lb	CO ₂ lb
Excavator				1.85	6.19	20.61	0.59	1.14	1.11	2,741
Skid Steer Loader				0.64	2.32	6.84	0.18	0.48	0.47	844
Dozer (Rubber Tired)				1.32	4.69	13.85	0.38	0.98	0.95	1,777
Scraper Hauler Excavator				0.09	0.32	0.96	0.03	0.07	0.07	122
Grader				0.41	1.36	4.59	0.13	0.25	0.25	604
Backhoe/loader				0.01	0.03	0.10	0.00	0.01	0.01	13

On-road Equipment	Hours	Engine HP	Speed (mph)	VOC lb/mile	CO lb/mile	NOx lb/mile	SO ₂ lb/mile	PM ₁₀ lb/mile	PM _{2.5} lb/mile	CO ₂ lb/mile
Dump Truck (12 CY)	7	230	16	0.0015	0.0080	0.0361	0.0000	0.0015	0.0015	3.4385
Delivery Truck	0	265	45	0.0015	0.0080	0.0361	0.0000	0.0015	0.0015	3.4385
				VOC lb	CO lb	NOx lb	SO ₂ lb	PM lb	PM _{2.5} lb	CO ₂ lb
Dump Truck (12 CY)				0.17	0.90	4.06	0.00	0.17	0.16	387
Delivery Truck				0.02	0.12	0.54	0.00	0.02	0.02	52
Subtotal in lbs				4	16	52	1	3	3	6,540
Site Prep Grand Total in Tons				0.00	0.01	0.03	0.00	0.00	0.00	
Site Prep Grand Total in Metric Tons										3

Table 4. Gravel Work - Alternative 1B, Alumni Hall Lot CCSS Building Alternative
2,879 CY

Off-road Equipment	Hours	Engine HP	Load Factor	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO ₂ g/hp-hr	PM ₁₀ g/hp-hr	PM _{2.5} g/hp-hr	CO ₂ g/hp-hr
Dozer	29	185	0.59	0.34	1.21	4.08	0.12	0.23	0.22	536
Wheel Loader for Spreading	36	87	0.59	0.35	1.25	4.23	0.12	0.24	0.23	536
Compactor	112	103	0.43	0.36	1.34	4.45	0.12	0.26	0.25	536
				VOC lb	CO lb	NOx lb	SO ₂ lb	PM ₁₀ lb	PM _{2.5} lb	CO ₂ lb
Dozer				2.51	8.36	28.27	0.80	1.57	1.52	3,712
Wheel Loader for Spreading				1.50	5.08	17.24	0.47	0.97	0.94	2,182
Compactor				4.12	14.58	48.49	1.26	2.80	2.72	5,836

On-road Equipment	Hours	Engine HP	Speed (mph)	VOC lb/mile	CO lb/mile	NOx lb/mile	SO ₂ lb/mile	PM ₁₀ lb/mile	PM _{2.5} lb/mile	CO ₂ lb/mile
Dump Truck	372	230	26	0.0015	0.0080	0.0361	0.0000	0.0015	0.0015	3.438541
				VOC lb	CO lb	NOx lb	SO ₂ lb	PM ₁₀ lb	PM _{2.5} lb	CO ₂ lb
Dump Truck				14.60	77.18	346.15	0.17	14.44	13.99	32,999
Subtotal in lbs				22	105	440	3	20	19	44,728
Gravel Work Grand Total in Tons				0.01	0.05	0.22	0.00	0.01	0.01	
Gravel Work Grand Total in Metric Tons										20

Table 5. Concrete Work - Alternative 1B, Alumni Hall Lot CCSS Building Alternative

Foundation Work 15,483 CY
 Sidewalks, etc. 108 CY
 Total 15,591 CY

Off-road Equipment	Hours of Operation	Engine HP	Load Factor	Emission Factors						
				VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO ₂ g/hp-hr	PM ₁₀ g/hp-hr	PM _{2.5} g/hp-hr	CO ₂ g/hp-hr
Concrete Mixer	509	3.5	0.43	0.69	3.04	6.17	0.13	0.54	0.52	588
Concrete Truck	460	300	0.43	0.38	1.75	6.18	0.11	0.27	0.26	530
				Annual Emissions						
				VOC lb	CO lb	NOx lb	SO ₂ lb	PM lb	PM _{2.5} lb	CO ₂ lb
Concrete Mixer				1.22	5.14	10.42	0.21	0.91	0.88	993
Concrete Truck				52.30	228.43	808.97	14.91	35.16	34.10	69,337
Subtotal in lbs				51	234	819	15	36	35	70,330
Concrete Work Grand Total in Tons				0.03	0.12	0.41	0.01	0.02	0.02	
Concrete Work Grand Total in Metric Tons										32

Table 6. Building Construction - Alternative 1B, Alumni Hall Lot CCSS Building Alternative

58,551 SF Foundation

206,000 SF Total

Off-road Equipment	Hours of Operation	Engine HP	Load Factor	Emission Factors						
				VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO ₂ g/hp-hr	PM ₁₀ g/hp-hr	PM _{2.5} g/hp-hr	CO ₂ g/hp-hr
Crane	1,080	330	0.58	0.25	1.22	5.26	0.11	0.21	0.20	530
Concrete Truck	1,080	300	0.43	0.19	1.45	4.32	0.12	0.21	0.20	536
Diesel Generator	864	40	0.43	0.26	1.41	3.51	0.11	0.23	0.22	536
Telehandler	2,160	99	0.59	0.51	3.94	4.93	0.13	0.52	0.51	595
Scissors Lift	1,728	83	0.59	0.51	3.94	4.93	0.13	0.52	0.51	595
Skid Steer Loader	1,080	67	0.59	1.69	7.97	6.70	0.15	1.19	1.15	691
Pile Driver	2,228	260	0.43	0.46	1.55	5.90	0.11	0.31	0.30	530
All Terrain Forklift	43	84	0.59	0.51	3.94	4.93	0.13	0.52	0.51	595
				Annual Emissions						
				VOC lb	CO lb	NOx lb	SO ₂ lb	PM lb	PM _{2.5} lb	CO ₂ lb
Crane				117.91	555.76	2397.01	51.99	94.66	91.82	241,670
Concrete Truck				60.68	446.76	1327.10	35.43	64.52	62.59	164,713
Diesel Generator				9.06	46.16	114.94	3.54	7.60	7.37	17,567
Telehandler				149.24	1095.83	1370.99	35.58	144.95	140.60	165,391
Scissors Lift				100.10	734.98	919.53	23.86	97.22	94.30	110,929
Skid Steer Loader				167.73	749.93	630.41	13.99	111.92	108.57	65,026
Pile Driver				268.29	852.04	3240.51	62.55	172.33	167.16	290,801
All Terrain Forklift				2.53	18.60	23.27	0.60	2.46	2.39	2,807

On-road Equipment	Hours of Operation	Engine HP	Speed (mph)	VOC lb/mile	CO lb/mile	NOx lb/mile	SO2 lb/mile	PM lb/mile	PM _{2.5} lb/mile	CO ₂ lb/mile
Delivery Truck	5,184	265	40	0.0015	0.0080	0.0361	0.0000	0.0015	0.0015	3.4385
				VOC lb	CO lb	NOx lb	SO2 lb	PM lb	PM _{2.5} lb	CO ₂ lb
Delivery Truck				315.46	1667.58	7479.49	3.74	311.97	302.28	713,016
Subtotal in lbs				831	4500	10024	228	696	675	1,058,907
Building Construction Grand Total in Tons				0.42	2.25	5.01	0.11	0.35	0.34	
Building Construction Grand Total in Metric Tons										480

Table 7. Paving - Alternative 1B, Alumni Hall Lot CCSS Building Alternative

Pavement - Surface Area 68,967 SF

1,277 CY

Paving - HMA 34,484 CF

Off-road Equipment	Hours of Operation	Engine HP	Load Factor	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	PM _{2.5} g/hp-hr	CO ₂ g/hp-hr
Grader	211	145	0.59	0.38	1.41	4.16	0.12	0.30	0.29	536
Roller	317	401	0.59	0.34	2.46	5.53	0.12	0.34	0.33	536
Paving Machine	422	164	0.59	0.38	1.44	4.25	0.12	0.30	0.29	536
Asphalt Curbing Machine	42	130	0.59	0.40	1.57	4.57	0.12	0.32	0.31	536
				VOC lb	CO lb	NOx lb	SO2 lb	PM lb	PM _{2.5} lb	CO ₂ lb
Grader				15.79	56.25	165.77	4.59	11.78	11.43	21,340
Roller				59.40	406.98	914.64	19.05	55.97	54.29	88,540
Paving Machine				36.06	129.99	383.16	10.38	27.03	26.22	48,271
Asphalt Curbing Machine				2.97	11.22	32.61	0.82	2.28	2.21	3,826

On-road Equipment	Hours of Operation	Engine HP	Speed (mph)	VOC lb/mile	CO lb/mile	NOx lb/mile	SO2 lb/mile	PM lb/mile	PM _{2.5} lb/mile	CO ₂ lb/mile
Dump Truck	255	230	17	0.0015	0.0080	0.0361	0.0000	0.0015	0.0015	3.4385
Water Truck	7	230	10	0.0015	0.0080	0.0361	0.0000	0.0015	0.0015	3.4385
				VOC lb	CO lb	NOx lb	SO2 lb	PM lb	PM _{2.5} lb	CO ₂ lb
Dump Truck				6.48	34.24	153.57	0.08	6.41	6.21	14,640
Water Truck				0.10	0.54	2.44	0.00	0.10	0.10	232

Hot Mix Asphalt (HMA)	Volume of HMA (CF)	Weight of HMA (tons)	VOC lb/ton asphalt	VOC lb	CO lb	NOx lb	SO2 lb	PM10 lb	PM _{2.5} lb	CO ₂ lb
Standard HMA	34,484	2,500	0.04	100.00	-	-	-	-	-	-
Subtotal in lbs				215	639	1,652	35	104	100	176,849
Paving Grand Total in Tons				0.11	0.32	0.83	0.02	0.05	0.05	
Paving Grand Total in Metric Tons										80

Table 8. Fugitive Dust Emissions for Alternative 1B, Alumni Hall Lot CCSS Building Alternative

Year	PM ₁₀ tons/acre/mo	Acres	Days of Disturbance	PM ₁₀ Total	PM _{2.5} / PM ₁₀ Ratio	PM _{2.5} Total
2016	0.42	1.63	90	3.1	0.1	0.3
2017	0.42	1.63	90	3.1	0.1	0.3

Table 9. Interior Painting Emissions, Alumni Hall Lot CCSS Building Alternative

Year	Interior SF	Coverage per gal	Primer VOC lb/gal	Finish coat VOC lb/gal	Total VOC lb	Total VOC Tons
2018	357,264	300	0.70	0.4	1,310	0.7

Table 10. Total Construction Emissions for Alternative 1B, Alumni Hall Lot CCSS Building Alternative

Year	VOC Tons/yr	CO Tons/yr	NOx Tons/yr	SO ₂ Tons/yr	PM ₁₀ Tons/yr	PM _{2.5} Tons/yr	CO ₂ M Tons/yr
2016	0.2	0.9	2.2	0.0	3.2	0.5	212
2017	0.2	0.9	2.2	0.0	3.2	0.5	212
2018	0.8	0.9	2.2	0.0	0.1	0.1	212

TAB D. CONSTRUCTION EMISSIONS: ALTERNATIVE 2A – ALUMNI HALL LOT PARKING GARAGE ALTERNATIVE

Table 1. Pavement Demolition - Alternative 2A, Alumni Hall Lot Parking Garage Alternative

Demo Asphalt/Concrete- Year

40,995 SF

1,260 CY

Off-road Equipment	Hours of Operation	Engine HP	Load Factor	Emission Factors						
				VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO ₂ g/hp-hr	PM ₁₀ g/hp-hr	PM _{2.5} g/hp-hr	CO ₂ g/hp-hr
Crawler Dozer w/attachments	149	125	0.58	0.34	1.21	4.08	0.12	0.23	0.22	535.79
Air Compressor	149	49	0.59	0.33	2.54	4.53	0.13	0.54	0.53	595.16
Excavator	34	380	0.59	0.31	2.50	4.51	0.13	0.55	0.54	595.21
				Annual Emissions						
				VOC lb	CO lb	NOx lb	SO ₂ lb	PM ₁₀ lb	PM _{2.5} lb	CO ₂ lb
Crawler Dozer w/attachments				8.61	28.71	97.02	2.74	5.38	5.21	12,740
Wheel mounted air compressor				3.27	24.10	42.93	1.21	5.14	4.98	5,643
Excavator				5.55	42.16	76.10	2.16	9.32	9.04	10,051

On-road Equipment	Hours of Operation	Engine HP	Speed (mph)	VOC lb/mile	CO lb/mile	NOx lb/mile	SO ₂ lb/mile	PM ₁₀ lb/mile	PM _{2.5} lb/mile	CO ₂ lb/mile
Dump Truck	116	230	27	0.0015	0.0080	0.0361	0.0000	0.0015	0.0015	3.4385
				VOC lb	CO lb	NOx lb	SO ₂ lb	PM ₁₀ lb	PM _{2.5} lb	CO ₂ lb
Dump Truck				4.79	25.34	113.65	0.06	4.74	4.59	10,834
Subtotal in lbs				21	120	330	6	25	24	39,268
Asphalt Demo Grand Total in Tons				0.01	0.06	0.16	0.00	0.01	0.01	
Asphalt Demo Grand Total in Metric Tons										18

Table 2. Site Prep - Alternative 2A, Alumni Hall Lot Parking Garage Alternative

Site Prep - Excavate/Fill 4,045 CY 211 CY hauled
 Trenching 175 LF Assume 3 ft deep, 1 ft wide 19 CY
 Grading 5,324 SY

Off-road Equipment	Hours	Engine HP	Load Factor	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO ₂ g/hp-hr	PM ₁₀ g/hp-hr	PM _{2.5} g/hp-hr	CO ₂ g/hp-hr
Excavator	13	243	0.59	0.34	1.21	4.03	0.12	0.22	0.22	536
Skid Steer Loader	16	160	0.23	0.38	1.47	4.34	0.12	0.31	0.30	536
Dozer (Rubber Tired)	15	145	0.59	0.38	1.41	4.17	0.12	0.30	0.29	536
Scraper Hauler Excavator	1	365	0.58	0.38	1.42	4.19	0.12	0.30	0.29	536
Compactor	0	103	0.58	0.40	1.57	4.57	0.12	0.32	0.31	536
Grader	2	285	0.58	0.34	1.21	4.07	0.12	0.23	0.22	536
Backhoe/Loader	0	87	0.59	0.35	1.25	4.23	0.12	0.24	0.23	536
				VOC lb	CO lb	NOx lb	SO ₂ lb	PM ₁₀ lb	PM _{2.5} lb	CO ₂ lb
Excavator				1.47	5.15	17.17	0.49	0.95	0.92	2,283
Skid Steer Loader				0.50	1.93	5.69	0.15	0.40	0.39	703
Dozer (Rubber Tired)				1.04	3.91	11.54	0.32	0.82	0.79	1,481
Scraper Hauler Excavator				0.13	0.51	1.49	0.04	0.11	0.10	191
Compactor				0.00	0.00	0.00	0.00	0.00	0.00	0
Grader				0.24	0.83	2.80	0.08	0.16	0.15	369
Backhoe/loader				0.01	0.04	0.13	0.00	0.01	0.01	17

On-road Equipment	Hours	Engine HP	Speed (mph)	VOC lb/mile	CO lb/mile	NOx lb/mile	SO ₂ lb/mile	PM ₁₀ lb/mile	PM _{2.5} lb/mile	CO ₂ lb/mile
Dump Truck (12 CY)	11	230	16	0.0015	0.0080	0.0361	0.0000	0.0015	0.0015	3.4385
Delivery Truck	0	265	45	0.0015	0.0080	0.0361	0.0000	0.0015	0.0015	3.4385
				VOC lb	CO lb	NOx lb	SO ₂ lb	PM lb	PM _{2.5} lb	CO ₂ lb
Dump Truck (12 CY)				0.27	1.41	6.34	0.00	0.26	0.26	605
Delivery Truck				0.03	0.16	0.71	0.00	0.03	0.03	68
Subtotal in lbs				4	14	46	1	3	3	5,717
Site Prep Grand Total in Tons				0.00	0.01	0.02	0.00	0.00	0.00	
Site Prep Grand Total in Metric Tons										3

Table 3. Gravel Work - Alternative 2A, Alumni Hall Lot Parking Garage Alternative

1,778 CY

Off-road Equipment	Hours	Engine HP	Load Factor	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO ₂ g/hp-hr	PM ₁₀ g/hp-hr	PM _{2.5} g/hp-hr	CO ₂ g/hp-hr
Dozer	18	185	0.59	0.34	1.21	4.08	0.12	0.23	0.22	536
Wheel Loader for Spreading	22	87	0.59	0.35	1.25	4.23	0.12	0.24	0.23	536
Compactor	69	103	0.43	0.36	1.34	4.45	0.12	0.26	0.25	536
				VOC lb	CO lb	NOx lb	SO ₂ lb	PM ₁₀ lb	PM _{2.5} lb	CO ₂ lb
Dozer				1.47	5.17	17.46	0.49	0.97	0.94	2,292
Wheel Loader for Spreading				0.88	3.14	10.65	0.29	0.60	0.58	1,348
Compactor				2.42	9.01	29.95	0.78	1.73	1.68	3,604

On-road Equipment	Hours	Engine HP	Speed (mph)	VOC lb/mile	CO lb/mile	NOx lb/mile	SO ₂ lb/mile	PM ₁₀ lb/mile	PM _{2.5} lb/mile	CO ₂ lb/mile
Dump Truck	230	230	26	0.0015	0.0080	0.0361	0.0000	0.0015	0.0015	3.4385
				VOC lb	CO lb	NOx lb	SO ₂ lb	PM ₁₀ lb	PM _{2.5} lb	CO ₂ lb
Dump Truck				9.02	47.66	213.78	0.11	8.92	8.64	20,379
Subtotal in lbs				14	65	272	2	12	12	27,623
Gravel Work Grand Total in Tons				0.01	0.03	0.14	0.00	0.01	0.01	
Gravel Work Grand Total in Metric Tons										13

Table 4. Concrete Work -Alternative 2A, Alumni Hall Lot Parking Garage Alternative

Foundation Work 819 CY
 Sidewalks, etc. 32 CY
 Total 851 CY

Note: Assume all excavated soil is accounted for in Excavate/Fill and Trenching

Off-road Equipment	Hours of Operation	Engine HP	Load Factor	Emission Factors						
				VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO ₂ g/hp-hr	PM ₁₀ g/hp-hr	PM _{2.5} g/hp-hr	CO ₂ g/hp-hr
Concrete Mixer	45	3.5	0.43	0.69	3.04	6.17	0.13	0.54	0.52	588
Concrete Truck	41	300	0.43	0.38	1.75	6.18	0.11	0.27	0.26	530
				Annual Emissions						
				VOC lb	CO lb	NOx lb	SO ₂ lb	PM ₁₀ lb	PM _{2.5} lb	CO ₂ lb
Concrete Mixer				0.10	0.45	0.92	0.02	0.08	0.08	87
Concrete Truck				4.37	20.12	71.25	1.31	3.10	3.00	6,107
Subtotal in lbs				4	21	72	1	3	3	6,194
Concrete Work Grand Total in Tons				0.00	0.01	0.04	0.00	0.00	0.00	
Concrete Work Grand Total in Metric Tons										3

Table 5. Building Construction - Alternative 2A, Alumni Hall Lot Parking Garage Alternative

47,916 SF Foundation

95,832 SF Total

Off-road Equipment	Hours of Operation	Engine HP	Load Factor	Emission Factors						
				VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO ₂ g/hp-hr	PM ₁₀ g/hp-hr	PM _{2.5} g/hp-hr	CO ₂ g/hp-hr
Crane	479	330	0.58	0.25	1.22	5.26	0.11	0.21	0.20	530
Concrete Truck	479	300	0.43	0.19	1.45	4.32	0.12	0.21	0.20	536
Diesel Generator	383	40	0.43	0.26	1.41	3.51	0.11	0.23	0.22	536
Telehandler	958	99	0.59	0.51	3.94	4.93	0.13	0.52	0.51	595
Scissors Lift	767	83	0.59	0.51	3.94	4.93	0.13	0.52	0.51	595
Skid Steer Loader	479	67	0.59	1.69	7.97	6.70	0.15	1.19	1.15	691
Pile Driver	2,471	260	0.43	0.46	1.55	5.90	0.11	0.31	0.30	530
All Terrain Forklift	19	84	0.59	0.51	3.94	4.93	0.13	0.52	0.51	595
				Annual Emissions						
				VOC lb	CO lb	NOx lb	SO ₂ lb	PM ₁₀ lb	PM _{2.5} lb	CO ₂ lb
Crane				49.68	246.57	1063.47	23.06	42.00	40.74	107,221
Concrete Truck				25.57	198.21	588.79	15.72	28.63	27.77	73,078
Diesel Generator				3.82	20.48	50.99	1.57	3.37	3.27	7,794
Telehandler				62.88	486.18	608.26	15.78	64.31	62.38	73,379
Scissors Lift				42.17	326.09	407.97	10.59	43.13	41.84	49,216
Skid Steer Loader				70.67	332.72	279.69	6.21	49.66	48.17	28,850
Pile Driver				282.60	945.05	3594.27	69.38	191.14	185.41	322,547
All Terrain Forklift				1.07	8.25	10.32	0.27	1.09	1.06	1,245

On-road Equipment	Hours of Operation	Engine HP	Speed (mph)	VOC lb/mile	CO lb/mile	NOx lb/mile	SO ₂ lb/mile	PM ₁₀ lb/mile	PM _{2.5} lb/mile	CO ₂ lb/mile
Delivery Truck	2,300	265	40	0.0015	0.0080	0.0361	0.0000	0.0015	0.0015	3.4385
				VOC lb	CO lb	NOx lb	SO ₂ lb	PM ₁₀ lb	PM _{2.5} lb	CO ₂ lb
Delivery Truck				139.96	739.85	3318.40	1.66	138.41	134.11	316,341
Subtotal in lbs				538	2,564	6,604	143	423	411	663,332
Building Construction Grand Total in Tons				0.27	1.28	3.30	0.07	0.21	0.21	
Building Construction Grand Total in Metric Tons										301

Table 6. Paving - Alternative 2A, Alumni Hall Lot Parking Garage Alternative

Pavement - Surface Area 13,665 SF 253 CY
 Paving - HMA 6,833 CF

Off-road Equipment	Hours of Operation	Engine HP	Load Factor	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO ₂ g/hp-hr	PM ₁₀ g/hp-hr	PM _{2.5} g/hp-hr	CO ₂ g/hp-hr
Grader	42	145	0.59	0.38	1.41	4.16	0.12	0.30	0.29	536
Roller	63	401	0.59	0.34	2.46	5.53	0.12	0.34	0.33	536
Paving Machine	84	164	0.59	0.38	1.44	4.25	0.12	0.30	0.29	536
Asphalt Curbing Machine	8	130	0.59	0.40	1.57	4.57	0.12	0.32	0.31	536
				VOC lb	CO lb	NOx lb	SO ₂ lb	PM ₁₀ lb	PM _{2.5} lb	CO ₂ lb
Grader				2.97	11.15	32.85	0.91	2.33	2.26	4,228
Roller				11.18	80.64	181.22	3.77	11.09	10.76	17,543
Paving Machine				6.78	25.76	75.92	2.06	5.36	5.20	9,564
Asphalt Curbing Machine				0.56	2.22	6.46	0.16	0.45	0.44	758

On-road Equipment	Hours of Operation	Engine HP	Speed (mph)	VOC lb/mile	CO lb/mile	NOx lb/mile	SO ₂ lb/mile	PM ₁₀ lb/mile	PM _{2.5} lb/mile	CO ₂ lb/mile
Dump Truck	50	230	17	0.001521	0.008042	0.036070	1.80E-05	0.001504	0.001458	3.438541
Water Truck	1	230	10	0.001521	0.008042	0.036070	1.80E-05	0.001504	0.001458	3.438541
				VOC lb	CO lb	NOx lb	SO ₂ lb	PM ₁₀ lb	PM _{2.5} lb	CO ₂ lb
Dump Truck				1.28	6.78	30.43	0.02	1.27	1.23	2,901
Water Truck				0.02	0.11	0.48	0.00	0.02	0.02	46

Hot Mix Asphalt (HMA)	Volume of HMA (ft ³)	Weight of HMA (tons)	VOC lb/ton of asphalt	VOC lb	CO lb	NOx lb	SO ₂ lb	PM ₁₀ lb	PM _{2.5} lb	CO ₂ lb
Standard HMA	6,833	495	0.04	19.81	-	-	-	-	-	-
Subtotal in lbs				43	127	327	7	21	20	35,041
Paving Grand Total in Tons				0.02	0.06	0.16	0.00	0.01	0.01	
Paving Grand Total in Metric Tons										16

Table 7. Fugitive Dust Emissions for Alternative 2A, Alumni Hall Lot Parking Garage Alternative

Year	PM ₁₀ tons/acre/mo	Acres	Days of Disturbance	PM ₁₀ Total	PM _{2.5} / PM ₁₀ Ratio	PM _{2.5} Total
2015	0.42	1.03	90	1.9	0.1	0.2
2016	0.42	1.03	90	1.9	0.1	0.2

Table 8. Total Construction Emissions for Alternative 2A, Alumni Hall Lot Parking Garage Alternative

Year	VOC Tons/yr	CO Tons/yr	NOx Tons/yr	SO ₂ Tons/yr	PM ₁₀ Tons/yr	PM _{2.5} Tons/yr	CO ₂ M Tons/yr
2015	0.2	0.7	1.9	0.0	2.1	0.3	176
2016	0.2	0.7	1.9	0.0	2.1	0.3	176

TAB E. CONSTRUCTION EMISSIONS: ALTERNATIVE 2B – FIREHOUSE SITE PARKING GARAGE ALTERNATIVE

Table 1. Pavement Demolition - Alternative 2B, Firehouse Site Parking Garage Alternative
Demo Asphalt/Concrete- Year

Off-road Equipment	Hours of Operation	Engine HP	Load Factor	Emission Factors						
				VOC	CO	NOx	SO ₂	PM ₁₀	PM _{2.5}	CO ₂
				g/hp-hr	g/hp-hr	g/hp-hr	g/hp-hr	g/hp-hr	g/hp-hr	g/hp-hr
Crawler Dozer w/attachments	21	125	0.58	0.34	1.21	4.08	0.12	0.23	0.22	535.79
Air Compressor	21	49	0.59	0.33	2.54	4.53	0.13	0.54	0.53	595.16
Excavator	5	380	0.59	0.31	2.50	4.51	0.13	0.55	0.54	595.21
				Annual Emissions						
				VOC	CO	NOx	SO ₂	PM ₁₀	PM _{2.5}	CO ₂
				lb	lb	lb	lb	lb	lb	lb
Crawler Dozer w/attachments				1.19	3.96	13.40	0.38	0.74	0.72	1,759
Wheel mounted air compressor				0.45	3.33	5.93	0.17	0.71	0.69	779
Excavator				0.77	5.82	10.51	0.30	1.29	1.25	1,388

On-road Equipment	Hours of Operation	Engine HP	Speed (mph)	VOC	CO	NOx	SO ₂	PM ₁₀	PM _{2.5}	CO ₂
				lb/mile	lb/mile	lb/mile	lb/mile	lb/mile	lb/mile	lb/mile
Dump Truck	16	230	27	0.0015	0.0080	0.0361	0.0000	0.0015	0.0015	3.4385
				VOC	CO	NOx	SO ₂	PM ₁₀	PM _{2.5}	CO ₂
				lb	lb	lb	lb	lb	lb	lb
Dump Truck				0.66	3.50	15.69	0.01	0.65	0.63	1,496
Subtotal in lbs				3	17	46	1	3	3	5,422
Asphalt Demo Grand Total in Tons				0.00	0.01	0.02	0.00	0.00	0.00	
Asphalt Demo Grand Total in Metric Tons										2

Table 2. Site Prep - Alternative 2B, Firehouse Site Parking Garage Alternative

Site Prep - Excavate/Fill 14,787 CY 542 CY hauled
 Trenching 211 LF Assume 3 ft deep, 1 ft wide 23 CY
 Grading 5,544 SY

Off-road Equipment	Hours	Engine HP	Load Factor	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO ₂ g/hp-hr	PM ₁₀ g/hp-hr	PM _{2.5} g/hp-hr	CO ₂ g/hp-hr
Excavator	49	243	0.59	0.34	1.21	4.03	0.12	0.22	0.22	536
Skid Steer Loader	59	160	0.23	0.38	1.47	4.34	0.12	0.31	0.30	536
Dozer (Rubber Tired)	54	145	0.59	0.38	1.41	4.17	0.12	0.30	0.29	536
Scraper Hauler Excavator	2	365	0.58	0.38	1.42	4.19	0.12	0.30	0.29	536
Grader	2	285	0.58	0.34	1.21	4.07	0.12	0.23	0.22	536
Backhoe/Loader	0	87	0.59	0.35	1.25	4.23	0.12	0.24	0.23	536
				VOC lb	CO lb	NOx lb	SO ₂ lb	PM ₁₀ lb	PM _{2.5} lb	CO ₂ lb
Excavator				5.64	18.84	62.78	1.80	3.47	3.37	8,347
Skid Steer Loader				1.94	7.05	20.82	0.55	1.47	1.42	2,571
Dozer (Rubber Tired)				4.01	14.29	42.17	1.16	2.99	2.90	5,413
Scraper Hauler Excavator				0.36	1.30	3.84	0.11	0.27	0.26	491
Grader				0.31	1.04	3.50	0.10	0.19	0.19	461
Backhoe/loader				0.01	0.05	0.16	0.00	0.01	0.01	20

On-road Equipment	Hours	Engine HP	Speed (mph)	VOC lb/mile	CO lb/mile	NOx lb/mile	SO ₂ lb/mile	PM ₁₀ lb/mile	PM _{2.5} lb/mile	CO ₂ lb/mile
Dump Truck (12 CY)	28	230	16	0.0015	0.0080	0.0361	0.0000	0.0015	0.0015	3.4385
Delivery Truck	1	265	45	0.0015	0.0080	0.0361	0.0000	0.0015	0.0015	3.4385
				VOC lb	CO lb	NOx lb	SO ₂ lb	PM ₁₀ lb	PM _{2.5} lb	CO ₂ lb
			Dump Truck (12 CY)	0.69	3.63	16.29	0.01	0.68	0.66	1,553
			Delivery Truck	0.04	0.19	0.86	0.00	0.04	0.03	82
			Subtotal in lbs	12	46	150	4	9	9	18,938
			Site Prep Grand Total in Tons	0.01	0.02	0.08	0.00	0.00	0.00	
			Site Prep Grand Total in Metric Tons							9

Table 3. Gravel Work - Alternative 2B, Firehouse Site Parking Garage Alternative

1,336 CY

Off-road Equipment	Hours	Engine HP	Load Factor	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO ₂ g/hp-hr	PM ₁₀ g/hp-hr	PM _{2.5} g/hp-hr	CO ₂ g/hp-hr
Dozer	13	185	0.59	0.34	1.21	4.08	0.12	0.23	0.22	536
Wheel Loader for Spreading	17	87	0.59	0.35	1.25	4.23	0.12	0.24	0.23	536
Compactor	52	103	0.43	0.36	1.34	4.45	0.12	0.26	0.25	536
				VOC lb	CO lb	NOx lb	SO ₂ lb	PM ₁₀ lb	PM _{2.5} lb	CO ₂ lb
Dozer				1.16	3.88	13.12	0.37	0.73	0.71	1,723
Wheel Loader for Spreading				0.69	2.36	8.00	0.22	0.45	0.44	1,013
Compactor				1.91	6.77	22.50	0.58	1.30	1.26	2,708

On-road Equipment	Hours	Engine HP	Speed (mph)	VOC lb/mile	CO lb/mile	NOx lb/mile	SO ₂ lb/mile	PM ₁₀ lb/mile	PM _{2.5} lb/mile	CO ₂ lb/mile
Dump Truck	173	230	26	0.0015	0.0080	0.0361	0.0000	0.0015	0.0015	3.438541
				VOC lb	CO lb	NOx lb	SO ₂ lb	PM ₁₀ lb	PM _{2.5} lb	CO ₂ lb
Dump Truck				6.77	35.81	160.63	0.08	6.70	6.49	15,313
Subtotal in lbs				10	49	204	1	9	9	20,756
Gravel Work Grand Total in Tons				0.01	0.02	0.10	0.00	0.00	0.00	
Gravel Work Grand Total in Metric Tons										9

Table 4. Concrete Work -Alternative 2B, Firehouse Site Parking Garage Alternative

Foundation Work 4,328 CY
 Sidewalks, etc. 49 CY
 Total 4,377 CY

Off-road Equipment	Hours of Operation	Engine HP	Load Factor	Emission Factors						
				VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO ₂ g/hp-hr	PM ₁₀ g/hp-hr	PM _{2.5} g/hp-hr	CO ₂ g/hp-hr
Concrete Mixer	230	3.5	0.43	0.69	3.04	6.17	0.13	0.54	0.52	588
Concrete Truck	208	300	0.43	0.38	1.75	6.18	0.11	0.27	0.26	530
				Annual Emissions						
				VOC lb	CO lb	NOx lb	SO ₂ lb	PM ₁₀ lb	PM _{2.5} lb	CO ₂ lb
Concrete Mixer				0.55	2.33	4.72	0.10	0.41	0.40	450
Concrete Truck				23.69	103.48	366.47	6.76	15.93	15.45	31,410
Subtotal in lbs				23	106	371	7	16	16	31,860
Concrete Work Grand Total in Tons				0.01	0.05	0.19	0.00	0.01	0.01	
Concrete Work Grand Total in Metric Tons										14

Table 5. Building Construction - Alternative 2B, Firehouse Site Parking Garage Alternative

64,902 SF Foundation

259,608 SF Total

Off-road Equipment	Hours of Operation	Engine HP	Load Factor	Emission Factors						
				VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO ₂ g/hp-hr	PM ₁₀ g/hp-hr	PM _{2.5} g/hp-hr	CO ₂ g/hp-hr
Crane	1,298	330	0.58	0.25	1.22	5.26	0.11	0.21	0.20	530
Concrete Truck	1,298	300	0.43	0.19	1.45	4.32	0.12	0.21	0.20	536
Diesel Generator	1,038	40	0.43	0.26	1.41	3.51	0.11	0.23	0.22	536
Telehandler	2,596	99	0.59	0.51	3.94	4.93	0.13	0.52	0.51	595
Scissors Lift	2,077	83	0.59	0.51	3.94	4.93	0.13	0.52	0.51	595
Skid Steer Loader	1,298	67	0.59	1.69	7.97	6.70	0.15	1.19	1.15	691
Pile Driver	3,347	260	0.43	0.46	1.55	5.90	0.11	0.31	0.30	530
All Terrain Forklift	52	84	0.59	0.51	3.94	4.93	0.13	0.52	0.51	595
				Annual Emissions						
				VOC lb	CO lb	NOx lb	SO ₂ lb	PM ₁₀ lb	PM _{2.5} lb	CO ₂ lb
Crane				141.71	667.96	2880.94	62.48	113.78	110.36	290,461
Concrete Truck				72.93	536.96	1595.03	42.59	77.55	75.22	197,967
Diesel Generator				10.88	55.48	138.14	4.25	9.13	8.86	21,114
Telehandler				179.37	1317.07	1647.78	42.76	174.21	168.99	198,782
Scissors Lift				120.30	883.37	1105.18	28.68	116.85	113.34	133,324
Skid Steer Loader				201.59	901.33	757.69	16.81	134.52	130.48	78,154
Pile Driver				403.06	1280.07	4868.42	93.98	258.90	251.13	436,888
All Terrain Forklift				3.04	22.35	27.96	0.73	2.96	2.87	3,373

On-road Equipment	Hours of Operation	Engine HP	Speed (mph)	VOC lb/mile	CO lb/mile	NOx lb/mile	SO ₂ lb/mile	PM ₁₀ lb/mile	PM _{2.5} lb/mile	CO ₂ lb/mile
Delivery Truck	1,558	265	40	0.0015	0.0080	0.0361	0.0000	0.0015	0.0015	3.4385
				VOC lb	CO lb	NOx lb	SO ₂ lb	PM ₁₀ lb	PM _{2.5} lb	CO ₂ lb
Delivery Truck				94.79	501.06	2247.38	1.12	93.74	90.83	214,241
Subtotal in lbs				1,076	5,665	13,021	292	888	861	1,360,065
Building Construction Grand Total in Tons				0.54	2.83	6.51	0.15	0.44	0.43	
Building Construction Grand Total in Metric Tons										617

Table 6. Fugitive Dust Emissions for Alternative 2B, Firehouse Site Parking Garage Alternative

Year	PM ₁₀ tons/acre/mo	Acres	Days of Disturbance	PM ₁₀ Total	PM _{2.5} /PM ₁₀ Ratio	PM _{2.5} Total
2015	0.42	0.71	90	1.4	0.1	0.1
2016	0.42	0.71	90	1.4	0.1	0.1

Table 7. Total Construction Emissions for Alternative 2B, Firehouse Site Parking Garage Alternative

Year	VOC Tons/yr	CO Tons/yr	NOx Tons/yr	SO ₂ Tons/yr	PM ₁₀ Tons/yr	PM _{2.5} Tons/yr	CO ₂ M Tons/yr
2015	0.3	1.5	3.4	0.1	1.6	0.4	326
2016	0.3	1.5	3.4	0.1	1.6	0.4	326

TAB F. CONSTRUCTION EMISSIONS: ALTERNATIVE 2C – LAWRENCE FIELD PARKING GARAGE ALTERNATIVE

Table 1. Site Prep - Alternative 2C, Lawrence Field Parking Garage Alternative

Site Prep - Excavate/Fill 16,807 CY 965 CY hauled
 Trenching 3,650 LF Assume 3 ft deep, 1 ft wide 406 CY
 Grading 23,111 SY

Off-road Equipment	Hours	Engine HP	Load Factor	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO ₂ g/hp-hr	PM ₁₀ g/hp-hr	PM _{2.5} g/hp-hr	CO ₂ g/hp-hr
Excavator	56	243	0.59	0.34	1.21	4.03	0.12	0.22	0.22	536
Skid Steer Loader	67	160	0.23	0.38	1.47	4.34	0.12	0.31	0.30	536
Dozer (Rubber Tired)	61	145	0.59	0.38	1.41	4.17	0.12	0.30	0.29	536
Scraper Hauler Excavator	3	365	0.58	0.38	1.42	4.19	0.12	0.30	0.29	536
Grader	8	285	0.58	0.34	1.21	4.07	0.12	0.23	0.22	536
Backhoe/Loader	6	87	0.59	0.35	1.25	4.23	0.12	0.24	0.23	536
				VOC lb	CO lb	NOx lb	SO ₂ lb	PM ₁₀ lb	PM _{2.5} lb	CO ₂ lb
			Excavator	6.41	21.41	71.35	2.04	3.95	3.83	9,488
			Skid Steer Loader	2.20	8.02	23.66	0.63	1.67	1.62	2,922
			Dozer (Rubber Tired)	4.56	16.24	47.93	1.32	3.40	3.30	6,152
			Scraper Hauler Excavator	0.65	2.32	6.83	0.19	0.48	0.47	874
			Grader	1.08	3.61	12.17	0.34	0.67	0.65	1,602
			Backhoe/loader	0.24	0.82	2.78	0.08	0.16	0.15	351

On-road Equipment	Hours	Engine HP	Speed (mph)	VOC lb/mile	CO lb/mile	NOx lb/mile	SO ₂ lb/mile	PM ₁₀ lb/mile	PM _{2.5} lb/mile	CO ₂ lb/mile
Dump Truck (12 CY)	50	230	16	0.0015	0.0080	0.0361	0.0000	0.0015	0.0015	3.4385
Delivery Truck	9	265	45	0.0015	0.0080	0.0361	0.0000	0.0015	0.0015	3.4385
				VOC lb	CO lb	NOx lb	SO ₂ lb	PM ₁₀ lb	PM _{2.5} lb	CO ₂ lb
Dump Truck (12 CY)				1.22	6.47	29.01	0.01	1.21	1.17	2,765
Delivery Truck				0.62	3.30	14.81	0.01	0.62	0.60	1,412
Subtotal in lbs				16	62	209	5	12	12	25,567
Site Prep Grand Total in Tons				0.01	0.03	0.10	0.00	0.01	0.01	
Site Prep Grand Total in Metric Tons										12

Table 2. Gravel Work - Alternative 2C, Lawrence Field Parking Garage Alternative

6,004 CY

Off-road Equipment	Hours	Engine HP	Load Factor	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO ₂ g/hp-hr	PM ₁₀ g/hp-hr	PM _{2.5} g/hp-hr	CO ₂ g/hp-hr
Dozer	60	185	0.59	0.34	1.21	4.08	0.12	0.23	0.22	536
Wheel Loader for Spreading	75	87	0.59	0.35	1.25	4.23	0.12	0.24	0.23	536
Compactor	233	103	0.43	0.36	1.34	4.45	0.12	0.26	0.25	536
				VOC lb	CO lb	NOx lb	SO ₂ lb	PM ₁₀ lb	PM _{2.5} lb	CO ₂ lb
Dozer				5.23	17.44	58.95	1.67	3.27	3.17	7,741
Wheel Loader for Spreading				3.12	10.60	35.95	0.98	2.03	1.97	4,550
Compactor				8.60	30.41	101.13	2.62	5.84	5.67	12,171

On-road Equipment	Hours	Engine HP	Speed (mph)	VOC lb/mile	CO lb/mile	NOx lb/mile	SO ₂ lb/mile	PM ₁₀ lb/mile	PM _{2.5} lb/mile	CO ₂ lb/mile
Dump Truck	776	230	26	0.0015	0.0080	0.0361	0.0000	0.0015	0.0015	3.438541
				VOC lb	CO lb	NOx lb	SO ₂ lb	PM ₁₀ lb	PM _{2.5} lb	CO ₂ lb
Dump Truck				30.45	160.95	721.88	0.36	30.11	29.17	68,817
Subtotal in lbs				47	219	918	6	41	40	93,278
Gravel Work Grand Total in Tons				0.02	0.11	0.46	0.00	0.02	0.02	
Gravel Work Grand Total in Metric Tons										42

Table 3. Concrete Work -Alternative 2C, Lawrence Field Parking Garage Alternative

Foundation Work 4,000 CY
 Sidewalks, etc. 51 CY
 Total 4,377 CY

Off-road Equipment	Hours of Operation	Engine HP	Load Factor	Emission Factors						
				VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO ₂ g/hp-hr	PM ₁₀ g/hp-hr	PM _{2.5} g/hp-hr	CO ₂ g/hp-hr
Concrete Mixer	213	3.5	0.43	0.69	3.04	6.17	0.13	0.54	0.52	588
Concrete Truck	193	300	0.43	0.38	1.75	6.18	0.11	0.27	0.26	530
				Annual Emissions						
				VOC lb	CO lb	NOx lb	SO ₂ lb	PM ₁₀ lb	PM _{2.5} lb	CO ₂ lb
Concrete Mixer				0.51	2.15	4.37	0.09	0.38	0.37	416
Concrete Truck				21.93	95.77	339.18	6.25	14.74	14.30	29,071
Subtotal in lbs				21	98	344	6	15	15	29,487
Concrete Work Grand Total in Tons				0.01	0.05	0.17	0.00	0.01	0.01	
Concrete Work Grand Total in Metric Tons										13

Table 4. Building Construction - Alternative 2C, Lawrence Field Parking Garage Alternative

208,296 SF Foundation

416,592 SF Total

Off-road Equipment	Hours of Operation	Engine HP	Load Factor	Emission Factors						
				VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO ₂ g/hp-hr	PM ₁₀ g/hp-hr	PM _{2.5} g/hp-hr	CO ₂ g/hp-hr
Crane	2,083	330	0.58	0.25	1.22	5.26	0.11	0.21	0.20	530
Concrete Truck	2,083	300	0.43	0.19	1.45	4.32	0.12	0.21	0.20	536
Diesel Generator	1,666	40	0.43	0.26	1.41	3.51	0.11	0.23	0.22	536
Telehandler	4,166	99	0.59	0.51	3.94	4.93	0.13	0.52	0.51	595
Scissors Lift	3,333	83	0.59	0.51	3.94	4.93	0.13	0.52	0.51	595
Skid Steer Loader	2,083	67	0.59	1.69	7.97	6.70	0.15	1.19	1.15	691
Pile Driver	10,741	260	0.43	0.46	1.55	5.90	0.11	0.31	0.30	530
All Terrain Forklift	83	84	0.59	0.51	3.94	4.93	0.13	0.52	0.51	595
				Annual Emissions						
				VOC lb	CO lb	NOx lb	SO ₂ lb	PM ₁₀ lb	PM _{2.5} lb	CO ₂ lb
Crane				227.40	1071.87	4623.04	100.26	182.58	177.10	466,101
Concrete Truck				117.03	861.66	2559.54	68.34	124.44	120.71	317,676
Diesel Generator				17.47	89.02	221.68	6.82	14.65	14.21	33,881
Telehandler				287.83	2113.50	2644.18	68.62	279.56	271.17	318,984
Scissors Lift				193.05	1417.54	1773.47	46.02	187.50	181.88	213,945
Skid Steer Loader				323.50	1446.36	1215.86	26.97	215.86	209.39	125,413
Pile Driver				1293.59	4108.24	15624.68	301.61	830.92	805.99	1,402,145
All Terrain Forklift				4.88	35.87	44.87	1.16	4.74	4.60	5,413

On-road Equipment	Hours of Operation	Engine HP	Speed (mph)	VOC lb/mile	CO lb/mile	NOx lb/mile	SO ₂ lb/mile	PM ₁₀ lb/mile	PM _{2.5} lb/mile	CO ₂ lb/mile
Delivery Truck	2,500	265	40	0.0015	0.0080	0.0361	0.0000	0.0015	0.0015	3.4385
				VOC lb	CO lb	NOx lb	SO ₂ lb	PM ₁₀ lb	PM _{2.5} lb	CO ₂ lb
Delivery Truck				152.10	804.05	3606.36	1.80	150.42	145.75	343,792
Subtotal in lbs				2341	11144	28707	620	1840	1785	2,883,562
Building Construction Grand Total in Tons				1.17	5.57	14.35	0.31	0.92	0.89	
Building Construction Grand Total in Metric Tons										1308

Table 5. Fugitive Dust Emissions for Alternative 2C, Lawrence Field Parking Garage Alternative

Year	PM ₁₀ tons/acre/mo	Acres	Days of Disturbance	PM ₁₀ Total	PM _{2.5} /PM ₁₀ Ratio	PM _{2.5} Total
2015	0.42	2.52	90	4.8	0.1	0.5
2016	0.42	2.52	90	4.8	0.1	0.5

Table 6. Total Construction Emissions for Alternative 2C, Lawrence Field Parking Garage Alternative

Year	VOC Tons/yr	CO Tons/yr	NOx Tons/yr	SO ₂ Tons/yr	PM ₁₀ Tons/yr	PM _{2.5} Tons/yr	CO ₂ M Tons/yr
2015	0.6	2.9	7.5	0.2	5.1	0.9	688
2016	0.6	2.9	7.5	0.2	5.1	0.9	688

TAB G. CONSTRUCTION DETAILS

Table 1. Construction Elements														
Project Action	Footprint (AC)	Clearing (AC)	Grading (SY)	Site Prep - Excavate/Fill (CY)	Trenching (CY)	Building Construction - Total Size (SF)	Building Construction- foundation footprint (SF)	# Stories	Piles	Paving (CY)	Sidewalks (SF)	Gravel Work (CY)	Concrete Work - sidewalks, etc. (CY)	Concrete Work - foundation (CY)
Alternative 1A	Waffle Lot													
CCSS Bldg (2016 - 2018)	1.61	0.40	7,792	9,078	1,724	206,000	58,551	6	1,396	337	5,855	2,508	108	15,483
Alternative 1B	Alumni Hall Lot													
CCSS Bldg (2016 - 2018)	1.8	0.45	8,712	4,855	134	206,000	43,200	5	711	1,277	4,320	2,879	80	9,582
Alternative 2A	Alumni Hall Lot													
Parking Garage (2015 - 2016)	1.12	0.10	5,421	4,045	175	95,832	47,916	2	228	253	1,675	1,778	32	819
Alternative 2B	Firehouse Site													
Parking Garage (2015 - 2016)	1.3	0.00	5,544	14,787	211	259,608	64,902	4	191	NA	2,500	1,336	49	4,328
Alternative 2C	Lawrence Field													
Parking Garage (2015 - 2016)	5.03	0.00	23,111	16,807	406	416,592	208,296	2	1,056	NA	2,759	6,004	51	4,000

Table 2. Demolition of Existing Impervious Surfaces			
Demolition	Location	Demo asphalt/ concrete (SF)	Acreage
Alternative 1A-Waffle Lot	demo paving	63,765	1.46
Alternative 1B-Alumni Hall Lot	demo paving	63,765	1.46
Alternative 2A-Alumni Hall Lot	demo paving	40,995	0.94
Alternative 2B-Firehouse Site	demo paving	5,661	0.13
Alternative 2C-Lawrence Field	NA	NA	NA

TAB H. OPERATIONAL EMISSIONS: ADDITIONAL COMMUTING STAFF

Table 1. Staff Commuters

Vehicles	# vehicles	# days	¹ mi/day	¹ VOCs lb/mi	¹ CO lb/mi	¹ NOx lb/mi	¹ SO ₂ lb/mi	¹ PM ₁₀ lb/mi	¹ PM _{2.5} lb/mi	¹ CO ₂ g/mi	² CH ₄ g/mi	² N ₂ O g/mi
regular staff	40	245	40	0.00119	0.03467	0.00486	0.00001	0.00020	0.00018	182.00	0.02	0.02
				VOCs lb	CO lb	NOx lb	SO₂ lb	PM₁₀ lb	PM_{2.5} lb	CO₂ g	CH₄ g	N₂O g
				464.59	13592.21	1906.40	5.11	77.17	71.13	71,344,000	6,272	6,272
				0.23	6.80	0.95	0.00	0.04	0.04			
Tons per Year												
Metric Tons per Year										71	0.01	0.01
										CO2e in metric tons/year		73

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TAB I. REFERENCES

- Craftsman Book Company. 2010. National Estimator. Carlsbad, CA.
- Naval Support Activity Annapolis. 2013. Cyber Warfare Building Feasibility Study: Final Feasibility Analysis. Prepared by Clark Nexsen, Norfolk, VA. June 20.
- Ohio Emergency Management Agency. Appendix F: Debris Estimating Guides.
http://ema.ohio.gov/Documents/DRB/Sample_Plan/APPENDIX_F.doc.
- PPG Industries. 2014. Technical Data Sheets for Seal Grip Primer (17-921), Manor Hall Timeless Interior Matte Acrylic Latex (83-210), and Manor Hall Timeless Interior Eggshell Plus Acrylic Latex (83-310).
- Sonoma Technology. 2003. Attachment C: Asphalt Paving and Roofing.
- USEPA. 2010a. Conversion Factors for Hydrocarbon Emission Components. Report No. NR-002d. July.
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- USEPA. 2010d. Motor Vehicle Emission Simulator (MOVES) 2010.
- USEPA. 2010e. NONROAD 2010 Model.
- Western Governors' Association. 2006. WRAP Fugitive Dust Handbook. Prepared by Countess Environmental, Westlake Village, CA.
- Western Governors' Association, Western Regional Air Partnership. 2005. Analysis of the Fine Fraction of Particulate Matter in Fugitive Dust. MRI Project No. 110397. Prepared by Midwest Research Institute.

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**RECORD OF NON-APPLICABILITY (RONA) FOR
CLEAN AIR ACT CONFORMITY FOR
CENTER FOR THE CYBER SECURITY STUDIES AT THE
UNITED STATES NAVAL ACADEMY, ANNAPOLIS, MARYLAND**

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**GENERAL CONFORMITY RULE - RECORD OF NON-APPLICABILITY (RONA)
FOR CLEAN AIR ACT CONFORMITY
CENTER FOR CYBER SECURITY STUDIES AT UNITED STATES NAVAL ACADEMY**

PROPOSED ACTION

<u>Action Proponent:</u>	Naval Support Activity Annapolis, Public Works Division
<u>Proposed Action Name:</u>	Center for Cyber Security Studies at the United States Naval Academy (USNA)
<u>Location:</u>	Annapolis, Maryland
<u>Project Construction Begin Date:</u>	2015
<u>Project Construction End Date:</u>	2018
<u>Proposed Action Point of Contact:</u>	Naval Facilities Engineering Command Washington
<u>Proposed Action Summary:</u>	Construct and operate a new academic building to house the Center for Cyber Security Studies (CCSS) and a supporting parking garage at the USNA

The Clean Air Act requires federal actions in air pollutant nonattainment or maintenance areas to conform to the applicable State Implementation Plan. The State Implementation Plan is designed to achieve or maintain an attainment designation of air pollutants as defined by the National Ambient Air Quality Standards. The regulations governing this requirement are found in 40 Code of Federal Regulations (CFR) Part 93, also known as the “General Conformity Rule,” which applies to federal actions occurring in regions designated as nonattainment or areas subject to maintenance plans. The threshold (*de minimis*) emission rates have been established for actions with the potential to have significant air quality impacts. A project/action that would be located in an area designated as nonattainment and exceeding the *de minimis* thresholds must have a general conformity determination prepared to address significant impacts.

The USNA is in the Metropolitan Baltimore Intrastate Air Quality Control Region (40 CFR § 81.28). This Air Quality Control Region is designated as nonattainment for the 8-hour ozone and the annual PM_{2.5} standards. Thus, the *de minimis* thresholds for the ozone precursor pollutants NO_x and VOCs apply, as well as PM_{2.5} and its precursor SO₂, apply to the conformity applicability analysis.

Air Emissions Summary:

Diesel engine mobile emission sources associated with demolition and construction activities and interior painting of both of the CCSS building alternatives in combination with each of the parking garage alternatives for the proposed action were assessed. The estimated maximum emissions from construction equipment, vehicles, and paint are estimated and summarized in Table 1, as well as commuter emissions for the additional 40 faculty and staff. Based on the maximum annual emission estimates identified in Table 1, a general conformity determination is not required because the total

maximum annual direct and indirect emissions for the proposed action are below the *de minimis* thresholds.

Table 1. Maximum Estimated Construction Emissions and Operational Commuter Emissions in Tons per Year				
Construction Activity	VOCs	NOx	PM_{2.5}	SO₂
Alternative 1A and Alternative 2C	0.86	9.84	1.37	0.21
Alternative 1B and Alternative 2C	0.85	9.77	1.39	0.21
Annual Faculty and Staff Vehicles	0.23	0.95	0.04	0.00
<i>de minimis</i> threshold	50	100	100	100
Exceed Threshold?	No	No	No	No

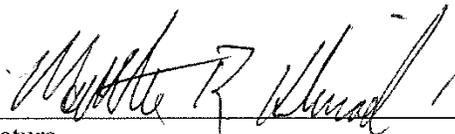
40 CFR § 93.153 (b)(1) and (b)(2).

Supporting documentation and emissions estimates can be found in Section 3.5, *Air Quality*, and Appendix B, *Air Quality Conformity Applicability Analysis*, of the Environmental Assessment.

Date RONA Prepared: April 2014

RONA Prepared By: Naval Facilities Engineering Command Washington

RONA Approval


5/29/2014

 Signature Date

Matt Klimoski
 Director - Environmental Division
 PWD Annapolis/US Naval Academy

APPENDIX C
AGENCY CORRESPONDENCE

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DEPARTMENT OF THE NAVY
NAVAL SUPPORT ACTIVITY ANNAPOLIS
58 BENNION ROAD
ANNAPOLIS MD 21402

IN REPLY REFER TO
5090
Ser ENV-111
September 3, 2014

Lisa Hoerger
Regulations Coordinator
Department of Natural Resources
Critical Area Commission for the
Chesapeake & Atlantic Coastal Bays
1804 West Street, Suite 100
Annapolis, MD 21401

Dear Ms. Hoerger:

SUBJECT: CENTER FOR CYBER SECURITY STUDIES, UNITED STATES NAVAL ACADEMY,
ANNAPOLIS, MARYLAND

Pursuant to Section 307 of the Coastal Zone Management Act (CZMA), 16 U.S.C. § 1451 et seq., as amended, and its implementing regulations at 15 CFR Part 930, Subpart C, and in accordance with the Memorandum of Understanding between the State of Maryland and the United States Department of Defense, the U.S. Department of the Navy is submitting its Federal Coastal Consistency Determination for the proposed construction and operation of a new Center for Cyber Security Studies (CCSS) and supporting parking garage at the United States Naval Academy (USNA) in Annapolis, Maryland (Enclosure 1). Under Section 307 of the CZMA, federal agencies must determine whether their activities have a direct or indirect foreseeable effect over coastal uses or resources of states with approved coastal management programs. If no coastal effects are foreseeable, a negative determination is warranted. If effects are foreseeable, then a determination of consistency with the enforceable policies of the approved plan is required. The State of Maryland has a federally approved Coastal Zone Management Plan (CZMP), which was last updated in 2011.

The proposed action includes constructing a new, approximately 206,000 square foot, multistory building and a multilevel concrete parking garage on the USNA installation. Project construction would begin in early or mid-2015 with the parking garage. Construction of the CCSS building would begin after the parking garage is completed and would take approximately two years, beginning in late 2016 and finishing in late 2018. The CCSS would provide dedicated and secure space for the new cyber curriculum at the USNA, and the parking garage would replace the loss of parking for construction of the CCSS building on an existing parking lot, provide additional parking for CCSS staff, and improve the existing parking deficit at the USNA.

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Ser ENV-111
September 3, 2014

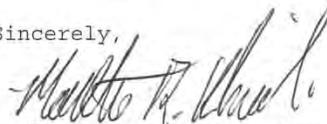
The enclosed Federal Coastal Consistency Determination includes a description of the proposed action, the locations where the actions would occur, and a discussion of the proposed action as it relates to the State of Maryland's enforceable coastal policies and the environmental analysis included in the *Environmental Assessment for the Center for Cyber Security Studies, United States Naval Academy, Annapolis, Maryland* (Enclosure 2). Based on the information contained in the Federal Coastal Consistency Determination, the Navy has determined the proposed action, for any of the action alternatives, is consistent to the maximum extent practicable with the enforceable policies of the Maryland CZMP.

Pursuant to 15 CFR § 930.41, the Navy respectfully requests written concurrence with or objection to this Consistency Determination, or a written request for an extension of 15 days or less, from the Maryland Department of the Environment within 60 days from receipt of this determination. The Navy will presume Maryland's concurrence if its response is not received within 60 days from receipt of this determination. Please direct the state's response to:

Naval Facilities Engineering Command Washington
ATTN: Anna Lubetski, Environmental
1314 Harwood Street, SE, Building 212
Washington, DC 20374

If you have any questions concerning this Consistency Determination, please contact Ms. Lubetski at (202) 685-8479.

Sincerely,



MATTHEW R. KLIMOSKI, P.E.
Environmental Division Director
By direction of the Commanding Officer

Enclosures: 1. Federal Coastal Consistency Determination
2. Draft EA for the Center for Cyber Security Studies
United States Naval Academy, Annapolis, Maryland

Copies to:
Anna Lubetski, NAVFAC Washington



DEPARTMENT OF THE NAVY
NAVAL SUPPORT ACTIVITY ANNAPOLIS
58 BENNING ROAD
ANNAPOLIS MD 21402

IN REPLY REFER TO
5090
Ser ENV-106
September 3, 2014

Mr. Joe Abe
Coastal Policy Coordination Section Chief
Maryland Department of Natural Resources
Chesapeake and Coastal Service
580 Taylor Avenue, E-2
Annapolis, Maryland 21401

Dear Mr. Abe:

SUBJECT: CENTER FOR CYBER SECURITY STUDIES, UNITED STATES NAVAL ACADEMY,
ANNAPOLIS, MARYLAND

Pursuant to Section 307 of the Coastal Zone Management Act (CZMA), 16 U.S.C. § 1451 et seq., as amended, and its implementing regulations at 15 CFR Part 930, Subpart C, and in accordance with the Memorandum of Understanding between the State of Maryland and the United States Department of Defense, the U.S. Department of the Navy is submitting its Federal Coastal Consistency Determination for the proposed construction and operation of a new Center for Cyber Security Studies (CCSS) and supporting parking garage at the United States Naval Academy (USNA) in Annapolis, Maryland (Enclosure 1). Under Section 307 of the CZMA, federal agencies must determine whether their activities have a direct or indirect foreseeable effect over coastal uses or resources of states with approved coastal management programs. If no coastal effects are foreseeable, a negative determination is warranted. If effects are foreseeable, then a determination of consistency with the enforceable policies of the approved plan is required. The State of Maryland has a federally approved Coastal Zone Management Plan (CZMP), which was last updated in 2011.

The proposed action includes constructing a new, approximately 206,000 square foot, multistory building and a multilevel concrete parking garage on the USNA installation. Project construction would begin in early or mid-2015 with the parking garage. Construction of the CCSS building would begin after the parking garage is completed and would take approximately two years, beginning in late 2016 and finishing in late 2018. The CCSS would provide dedicated and secure space for the new cyber curriculum at the USNA, and the parking garage would replace the loss of parking for construction of the CCSS building on an existing parking lot, provide additional parking for CCSS staff, and improve the existing parking deficit at the USNA.

5090
Ser ENV-106
September 3, 2014

The enclosed Federal Coastal Consistency Determination includes a description of the proposed action, the locations where the actions would occur, and a discussion of the proposed action as it relates to the State of Maryland's enforceable coastal policies and the environmental analysis included in the *Environmental Assessment for the Center for Cyber Security Studies, United States Naval Academy, Annapolis, Maryland* (Enclosure 2). Based on the information contained in the Federal Coastal Consistency Determination, the Navy has determined the proposed action, for any of the action alternatives, is consistent to the maximum extent practicable with the enforceable policies of the Maryland CZMP.

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1314 Harwood Street, SE, Building 212
Washington, DC 20374

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Sincerely,



MATTHEW R. KLIMOSKI, P.E.
Environmental Division Director
By direction of the Commanding Officer

Enclosures: 1. Federal Coastal Consistency Determination
2. Draft EA for the Center for Cyber Security Studies
United States Naval Academy, Annapolis, Maryland

Copies to:
Elder Ghigiarelli, Maryland Department of the Environment
Elizabeth Cole, Maryland Historical Trust
Anna Lubetski, NAVFAC Washington



DEPARTMENT OF THE NAVY
NAVAL SUPPORT ACTIVITY ANNAPOLIS
58 BENNION ROAD
ANNAPOLIS MD 21402

IN REPLY REFER TO
5090
Ser ENV-107
September 3, 2014

Elder Ghigiarelli
Deputy Program Administrator
Maryland Department of the Environment
Wetlands and Waterways Program
1800 Washington Boulevard, Suite 430
Baltimore, Maryland 21230-1708

Dear Mr. Ghigiarelli:

SUBJECT: CENTER FOR CYBER SECURITY STUDIES, UNITED STATES NAVAL ACADEMY,
ANNAPOLIS, MARYLAND

Pursuant to Section 307 of the Coastal Zone Management Act (CZMA), 16 U.S.C. § 1451 et seq., as amended, and its implementing regulations at 15 CFR Part 930, Subpart C, and in accordance with the Memorandum of Understanding between the State of Maryland and the United States Department of Defense, the U.S. Department of the Navy is submitting its Federal Coastal Consistency Determination for the proposed construction and operation of a new Center for Cyber Security Studies (CCSS) and supporting parking garage at the United States Naval Academy (USNA) in Annapolis, Maryland (Enclosure 1). Under Section 307 of the CZMA, federal agencies must determine whether their activities have a direct or indirect foreseeable effect over coastal uses or resources of states with approved coastal management programs. If no coastal effects are foreseeable, a negative determination is warranted. If effects are foreseeable, then a determination of consistency with the enforceable policies of the approved plan is required. The State of Maryland has a federally approved Coastal Zone Management Plan (CZMP), which was last updated in 2011.

The proposed action includes constructing a new, approximately 206,000 square foot, multistory building and a multilevel concrete parking garage on the USNA installation. Project construction would begin in early or mid-2015 with the parking garage. Construction of the CCSS building would begin after the parking garage is completed and would take approximately two years, beginning in late 2016 and finishing in late 2018. The CCSS would provide dedicated and secure space for the new cyber curriculum at the USNA, and the parking garage would replace the loss of parking for construction of the CCSS building on an existing parking lot, provide additional parking for CCSS staff, and improve the existing parking deficit at the USNA.

5090
Ser ENV-107
September 3, 2014

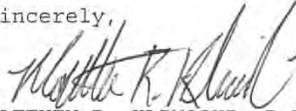
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Pursuant to 15 CFR § 930.41, the Navy respectfully requests written concurrence with or objection to this Consistency Determination, or a written request for an extension of 15 days or less, from the Maryland Department of the Environment within 60 days from receipt of this determination. The Navy will presume Maryland's concurrence if its response is not received within 60 days from receipt of this determination. Please direct the state's response to:

Naval Facilities Engineering Command Washington
ATTN: Anna Lubetski, Environmental
1314 Harwood Street, SE, Building 212
Washington, DC 20374

If you have any questions concerning this Consistency Determination, please contact Ms. Lubetski at (202) 685-8479.

Sincerely,



MATTHEW R. KLIMOSKI, P.E.
Environmental Division Director
By direction of the Commanding Officer

Enclosures: 1. Federal Coastal Consistency Determination
2. Draft EA for the Center for Cyber Security Studies
United States Naval Academy, Annapolis, Maryland

Copies to:
Joe Abe, Maryland Department of Natural Resources
Elizabeth Cole, Maryland Historical Trust
Anna Lubetski, NAVFAC Washington

Martin O'Malley
Governor
Anthony G. Brown
Lt. Governor



Margaret G. McHale
Chair
Ren Serey
Executive Director

**STATE OF MARYLAND
CRITICAL AREA COMMISSION
CHESAPEAKE AND ATLANTIC COASTAL BAYS**
1804 West Street, Suite 100, Annapolis, Maryland 21401
(410) 260-3460 Fax: (410) 974-5338
www.dnr.state.md.us/criticalarea/

October 6, 2014

Mr. Matthew Klimoski
Environmental Division Director
PWD Annapolis (USNA)
181 Wainwright Rd MS21A
Annapolis, MD 21402

Re: 5090
Ser ENV-111
Center for Cyber Security Studies, USNA
Annapolis, Maryland

Dear Mr. Klimoski:

Thank you for providing the Navy's Federal Consistency Determination, pursuant to Section 307 of the Federal Coastal Zone Management Act of 1972, as amended (CZMA), and the Environmental Assessment for above-referenced project. From the information provided, it appears all site alternatives for the proposed building and proposed parking are within 1,000-feet of Maryland's tidal waters/wetlands. Since every alternative includes major construction activities and will result in significant lot coverage that will generate large amounts of stormwater runoff, the alternatives under consideration will have spillover effects on Maryland's coastal zone and its resources.

Based on the information provided, the State cannot concur with the Navy's determination at this time for any of the proposed alternatives due to the following:

- 1) A preferred alternative has not been selected; and
- 2) The explanation for how an alternative would meet the Critical Area policies to the maximum extent practicable was not provided in any detail.

When the Navy selects its preferred alternative for siting the building and the parking lot, please request the State's concurrence with the Navy's consistency determination for that alternative. Please note that consistency, to the maximum extent practicable, with the State's Critical Area policies for this proposal would entail the following:

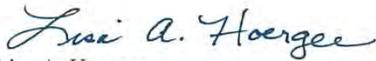
- 1) Addressing the 10% Pollutant Reduction Calculation;
- 2) Providing replanting at a 1:1 ratio for any clearing required within 1,000-feet of Maryland's tidal waters or vegetated tidal wetlands; and
- 3) Providing offsets in the form of planting for any new development activities that occur within 100-feet of tidal waters or vegetated tidal wetlands.

TTY for the Deaf
Annapolis: (410) 974-2609 D.C. Metro: (301) 586-0450

Mr. Klimoski
Page Two
October 6, 2014

Thank you for the opportunity to provide comments on this project. Please do not hesitate to contact me at (410) 260-3478 if you have any questions.

Sincerely,



Lisa A. Hoerger
Regulations and Mapping Coordinator

cc: Mr. Elder Ghigiarelli



DEPARTMENT OF THE NAVY
NAVAL SUPPORT ACTIVITY ANNAPOLIS
58 BENNING ROAD
ANNAPOLIS MD 21402

IN REPLY REFER TO
5090
Ser ENV-155
December 2, 2014

Lisa Hoerger
Regulations and Mapping Coordinator
Department of Natural Resources
Critical Area Commission for the
Chesapeake and Atlantic Coastal Bays
1804 West Street, Suite 100
Annapolis, MD 21401

Dear Ms. Hoerger,

SUBJECT: CENTER FOR CYBER SECURITY STUDIES, UNITED STATES NAVAL
ACADEMY, ANNAPOLIS, MARYLAND

Thank you for your comments of October 6, 2014, with regards to the Navy's Federal Consistency Determination, pursuant to Section 307 of the Coastal Zone Management Act of 1972, as amended (CZMA), for the subject project. This letter constitutes our response to those comments.

The CZMA encourages coastal states to be proactive in managing coastal zone uses and resources. Under the CZMA, federal agency actions within or outside the coastal zone that affect any land or water use or natural resource of the coastal zone shall be carried out in a manner that is consistent to the maximum extent practicable with the enforceable policies of the approved state management programs for its defined coastal zone. Federal lands subject solely to the discretion of the Federal Government are excluded from the coastal zone under the Coastal Zone Management Act (16 U.S.C. § 1453(1)). The proposed Center for Cyber Security Studies (CCSS) at the United States Naval Academy (USNA) is under the exclusive jurisdiction of the Navy and therefore excluded from the coastal zone. Additionally, the USNA is not a critical area as reflected in Grids 17 and 24 of the City of Annapolis Critical Area Map.

Despite these exclusions, the Navy nonetheless conducted an effects analysis as part of its determination of the action's effects for purposes of federal consistency review under the CZMA and in accordance with the Memorandum of Understanding between the State of Maryland and the United States Department of Defense. This was done

5090
Ser ENV-155

to factually determine whether the action, even though conducted entirely within a federal enclave, would affect any coastal use or resource.

The Navy revised its Federal Consistency Determination to identify the preferred alternative for the CCSS building and the parking garage. The preferred alternative is Alternative 1A - Waffle Lot CCSS Building Alternative combined with Alternative 2A - Alumni Hall Lot Parking Garage. Both sites are currently surface parking lots.

In your October 6, 2014 comment letter, your office noted that in order for the proposed action to be consistent, to the maximum extent practicable, with the State's Critical Area policies the preferred alternative would need to address the 10% Pollutant Reduction Calculation, provide replanting at a 1:1 ratio for any clearing required within 1,000 feet of Maryland's tidal waters or vegetated tidal wetlands, and provide offsets in the form of planting for any new development activities occurring within 100 feet tidal waters or vegetated tidal wetlands. There are no wetlands within the project sites for the preferred alternative. The Waffle Lot and Alumni Hall Lot are existing surface parking lots. The Navy will obtain MDE approval on Soil Erosion and Sediment Control and Stormwater Management Plans prior to construction at the Waffle Lot and Alumni Hall Lot sites. All remaining pervious areas within these sites will receive topsoil, fertilizer, and seed or plantings in accordance with the Soil Erosion and Sediment Control regulations and best practices for the growth of landscape material. All plants selected for landscaping will be regionally native plants. The Navy's selected contractor will employ a Landscape Architect registered in the State of Maryland who will prepare a Landscape Plan that is in accordance with the Installation Appearance Plan and will complement the existing campus landscaping.

The Navy has analyzed the potential effects of the preferred alternative by evaluating reasonable foreseeable direct and indirect effects on coastal uses and resources. Based on the information contained in the enclosed Federal Coastal Consistency Determination, the Navy has determined the preferred alternative is consistent to the maximum extent practicable with the enforceable policies of the Maryland CZMF.

Pursuant to 15 CFR § 930.41, the Navy respectfully requests written concurrence with this Consistency Determination, or a written request for an extension of 15 days or less, from the Maryland Department of Natural Resources within 60 days from receipt of this determination. The Navy will presume Maryland's concurrence if its

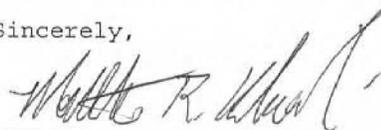
5090
Ser ENV-155

response is not received within 60 days from receipt of this determination. Please direct the state's response to:

Naval Facilities Engineering Command Washington
ATTN: Anna Lubetski, Environmental
1314 Harwood Street, SE, Building 212
Washington, DC 20374

If you have any questions concerning this Consistency Determination, please contact Ms. Anna Lubetski at (202) 685-8479.

Sincerely,



MATTHEW R. KLIMOSKI, P.E.
Environmental Division Director
By direction

Enclosure: Federal Coastal Consistency Determination (revised
November 2014)

Copies to:

Elder Ghigiarelli, Maryland Department of the Environment
Joe Abe, Maryland Department of Natural Resources
Linda Janey, Maryland Department of Planning
Anna Lubetski, NAVFAC Washington

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MARYLAND DEPARTMENT OF THE ENVIRONMENT

1800 Washington Boulevard • Baltimore MD 21230

410-537-3000 • 1-800-633-6101 • www.mde.maryland.gov

Lawrence J. Hogan, Jr.
Governor

Boyd K. Rutherford
Lieutenant Governor

Ben Grumbles
Secretary

February 11, 2015

Matthew R. Klimoski, P.E.
Environmental Division Director
Department of the Navy
Naval Support Activity Annapolis
58 Bennion Road
Annapolis, MD 21402

RE: Proposed Center for Cyber Security Studies
United States Naval Academy

Dear Mr. Klimoski:

I am writing with regard to the Department of the Navy (Navy) Federal Consistency Determination, prepared pursuant to Section 307(c) (1) of the Federal Coastal Zone Management Act of 1972, as amended (CZMA), for the proposed Center for Cyber Security Studies (CCSS) at the United States Naval Academy, Annapolis, Maryland. Although the project is located on federal lands which, as noted in your December 2, 2014 letter, are excluded from a State's coastal zone, the State concludes that the Navy has determined that the proposed action will have a reasonably foreseeable effect on the State's coastal resources. Accordingly, as required by the CZMA, the Navy prepared a Federal Consistency Determination for the State's review.

Your December 2, 2014 letter provided a revised Federal Consistency Determination in response to the State's October 6, 2014 letter/comments from Ms. Lisa Hoerger, Critical Area Commission for the Chesapeake and Atlantic Coastal Bays. The revised Federal Consistency Determination includes the Navy's preferred alternative for the CCSS building and parking garage.

Based on a review of the Navy's revised determination and accompanying materials, the State is unable to concur with the Navy's determination that the proposed action is consistent to the maximum extent practicable with the Maryland Coastal Zone Management Program for the following reasons which were noted in the State's October 6, 2014 letter:

1. The 10% Pollutant Reduction Calculation was not provided which would demonstrate consistency with this Critical Area policy; and



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TTY Users 1-800-735-2258
Via Maryland Relay Service

Subject: Center for Cyber Security Studies - U.S. Naval Academy

Please see attached letter.

Thank you,

Elder A. Ghigiarelli, Jr.
Deputy Program Administrator
Federal Consistency Coordinator
Wetlands and Waterways Program
Maryland Department of the Environment
Phone: (410) 537-3763
Fax: (410) 537-3751

From: Lubetski, Anna M CIV NAVFAC Washington
To: "Elder Ghigiarelli -MDE-"
Cc: [Montgomery, Kevin P CIV NAVFAC Washington](#); [Klimoski, Matthew R CIV Navfac Wash, PWD Annapolis](#)
Subject: RE: Center for Cyber Security Studies - U.S. Naval Academy
Date: Thursday, February 19, 2015 14:22:00
Attachments: [CCSS FA CAC Response 1 Dec 2014.pdf](#)

Mr. Ghigiarelli,

This email is in response to a letter that the Navy received from MDE on 11 February 2015 regarding the Federal Coastal Consistency Determination for the Center for Cyber Security Studies (CCSS), United States Naval Academy, Annapolis, Maryland. The most recent letter from the Clearinghouse stated that the CCD is "Consistent with Qualifying Comments and Contingent Upon Certain Actions" (MD20141204-0922; 27 January 2015). I have attached the letter that was sent with the revised CCD on 2 December 2014 where the preferred alternative was identified and the questions we received on the first draft of the CCD were addressed.

The Navy conducted an effects analysis as part of its determination of the action's effects for purposes of federal consistency review under the CZMA and in accordance with the MOU between the State of Maryland and the United States Department of Defense. The analysis of the alternatives has been done as part of the Environmental Assessment which is a planning document that we have developed to evaluate the environmental impacts of proposed actions and reasonable alternatives for the CCSS building and parking garage. As a Federal Agency we are required to integrate environmental values into our decision making processes under NEPA in order to make environmentally informed decisions when implementing these actions.

The principle reasons the State cannot concur with the determination at this time are that the 10% Pollutant Reduction Calculation was not provided and offsets in the form of planting for any new development activities occurring within 100 feet of Maryland's Coastal Zone were not provided. Since we are still in the planning process under NEPA, we do not have a design for the building at this time that would allow an accurate calculation. As we move through the design of the building, the Navy will comply with all pertinent Maryland requirements. As for the planting offsets, the Waffle Lot and Alumni Hall Lot are existing surface parking lots that the Navy will develop Soil Erosion and Sediment Control and Stormwater Management Plans for MDE review and approval prior to construction on. The Navy will address all remaining pervious areas at the Waffle Lot and Alumni Hall Lot with topsoil, fertilizer, and seed or plantings in accordance with the Soil Erosion and Sediment Control regulations and best practices for the growth of landscape material. The contractor selected by the Navy for the construction at these sites will employ a Landscape Architect registered in the State of Maryland who will prepare a Landscape Plan that is in accordance with the Installation Appearance Plan and will complement the existing campus landscaping.

The Navy has analyzed the potential effects of the preferred alternative by evaluating reasonable foreseeable direct and indirect effects on coastal uses and resources. Based on the information provided in the CCD, the Navy has determined the preferred alternative is consistent to the maximum extent practicable with the enforceable policies of the Maryland CZMP. As we have described the findings of the CCD in the attached letter and this email, would you be able to concur with the Navy's determination at this time? If you are not able to concur at this time, we respectfully request a phone call to further discuss the Navy's position and the best path forward to resolve the consistency review. We would like to propose a one-hour conversation between 25 and 27 February, if that fits with your schedule. If not, please let us know when you would be available to further discuss this issue.

V/R,
Anna

-----Original Message-----

From: Elder Ghigiarelli -MDE- [<mailto:elder.ghigiarelli@maryland.gov>]
Sent: Wednesday, February 11, 2015 2:30 PM
To: Klimoski, Matthew R CIV Navfac Wash, PWD Annapolis
Cc: Lubetski, Anna M CIV NAVFAC Washington; Lisa Hoerger -DNR-; Joseph Abe -DNR-

Subject: Center for Cyber Security Studies - U.S. Naval Academy

Please see attached letter.

Thank you,

Elder A. Ghigiarelli, Jr.
Deputy Program Administrator
Federal Consistency Coordinator
Wetlands and Waterways Program
Maryland Department of the Environment
Phone: (410) 537-3763
Fax: (410) 537-3751

From: [Elder Ghigliarelli -MDE-](#)
To: [Lubetski, Anna M CIV NAVFAC Washington](#)
Cc: [Montgomery, Kevin P CIV NAVFAC Washington](#); [Klimoski, Matthew R CIV Navfac Wash, PWD Annapolis](#); [Lisa Hoerger -DNR-](#); [Joseph Abe -DNR-](#); [Mark Taltv -DNR-](#)
Subject: Center for Cyber Security Studies - U.S. Naval Academy
Date: Friday, April 03, 2015 11:30:37
Attachments: [Klimoski.Fed.Con.Resp.Let.CCSS.Nav.Aca.2.11.15 \(1\).pdf](#)

Ms. Lubetski,

Thank you for your February 19, 2015 email providing the Navy's response to the Maryland Department of the Environment letter dated February 11, 2015 (copy attached) regarding the Navy's Federal Consistency determination, prepared pursuant to Section 307 of the Federal Coastal Zone Management Act of 1972, as amended, for the proposed Center for Cyber Security Studies (CCSS) at the U.S. Naval Academy, Annapolis, Maryland. As noted in the State's letter, Maryland was unable to concur with the Navy's Federal Consistency determination based on insufficient/outstanding information related to the enforceable policies of the Maryland Coastal Zone Management Program (CZMP).

Based on the information contained in your email and subsequent discussion with Kevin Montgomery, it is the State's understanding that the Navy intends to fully comply with all Maryland requirements, including the provision of the data/information outlined in the State's February 11, 2015 letter. However, because the project is still in the planning phase, this information will not be available until design plans for the project are more fully developed.

Based on this understanding, the State of Maryland concurs with the Navy's Federal Consistency determination that the CCSS project is consistent, to the maximum extent practicable, with the Maryland CZMP, contingent upon the provision of the information requested in the State's February 11, 2015 letter, and the Navy's cooperation in addressing any additional comments resulting from the State's review of this information. Please note that this determination does not obviate the Navy's responsibility to obtain any other State approvals that are necessary for the project.

Maryland appreciates the Navy's cooperation in addressing the State's concerns and looks forward to continuing its work with the Navy on this important project. If you have any questions, please contact me.

Elder A. Ghigliarelli, Jr.
Deputy Program Administrator
Maryland Federal Consistency Coordinator
Wetlands and Waterways Program
Water Management Administration
Maryland Department of the Environment
Phone: (410) 537-3763 <tel:%28410%29%20537-3763>
Fax: (410) 537-3751 <tel:%28410%29%20537-3751>

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DEPARTMENT OF THE NAVY
NAVAL SUPPORT ACTIVITY ANNAPOLIS
58 BENNION ROAD
ANNAPOLIS MD 21402

IN REPLY REFER TO
5090
Ser ENV-110
September 3, 2014

Craig Koppie
Chesapeake Bay Field Office
U.S. Fish and Wildlife Service
177 Admiral Cochrane Drive
Annapolis, Maryland 21401-7307

Dear Mr. Koppie:

SUBJECT: CENTER FOR CYBER SECURITY STUDIES, UNITED STATES NAVAL
ACADEMY, ANNAPOLIS, MARYLAND

The U.S. Department of the Navy is preparing an Environmental Assessment (EA) in compliance with the National Environmental Policy Act (NEPA) to evaluate the potential effects associated with the proposed construction and operation of a new Center for Cyber Security Studies (CCSS) and supporting parking garage at the United States Naval Academy (USNA) in Annapolis, Maryland. This letter is intended to initiate consultation in accordance with section 7 of the Endangered Species Act (ESA) concerning federally listed threatened or endangered species or their critical habitat that may occur within the proposed alternative sites for this project.

The USNA proposes a new, approximately 206,000 square foot academic building at the Lower Yard to effectively implement the new cyber curriculum by providing dedicated classrooms, laboratories, lecture halls, faculty offices, and secure project spaces. The new building would address current shortfalls in academic instruction space to support the CCSS at the USNA. The purpose of the parking garage is to replace the parking that would be lost due to the proposed construction of the CCSS building on an existing parking lot. In addition, the new multilevel concrete parking garage would provide additional parking for CCSS staff and improve the existing parking deficit at the USNA.

The EA evaluates two action alternatives for the CCSS building and three action alternatives for the parking garage (Enclosure 1). The

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September 3, 2014

two alternative sites for the CCSS building are the Waffle Lot and the Alumni Hall Lot. Both of these sites are in the Lower Yard, as the new building must be in proximity to the academic and administrative buildings it would serve. The Waffle Lot is a waterfront parking lot situated between Nimitz Library and Rickover Hall. The Alumni Hall Lot is the surface parking lot located west of Alumni Hall. The preferred site is the Waffle Lot because its proximity to existing academic facilities would provide opportunities for close collaboration and direct synergies with cyber-related academic programs.

Construction of the CCSS building would require clearing existing vegetation. Vegetation on the Waffle Lot is limited to maintained grass and some trees and shrubs. At the Alumni Hall Lot, vegetation consists of strips of maintained grass and scattered trees and shrubs.

The three alternative sites evaluated for the parking garage include the Alumni Hall Lot (also an alternative site for the CCSS building), the Firehouse Site, and Lawrence Field. The Firehouse Site is located in the Upper Yard, adjacent to the USNA Fire Station, Bishop Stadium, and family housing. Lawrence Field is also in the Upper Yard, located between Halligan Hall and Bishop Stadium. It is the site of two baseball/softball fields. The preferred site for the parking garage is the Alumni Hall Lot because of its convenient location to most of the campus; both the Firehouse Site and Lawrence Field are a 10-minute or greater walking distance from the center of the Lower Yard.

All vegetation would be removed for construction of the parking garage. As described above, the Alumni Hall Lot primarily consists of impervious surface, with strips of maintained grass and a few trees and shrubs. The Firehouse Site largely comprises maintained grass with a few trees; there is a small area of impervious surface. Lawrence Field is almost entirely maintained grass with a few trees lining the northeast and southwest edges of the ball fields.

No federally listed threatened, endangered, or candidate species or designated critical habitat are known to occur at the USNA campus. Pursuant to the ESA and NEPA, this was validated against the U.S. Fish and Wildlife Service Chesapeake Bay Field Office's Information, Planning, and Conservation System (<http://ecos.fws.gov/ipac/>; as of July 16, 2014). The alternative sites are located in an urbanized

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environment, and have been highly disturbed and are regularly maintained.

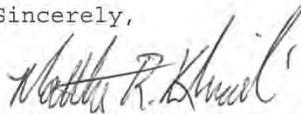
The Navy respectfully requests any comments or concerns on the enclosed Draft EA be provided no later than 30 days from receipt of this letter for consideration during preparation of the EA. Advanced notification of significant concerns would also be greatly appreciated.

Please direct all written correspondence to:

Naval Facilities Engineering Command Washington
ATTN: Anna Lubetski, Environmental
1314 Harwood Street, SE, Building 212
Washington, DC 20374

If you have any questions, please contact Ms. Lubetski at (202) 685-8479.

Sincerely,



MATTHEW R. KLIMOSKI, P.E.
Environmental Division Director
By direction of the Commanding Officer

Enclosures: 1. Map of Proposed Action Alternatives
2. Draft EA for the Center for Cyber Security Studies
United States Naval Academy, Annapolis, Maryland

Copies to:
Anna Lubetski, NAVFAC Washington



Map of Proposed Action Alternatives

Enclosure (1)



DEPARTMENT OF THE NAVY
NAVAL SUPPORT ACTIVITY ANNAPOLIS
58 BENNION ROAD
ANNAPOLIS MD 21402

IN REPLY REFER TO
5090
Ser ENV-108
September 3, 2014

Lori A. Byrne
Maryland Department of Natural Resources
Wildlife and Heritage Service
580 Taylor Avenue
Tawes Office Building E-1
Annapolis, Maryland 21401

Dear Ms. Byrne:

SUBJECT: CENTER FOR CYBER SECURITY STUDIES, UNITED STATES NAVAL ACADEMY,
ANNAPOLIS, MARYLAND

The U.S. Department of the Navy is preparing an Environmental Assessment (EA) in compliance with the National Environmental Policy Act to evaluate the potential effects associated with the proposed construction and operation of a new Center for Cyber Security Studies (CCSS) and supporting parking garage at the United States Naval Academy (USNA) in Annapolis, Maryland. This letter is intended to initiate consultation concerning state listed threatened or endangered species that may occur within the proposed alternative sites for this project.

The USNA proposes a new, approximately 206,000 square foot academic building at the Lower Yard to effectively implement the new cyber curriculum by providing dedicated classrooms, laboratories, lecture halls, faculty offices, and secure project spaces. The new building would address current shortfalls in academic instruction space to support the CCSS at the USNA. The purpose of the parking garage is to replace the parking that would be lost due to the proposed construction of the CCSS building on an existing parking lot. In addition, the new multilevel concrete parking garage would provide additional parking for CCSS staff and improve the existing parking deficit at the USNA.

The EA evaluates two action alternatives for the CCSS building and three action alternatives for the parking garage (Enclosure 1). The two alternatives sites for the CCSS building are the Waffle Lot and the Alumni Hall Lot (Alternatives 1A and 1B). Both of these sites are in the Lower Yard, as the new building must be in proximity to the academic and administrative buildings it would serve. The Waffle Lot is a waterfront parking lot situated between Nimitz Library and Rickover Hall. The Alumni Hall Lot is the surface parking lot located west of Alumni Hall. The preferred site is the Waffle Lot because its proximity to existing academic facilities would provide

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opportunities for close collaboration and direct synergies with cyber-related academic programs.

Construction of the CCSS building would require clearing existing vegetation. Vegetation on the Waffle Lot is limited to maintained grass and some trees and shrubs. At the Alumni Hall Lot, vegetation consists of strips of maintained grass and scattered trees and shrubs.

The three alternative sites evaluated for the parking garage include the Alumni Hall Lot (also an alternative site for the CCSS building), the Firehouse Site, and Lawrence Field (Alternatives 2A, 2B, and 2C). The Firehouse Site is located in the Upper Yard, adjacent to the USNA Fire Station, Bishop Stadium, and family housing. Lawrence Field is also in the Upper Yard, located between Halligan Hall and Bishop Stadium. It is the site of two baseball/softball fields. The preferred site for the parking garage is the Alumni Hall Lot because of its convenient location to most of the campus; both the Firehouse Site and Lawrence Field are a 10-minute or greater walking distance from the center of the Lower Yard.

All vegetation would be removed for construction of the parking garage. As described above, the Alumni Hall Lot primarily consists of impervious surface, with strips of maintained grass and a few trees and shrubs. The Firehouse Site largely comprises maintained grass with a few trees; there is a small area of impervious surface. Lawrence Field is almost entirely maintained grass with a few trees lining the northeast and southwest edges of the ball fields.

Field surveys and review of the U.S. Fish and Wildlife Service Chesapeake Bay Field Office's Information, Planning, and Conservation System (<http://ecos.fws.gov/ipac/>; as of July 16, 2014) have not identified the presence of any state or federally listed threatened, endangered, or candidate species or designated critical habitat at the USNA campus. The alternative sites are located in an urbanized environment, and have been highly disturbed and are regularly maintained.

Two state rare bird species, the bald eagle and the American peregrine falcon, have been observed near the USNA, but neither is known to nest at the USNA or close enough for activities at the campus to affect them. One species of submerged aquatic vegetation (SAV), clasping-leaved pondweed, classified as very rare, has been identified in College Creek immediately north of the Waffle Lot. A barge on College Creek may be provided as a construction staging area for the CCSS building alternative at the Waffle Lot (Alternative 1A). The barge would not impact the SAV.

The Navy respectfully requests any comments or concerns on the enclosed Draft EA be provided no later than 30 days from receipt of this letter for consideration during preparation of the EA. Advanced notification of

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significant concerns would also be greatly appreciated. Additionally, we are requesting a current list of state listed threatened or endangered species that are known to occur, or that could potentially occur on or in the vicinity of the proposed project area and information on any other sensitive natural resources or ecosystems that should be considered during the development of the EA.

Please direct all written correspondence to:

Naval Facilities Engineering Command Washington
ATTN: Anna Lubetski, Environmental
1314 Harwood Street, SE, Building 212
Washington, DC 20374

If you have any questions, please contact Ms. Lubetski at (202) 685-8479.

Sincerely,



MATTHEW R. KLIMOSKI, P.E.
Environmental Division Director
By direction of the Commanding Officer

Enclosures: 1. Map of Proposed Action Alternatives
2. Draft EA for the Center for Cyber Security Studies
United States Naval Academy, Annapolis, Maryland

Copies to:
Anna Lubetski, NAVFAC Washington



Map of Proposed Action Alternatives

Enclosure (1)



Martin O'Malley, Governor
Anthony G. Brown, Lt. Governor
Joseph P. Gill, Secretary
Frank W. Dawson III, Deputy Secretary

September 17, 2014

Matthew Klimoski
Department of the Navy
58 Bennion Road
Annapolis, MD 21402

RE: Environmental Review for EA for proposed construction and operation of new Center for Cyber Security Studies, and supporting parking garage at US Naval Academy, Annapolis, Anne Arundel County, MD.

Dear Mr. Klimoski:

The Wildlife and Heritage Service has determined that there are no State or Federal records for rare, threatened or endangered species within the boundaries of the project site as delineated. As a result, we have no specific comments or requirements pertaining to protection measures at this time. This statement should not be interpreted however as meaning that rare, threatened or endangered species are not in fact present. If appropriate habitat is available, certain species could be present without documentation because adequate surveys have not been conducted.

Thank you for allowing us the opportunity to review this project. If you should have any further questions regarding this information, please contact me at (410) 260-8573.

Sincerely,

A handwritten signature in black ink that reads "Lori A. Byrne".

Lori A. Byrne,
Environmental Review Coordinator
Wildlife and Heritage Service
MD Dept. of Natural Resources

ER# 2014.1362.aa

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From: [Koppie, Craig](#)
To: [Lubetski, Anna M CIV NAVFAC Washington](#)
Subject: Re: EA for the Center for Cyber Security Studies at the USNA
Date: Friday, February 20, 2015 13:39:40

Ms. Anna Lubetski,

You are correct, the U.S. Fish and Wildlife Service has no comments on the proposed project (Center for Cyber Security Studies) at the United States Naval Academy. Thank you for using the IPAC review system.

On Thu, Feb 19, 2015 at 1:05 PM, Lubetski, Anna M CIV NAVFAC Washington <anna.lubetski@navy.mil> wrote:

Mr. Koppie,

I am contacting you to follow-up on the attached letter that was sent to your office on 3 September 2014 regarding the Environmental Assessment for the Center for Cyber Security Studies at the United States Naval Academy in Annapolis, Maryland. Since we have not received a response from your office, we wanted to confirm you had no comments on the proposed project. If you have additional questions, or to confirm you have no comments, please contact me by 26 February 2015.

V/R,
Anna

Anna Lubetski
Natural Resources Specialist
NAVFAC Washington
1314 Harwood Street SE
Bldg 212
Washington Navy Yard
Washington, DC 20374
[P] 202.685.8479
[F] 202.685.0615
[DSN] 325.8479
anna.lubetski@navy.mil

—
Craig Koppie
Eagle/Raptor Biologist
U.S. Fish and Wildlife Service
Chesapeake Bay Field Office
177 Admiral Cochrane Drive
Annapolis, MD 21401

Craig_Koppie@fws.gov
410/573-4534

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DEPARTMENT OF THE NAVY
NAVAL SUPPORT ACTIVITY ANNAPOLIS
58 BENNION ROAD
ANNAPOLIS MD 21402

IN REPLY REFER TO
5090
Ser ENV-109
September 3, 2014

Maryland State Clearinghouse
Maryland Department of Planning
301 West Preston Street, Suite 1101
Baltimore, Maryland 21201
Attn: Linda Janey

Dear Ms. Janey:

SUBJECT: CENTER FOR CYBER SECURITY STUDIES, UNITED STATES NAVAL
ACADEMY, ANNAPOLIS, MARYLAND

In accordance with the National Environmental Policy Act, the U.S. Department of the Navy is preparing an Environmental Assessment (EA) to evaluate the potential effects associated with the proposed construction and operation of a new Center for Cyber Security Studies (CCSS) and supporting parking garage at the United States Naval Academy (USNA) in Annapolis, Maryland. The CCSS would provide dedicated and secure space for the new cyber curriculum at the USNA, and the parking garage would replace the loss of parking for construction of the CCSS building on an existing parking lot, provide additional parking for CCSS staff, and improve the existing parking deficit at the USNA.

The proposed action includes constructing a new, approximately 206,000 square foot, multistory building and a multilevel concrete parking garage on the USNA installation. Project construction would begin in early or mid-2015 with the parking garage. Construction of the CCSS building would begin after the parking garage is completed and would take approximately two years, beginning in late 2016 and finishing in late 2018.

As part of the EA process, the Navy respectfully submits the Draft EA for distribution through the Maryland State Clearinghouse for coordinated review and comment. Enclosed are nine (9) electronic copies and one (1) hard copy of the Draft EA to facilitate distribution of this document for review and comment to the following agencies:

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Ser ENV-109
September 3, 2014

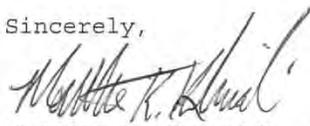
- Maryland Department of Planning (1 copy for review, 1 hard copy for recordkeeping);
- Maryland Department of the Environment (1 copy);
- Maryland Department of Natural Resources (1 copy);
- Maryland Department of Transportation (1 copy);
- Maryland Historical Trust (1 copy);
- City of Annapolis (1 copy); and
- Additional electronic copies (3 copies).

Please provide review comments no later than 60 days from receipt of this letter. Advance notification of significant concerns would also be greatly appreciated. Please direct all written correspondence to:

Naval Facilities Engineering Command Washington
ATTN: Anna Lubetski, Environmental
1314 Harwood Street, SE, Building 212
Washington, DC 20374

For more information, please contact Ms. Lubetski at (202) 685-8479, or e-mail at anna.lubetski@navy.mil. Thank you for your assistance in this matter.

Sincerely,



MATTHEW R. KLIMOSKI, P.E.
Environmental Division Director
By direction of the Commanding Officer

Enclosure: Draft EA for the Center for Cyber Security Studies
United States Naval Academy, Annapolis, Maryland

Copies to:
Anna Lubetski, NAVFAC Washington



September 10, 2014

Ms. Anna Lubetski
Environmental, Naval Facilities Engineering Command Washington
Department of the Navy
1314 Harwood Street, SE, Building 212
Washington, DC 20374

STATE CLEARINGHOUSE REVIEW PROCESS

State Application Identifier: MD20140910-0737
Reply Due Date: 10/25/2014
Project Description: Draft Environmental Assessment for the Center for Cyber Security Studies, United States
Naval Academy, Annapolis, Maryland
Project Location: Anne Arundel County
Clearinghouse Contact: Nasrin Rahman

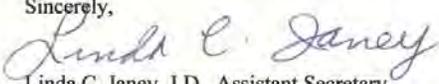
Dear Ms. Lubetski:

Thank you for submitting your project for intergovernmental review. Your participation in the Maryland Intergovernmental Review and Coordination (MIRC) process helps to ensure that your project will be consistent with the plans, programs, and objectives of State agencies and local governments.

We have forwarded your project to the following agencies and/or jurisdictions for their review and comments: the Maryland Department(s) of Natural Resources, the Environment, Transportation, Annapolis and the Maryland Department of Planning, including the Maryland Historical Trust. A composite review and recommendation letter will be sent to you by the reply due date. Your project has been assigned a unique State Application Identifier that you should use on all documents and correspondence.

Please be assured that we will expeditiously process your project. The issues resolved through the MIRC process enhance the opportunities for project funding and minimize delays during project implementation.

If you need assistance or have questions, contact the State Clearinghouse staff noted above at 410-767-4490 or through e-mail at nasrin.rahman@maryland.gov. Thank you for your cooperation with the MIRC process.

Sincerely,

Linda C. Janey, J.D., Assistant Secretary

P.S. The Clearinghouse is pleased to announce that we have created an online "User Survey" for your convenience. For more information, go to: <http://is.gd/Tq4YFm>. We appreciate your feedback. Thank you.

LCJ:NR
14-0737_NRR.NEW.doc

Martin O'Malley, Governor
Anthony G. Brown, Lt. Governor

Richard Eberhart Hall, AICP Secretary
Amanda Stakem Conn, Esq., Deputy Secretary

301 West Preston Street • Suite 1101 • Baltimore • Maryland • 21201
Tel. 410.767.4500 • Toll Free 1.877.767.6272 • TTY users: Maryland Relay • Planning.Maryland.gov

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Maryland Department of Planning

Sustainable — Attainable

October 30, 2014

Ms. Anna Lubetski
Environmental, Naval Facilities Engineering Command Washington
Department of the Navy
1314 Harwood Street, SE, Building 212
Washington, DC 20374

STATE CLEARINGHOUSE REVIEW – ADDITIONAL INFORMATION REQUEST

State Application Identifier: MD20140910-0737

New Reply Due Date: 11/05/2014

Project Description: Draft Environmental Assessment for the Center for Cyber Security Studies, United States Naval Academy, Annapolis, Maryland

Project Location: Anne Arundel County
Clearinghouse Contact: Nasrin Rahman

Dear Ms. Lubetski:

The State Clearinghouse received the following request for additional information: The Department of Natural Resources (DNR) requested the following:

DNR is the administrative lead for the Maryland Coastal Program, a network of several agencies. Elder Ghigiarellie, Maryland Department of Environment (MDE) and others at MDE are funded through grants that DNR gets from the National Oceanic and Atmospheric Administration (NOAA). Elder (Gidge) is the Maryland Coastal Program Federal Consistency Coordinator. The Critical Area Commission, also a network partner of the Maryland Coastal Program (and to some extent is affiliated with DNR). This letter, which was crafted by Lisa and Gidge, conveys the Maryland Coastal Program position (and DNR's position) on this project by:

A. Identifying missing information:

1. No preferred option is identified, and
2. Details on how the preferred alternative would be consistent to maximum extent practicable with enforceable Critical Area policies (a subset of the MD enforceable policies) and

B. Describing concerns about potential resource impacts that are of concern to the State of Maryland, especially as they relate to Critical Area policies:

1. Addressing the 10% Pollutant Reduction Calculation;
2. Providing replanting at a 1:1 ratio for any clearing required within 1,000-feet of Maryland's tidal waters or vegetated tidal wetlands; and
3. Providing offsets in the form of planting for any new development activities that occur within 100-feet of

Martin O'Malley, Governor
Anthony G. Brown, Lt. Governor

Richard Eberhart Hall, AICP, Secretary
Amanda Stakem Conn, Esq., Deputy Secretary

301 West Preston Street - Suite 1101 - Baltimore - Maryland - 21201
Tel: 410.767.4500 - Toll Free: 1.877.767.6272 - TTY users: Maryland Relay - Planning.Maryland.gov

Ms. Anna Lubetski
Page 2
State Application Identifier #: MD20140910-0737

tidal waters or vegetated tidal wetlands.

The Department of Natural Resources concurs with the above points and the attached letter. DNR has no further comments to provide other than what is expressed in this letter (attached for easy reference).

Finally, in addition to MD Clearinghouse reviews, my job is to advance the use of Federal Consistency (i.e. a process that ensure projects are consistent with the enforceable policies of the MD Coastal Program) which includes updating, clarifying and making publicly accessible Maryland's enforceable policies.

If you have any questions or need further clarification please call Joe Abe at [443-690-5176](tel:443-690-5176).

This request will require an extension of the initial review period. The new reply date is noted above.

The Clearinghouse will strive to expeditiously conclude this review and may do so before the new reply date, if at all possible. We request your assistance in providing the additional information requested as soon as possible, either to the Clearinghouse or directly to the requesting party. We would appreciate a copy of any correspondence sent directly to the requesting party.

If you need assistance or have questions, contact the State Clearinghouse staff person noted above at 410-767-4490 or through e-mail at nasrin.rahman@maryland.gov. Your cooperation and attention to the review process is appreciated.

Sincerely,



Linda C. Janey, J.D., Assistant Secretary

LCJ:NR
Enclosure (Information Request)
cc. Joe Abe

14-0737_ORAI.OTH.doc



Sustainable _____ Attainable

November 18, 2014

Ms. Anna Lubetski
Environmental, Naval Facilities Engineering Command Washington
Department of the Navy
1314 Harwood Street, SE, Building 212
Washington, DC 20374

STATE CLEARINGHOUSE RECOMMENDATION

State Application Identifier: MD20140910-0737

Applicant: Department of the Navy

Project Description: Draft Environmental Assessment for the Center for Cyber Security Studies, United States Naval Academy, Annapolis, Maryland

Project Location: Anne Arundel County

Approving Authority: U.S. Department of Defense DOD/NAVY

Recommendation: Consistent with Qualifying Comment(s) and Contingent Upon Certain Action(s)

Dear Ms. Lubetski:

In accordance with Presidential Executive Order 12372 and Code of Maryland Regulation 34.02.01.04-.06, the State Clearinghouse has coordinated the intergovernmental review of the referenced project. This letter, with attachments, constitutes the State process review and recommendation based upon comments received to date. This recommendation is valid for a period of three years from the date of this letter.

Review comments were requested from the Maryland Department(s) of Natural Resources, Transportation, the Environment, City of Annapolis and the Maryland Department of Planning, including the Maryland Historical Trust. As of this date, City of Annapolis has not submitted comments. This recommendation is contingent upon the applicant considering and addressing any problems or conditions that may be identified by their review. Any comments received will be forwarded.

The Maryland Department(s) of Transportation, Environment and the Maryland Department of Planning found this project to be generally consistent with their plans, programs and objectives, but included certain qualifying comments summarized below.

The Department of Transportation stated that "as far as can be determined at this time, the subject has no unacceptable impacts on plans or programs."

The Maryland Department(s) of Environment comments are as follows:

1. Construction, renovation and/or demolition of buildings and roadways must be performed in conformance with State regulations pertaining to "Particulate Matter from Materials Handling and Construction" (COMAR 26.11.06.03D), requiring that during any construction and/or demolition work, reasonable precaution must be taken to prevent particulate

Martin O'Malley, Governor
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Richard Eberhart Hall, AICP, Secretary
Amanda Stakem Conn, Esq., Deputy Secretary

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Ms. Anna Lubetski
November 18, 2014
Page 2
State Application Identifier: **MD20140910-0737**

matter, such as fugitive dust, from becoming airborne.

2. In Maryland, there are specific performance standards and/or emission rates which must be met when installing boilers or other equipment capable of producing emissions. Prior to installing any of this type equipment, the applicant is requested to obtain a construction and/or operating permit from MDE's Air and Radiation Management Administration. In addition, a review for toxic air pollutants may need to be performed. Please contact the New Source Permits Division, Air and Radiation Management Administration at (410) 537-3230 to learn about the State's requirements and the permitting processes for such equipment.

3. During the duration of the project, soil excavation/grading/site work will be performed; there is a potential for encountering soil contamination. If soil contamination is present, a permit for soil remediation is required from MDE's Air and Radiation Management Administration. Please contact the New Source Permits Division, Air and Radiation Management Administration at (410) 537-3230 to learn about the State's requirements for these permits.

4. Any above ground or underground petroleum storage tanks, which may be utilized, must be installed and maintained in accordance with applicable State and federal laws and regulations. Underground storage tanks must be registered and the installation must be conducted and performed by a contractor certified to install underground storage tanks by the Land Management Administration in accordance with COMAR 26.10. Contact the Oil Control Program at (410) 537-3442 for additional information.

5. If the proposed project involves demolition – Any above ground or underground petroleum storage tanks that may be on site must have contents and tanks along with any contamination removed. Please contact the Oil Control Program at (410) 537-3442 for additional information.

6. Any solid waste including construction, demolition and land clearing debris, generated from the subject project, must be properly disposed of at a permitted solid waste acceptance facility, or recycled if possible. Contact the Solid Waste Program at (410) 537-3315 for additional information regarding solid waste activities and contact the Waste Diversion and Utilization Program at (410) 537-3314 for additional information regarding recycling activities.

7. Additional comments from the Science Services Administration are attached.

The Maryland Department(s) of Natural Resources and the Maryland Historical Trust stated that their finding(s) of consistency is/are contingent upon the applicant taking the action(s) summarized below.

The Maryland Department of Natural Resources Review included coordination with the Maryland Department of Environment (MDE) and the Critical Area Commission. For the comment letter please see attachment.

The Maryland Department of Planning supports the comments provided by the Maryland Historical Trust.

The Maryland Historical Trust (MHT) stated that the Navy is consulting with the MHT to assess the effects of the proposed project on the US Naval Academy Historic District, a National Historic Landmark. The Navy and the Trust are developing a Programmatic Agreement that will specify measures to avoid, minimize and mitigate any adverse effects of the project on the historic district, pursuant to Section 106 of the National Historic Preservation Act. The Navy should incorporate the PA as part of the final EA for this project.

Ms. Anna Lubetski
November 18, 2014
Page 3
State Application Identifier: **MD20140910-0737**

Any statement of consideration given to the comments(s) should be submitted to the approving authority, with a copy to the State Clearinghouse. The State Application Identifier Number must be placed on any correspondence pertaining to this project. The State Clearinghouse must be kept informed if the approving authority cannot accommodate the recommendation.

Please remember, you must comply with all applicable state and local laws and regulations. If you need assistance or have questions, contact the State Clearinghouse staff person noted above at 410-767-4490 or through e-mail at nasrin.rahman@maryland.gov. **Also please complete the attached form and return it to the State Clearinghouse as soon as the status of the project is known. Any substitutions of this form must include the State Application Identifier Number. This will ensure that our files are complete.**

Thank you for your cooperation with the MIRC process.

Sincerely,



Linda C. Janey, J.D., Assistant Secretary

LCJ:NR
Enclosure(s)
cc:

Tina Quinichette - MDOT
Amanda Degen - MDE

Greg Golden - DNR
Mayor - ANNAPO

John Leocha/LaVerne Gray -
MDPLR&WC

Peter Conrad - MDPL
Beth Cole - MHT

14-0737_CRR.CLS.doc

Draft Environmental Assessment for the Center for Cyber Security Studies,
United States Naval Academy, Annapolis, Maryland
Maryland Department of the Environment - Science Services Administration

REVIEW FINDING: R1 Consistent with Qualifying Comments
(MD20140910-0737)

The following additional comments are intended to alert interested parties to issues regarding water quality standards. The comments address:

A. Water Quality Impairments: Section 303(d) of the federal Clean Water Act requires the State to identify impaired waters and establish Total Maximum Daily Loads (TMDLs) for the substances causing the impairments. A TMDL is the maximum amount of a substance that can be assimilated by a waterbody such that it still meets water quality standards.

Planners should be aware of existing water quality impairments identified on Maryland's 303(d) list. The Project is situated in the Severn River watershed, identified by the MD 8-digit code 02131002, which is currently impaired by several substances and subject to regulations regarding the Clean Water Act.

Planners may find a list of nearby impaired waters by entering the 8-digit basin code into an on-line database linked to the following URL:
<http://www.mde.state.md.us/programs/Water/TMDL/Integrated303dReports/Pages/303d.aspx>.

This list is updated every even calendar year. Planners should review this list periodically to help ensure that local decisions consider water quality protection and restoration needs. **Briefly, the current impairments that are relevant to the Project include the following:**

Severn River (02131002):

Nutrients:	Tidal. A TMDL was written and approved by EPA.
Sediments:	Tidal. A TMDL was written and approved by EPA.
Biological:	Tidal, Non-tidal. A TMDL is pending development.
Bacteria:	Tidal. A TMDL was written and approved by EPA.
PCB:	Tidal. A TMDL is pending development.

B. TMDLs: Development and implementation of the any Plan should take into account consistency with TMDLs developed for the impaired waterbodies referenced above. Decisions made prior to the development of a TMDL should strive to ensure no net increase of impairing substances. TMDLs are made available on an updated basis at the following web site:

<http://www.mde.state.md.us/programs/Water/TMDL/CurrentStatus/Pages/Programs/WaterPrograms/TMDL/Sumittals/index.aspx>

Special protections for high-quality waters in the local vicinity, which are identified pursuant to Maryland's anti-degradation policy;

C. Anti-degradation of Water Quality: Maryland requires special protections for waters of very high quality (Tier II waters). The policies and procedures that govern these special waters are commonly called "anti-degradation policies." This policy states that "proposed amendments to county plans or discharge permits for discharge to Tier II waters that will result in a new, or an increased, permitted annual discharge of pollutants and a potential impact to water quality, shall evaluate alternatives to eliminate or reduce discharges or impacts." These permitted annual discharges are not just traditional Point Sources, it can include all discharges such as Stormwater.

Currently, Tier II waters are not present in the area surrounding the project.

Planners should be aware of legal obligations related to Tier II waters described in the Code of Maryland Regulations (COMAR) 26.08.02.04 with respect to current and future land use plans. Information on Tier II waters can be obtained online at: <http://www.dsd.state.md.us/comar/comarhtml/26/26.08.02.04.htm> and policy implementation procedures are located at <http://www.dsd.state.md.us/comar/comarhtml/26/26.08.02.04-1.htm>

Planners should also note that since the Code of Maryland Regulations is subject to periodic updates. A list of Tier II waters pending Departmental listing in COMAR can be found, with a discussion and maps for each county, at the following website:

<http://www.mde.state.md.us/programs/Water/TMDL/Water%20Quality%20Standards/Pages/HighQualityWatersMap.aspx>

ADDITIONAL COMMENTS

Chesapeake Bay TMDL

With the completion of the Chesapeake Bay TMDL, the Chesapeake Bay Program Office (CBPO) will be able to provide loading data at a more refined scale than in the past. MDE will be able to use the CBPO data to estimate pollution allocations at the jurisdictional level (which will include Federal Facilities) to provide allocations to the Facilities. These allocations, both Wasteload (WLA) and Load Allocation (LA) could call for a reduction in both Point Sources and Nonpoint Sources. Facilities should be aware of reductions and associated implementation required by WIPs or FIPs.

Stormwater

The project should consider all Maryland Stormwater Management Controls. Site Designs should consider all Environmental Site Design to the Maximum Extent Practicable and "Green Building" Alternatives. Designs that reduce impervious surface and BMPs that increase runoff infiltration are highly encouraged.

Further Information:

<http://www.mde.state.md.us/programs/Water/StormwaterManagementProgram/Pages/Programs/WaterPrograms/SedimentandStormwater/swm2007.aspx>

Environmental Site Design (Chapter 5):

<http://www.mde.state.md.us/programs/Water/StormwaterManagementProgram/MarylandStormwaterDesignManual/Documents/www.mde.state.md.us/assets/document/chapter5.pdf>

Redevelopment Regulations:

<http://www.dsd.state.md.us/comar/comarhtml/26/26.17.02.05.htm>



Martin O'Malley
Governor
Anthony G. Brown
Lt. Governor



Margaret G. McHale
Chair
Ren Serey
Executive Director

**STATE OF MARYLAND
CRITICAL AREA COMMISSION
CHESAPEAKE AND ATLANTIC COASTAL BAYS**
1804 West Street, Suite 100, Annapolis, Maryland 21401
(410) 260-3460 Fax: (410) 974-5338
www.dnr.state.md.us/criticalarea/

October 6, 2014

Mr. Matthew Klimoski
Environmental Division Director
PWD Annapolis (USNA)
181 Wainwright Rd MS21A
Annapolis, MD 21402

Re: 5090
Ser ENV-111
Center for Cyber Security Studies, USNA
Annapolis, Maryland

Dear Mr. Klimoski:

Thank you for providing the Navy's Federal Consistency Determination, pursuant to Section 307 of the Federal Coastal Zone Management Act of 1972, as amended (CZMA), and the Environmental Assessment for above-referenced project. From the information provided, it appears all site alternatives for the proposed building and proposed parking are within 1,000-feet of Maryland's tidal waters/wetlands. Since every alternative includes major construction activities and will result in significant lot coverage that will generate large amounts of stormwater runoff, the alternatives under consideration will have spillover effects on Maryland's coastal zone and its resources.

Based on the information provided, the State cannot concur with the Navy's determination at this time for any of the proposed alternatives due to the following:

- 1) A preferred alternative has not been selected; and
- 2) The explanation for how an alternative would meet the Critical Area policies to the maximum extent practicable was not provided in any detail.

When the Navy selects its preferred alternative for siting the building and the parking lot, please request the State's concurrence with the Navy's consistency determination for that alternative. Please note that consistency, to the maximum extent practicable, with the State's Critical Area policies for this proposal would entail the following:

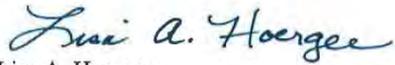
- 1) Addressing the 10% Pollutant Reduction Calculation;
- 2) Providing replanting at a 1:1 ratio for any clearing required within 1,000-feet of Maryland's tidal waters or vegetated tidal wetlands; and
- 3) Providing offsets in the form of planting for any new development activities that occur within 100-feet of tidal waters or vegetated tidal wetlands.

TTY for the Deaf
Annapolis: (410) 974-2609 D.C. Metro: (301) 586-0450

Mr. Klimoski
Page Two
October 6, 2014

Thank you for the opportunity to provide comments on this project. Please do not hesitate to contact me at (410) 260-3478 if you have any questions.

Sincerely,



Lisa A. Hoerger
Regulations and Mapping Coordinator

cc: Mr. Elder Ghigiarelli



Sustainable _____ Attainable

PROJECT STATUS FORM

Please complete this form and return it to the State Clearinghouse upon receipt of notification that the project has been approved or not approved by the approving authority.

TO: Maryland State Clearinghouse
 Maryland Department of Planning
 301 West Preston Street
 Room 1104
 Baltimore, MD 21201-2305

DATE: _____
 (Please fill in the date form completed)

FROM: _____
 (Name of person completing this form.)

PHONE: _____
 (Area Code & Phone number)

RE: State Application Identifier: MD20140910-0737
Project Description: Draft Environmental Assessment for the Center for Cyber Security Studies,
 United States Naval Academy, Annapolis, Maryland

PROJECT APPROVAL	
This project/plan was:	<input type="checkbox"/> Approved <input type="checkbox"/> Approved with Modification <input type="checkbox"/> Disapproved
Name of Approving Authority:	Date Approved:
_____	_____

FUNDING APPROVAL	
<i>The funding (if applicable) has been approved for the period of:</i>	
_____, 201__ to _____, 201__ as follows:	
Federal \$:	Local \$: State \$: Other \$:
_____	_____

OTHER
<input type="checkbox"/> Further comment or explanation is attached

Martin O'Malley, Governor
 Anthony G. Brown, Lt. Governor

Richard Eberhart Hall, AICP, Secretary
 Amanda Stakern Conn, Esq., Deputy Secretary

MDPCH-1F

301 West Preston Street - Suite 1101 - Baltimore - Maryland - 21201
 Tel: 410.767.4500 - Toll Free: 1.877.767.6272 - TTY users: Maryland Relay - Planning.Maryland.gov



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December 5, 2014

Ms. Anna Lubetski
Environmental, Naval Facilities Engineering Command Washington
Department of the Navy
1314 Harwood Street, SE, Building 212
Washington, DC 20374

STATE CLEARINGHOUSE REVIEW PROCESS

State Application Identifier: MD20141204-0922

Reply Due Date: 01/14/2015

Project Description: Federal Coastal Consistency Determination (Revised - November 2014): Center for Cyber Security Studies, United States Naval Academy, Annapolis, Maryland (Prior: MD20140910-0737)

Project Location: Anne Arundel County

Clearinghouse Contact: Nasrin Rahman

Dear Ms. Lubetski:

Thank you for submitting your project for intergovernmental review. Your participation in the Maryland Intergovernmental Review and Coordination (MIRC) process helps to ensure that your project will be consistent with the plans, programs, and objectives of State agencies and local governments.

We have forwarded your project to the following agencies and/or jurisdictions for their review and comments: the Maryland Department(s) of Transportation, the Environment, Natural Resources, Anne Arundel County and the Maryland Department of Planning, including the Maryland Historical Trust. A composite review and recommendation letter will be sent to you by the reply due date. Your project has been assigned a unique State Application Identifier that you should use on all documents and correspondence.

Please be assured that we will expeditiously process your project. The issues resolved through the MIRC process enhance the opportunities for project funding and minimize delays during project implementation.

If you need assistance or have questions, contact the State Clearinghouse staff noted above at 410-767-4490 or through e-mail at nasrin.rahman@maryland.gov. Thank you for your cooperation with the MIRC process.

Sincerely,

Linda C. Janey, J.D., Assistant Secretary

LCJ:NR
14-0922_NRR.NEW.doc

Martin O'Malley, Governor
Anthony G. Brown, Lt. Governor

Richard Eberhart Hall, AICP, Secretary
Amanda Stakem Conn, Esq., Deputy Secretary

301 West Preston Street - Suite 1101 - Baltimore - Maryland - 21201
Tel: 410.767.4500 - Toll Free: 1.877.767.6272 - TTY users: Maryland Relay - Planning.Maryland.gov

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January 27, 2015

Ms. Anna Lubetski
Environmental, Naval Facilities Engineering Command Washington
Department of the Navy
1314 Harwood Street, SE, Building 212
Washington, DC 20374

STATE CLEARINGHOUSE RECOMMENDATION

State Application Identifier: MD20141204-0922

Applicant: Department of the Navy

Project Description: Federal Coastal Consistency Determination (Revised - November 2014): Center for Cyber Security Studies, United States Naval Academy, Annapolis and Maryland (Prior: MD20140910-0737)

Project Location: Anne Arundel County

Approving Authority: U.S. Department of Defense DOD/NAVY

Recommendation: Consistent with Qualifying Comment(s) and Contingent Upon Certain Action(s)

Dear Ms. Lubetski:

In accordance with Presidential Executive Order 12372 and Code of Maryland Regulation 34.02.01.04-.06, the State Clearinghouse has coordinated the intergovernmental review of the referenced project. This letter constitutes the State process review and recommendation. This recommendation is valid for a period of three years from the date of this letter.

Review comments were requested from the Maryland Department(s) of Natural Resources, Transportation, the Environment, the Maryland Department of Planning, including the Maryland Historical Trust, and Anne Arundel County.

Anne Arundel County and the Maryland Department of Planning found this project to be consistent with their plans, programs and objectives.

The Maryland Department(s) of Transportation and Environment found this project to be generally consistent with their plans, programs and objectives, but included certain qualifying comments summarized below.

The Department of Transportation stated that "as far as can be determined at this time, the subject has no unacceptable impacts on plans or programs."

The Maryland Department Environment (MDE) stated the following:

1. Any above ground or underground petroleum storage tanks, which may be utilized, must be installed and maintained in accordance with applicable State and federal laws and regulations. Underground storage tanks must be registered and the installation must be conducted and performed by a contractor certified to install underground storage tanks by the Land Management Administration in accordance with COMAR 26.10. Contact the Oil Control Program at (410) 537-3442 for additional information.

Lawrence J. Hogan, Jr., Governor
Boyd K. Rutherford, Lt. Governor

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Tel: 410.767.4500 - Toll Free: 1.877.767.6272 - TTY users: Maryland Relay - Planning.Maryland.gov

Ms. Anna Lubetski

January 27, 2015

Page 2

State Application Identifier: **MD20141204-0922**

2. If the proposed project involves demolition – Any above ground or underground petroleum storage tanks that may be on site must have contents and tanks along with any contamination removed. Please contact the Oil Control Program at (410) 537-3442 for additional information.

3. Any solid waste including construction, demolition and land clearing debris, generated from the subject project, must be properly disposed of at a permitted solid waste acceptance facility, or recycled if possible. Contact the Solid Waste Program at (410) 537-3315 for additional information regarding solid waste activities and contact the Waste Diversion and Utilization Program at (410) 537-3314 for additional information regarding recycling activities.

4. The Waste Diversion and Utilization Program should be contacted directly at (410) 537-3314 by those facilities which generate or propose to generate or handle hazardous wastes to ensure these activities are being conducted in compliance with applicable State and federal laws and regulations. The Program should also be contacted prior to construction activities to ensure that the treatment, storage or disposal of hazardous wastes and low-level radioactive wastes at the facility will be conducted in compliance with applicable State and federal laws and regulations.

The Maryland Department(s) of Natural Resources and the Maryland Historical Trust stated that their finding(s) of consistency is/are contingent upon the applicant taking the action(s) summarized below.

The Maryland Historical Trust (MHT) stated that the Navy is consulting with MHT and other involved parties to complete the projects Section 106 review and resolve its effects on historic properties through the development and implementation of a Programmatic Agreement. Execution and implementation of the Programmatic Agreement will fulfill the Navy's historic preservation responsibilities under Section 106 of the National Historic Preservation Act.

The Maryland Department of Natural Resources (DNR) stated the following:

The Navy has selected Alternative 1A – Waffle Lot for construction of the Center for Cyber Security Studies (CCSS) Building and Alternative 2A – Alumni Hall Lot for construction of the parking garage. These sites are directly adjacent to Maryland's Coastal Zone. Specifically, both sites are within 1,000-feet of Maryland's Coastal Zone and will have spillover effects on Maryland's coastal zone and its resources.

Based on communication among Critical Area Commission, DNR and MDE staff, DNR cannot concur at this time with the determination made by the Navy that both sites will be consistent to the maximum extent practicable. The principle reasons are:

1) The 10% Pollutant Reduction Calculation was not provided which would show consistency with this Critical Area stormwater management policy to the maximum extent practicable;

2) Planting or other types of offsets were not shown for the new development activities that will occur within 100-feet of Maryland's Coastal Zone. Please provide a landscape plan that can provide sufficient documentation that locating a building within 100-feet of the State's Coastal Zone is consistent to the maximum extent practicable with this Critical Area policy.

The Maryland Department of Natural Resources is requesting to provide the necessary information described above to support a timely concurrence by the Maryland Coastal Program on this important project.

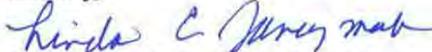
Ms. Anna Lubetski
January 27, 2015
Page 3
State Application Identifier: MD20141204-0922

Any statement of consideration given to the comments(s) should be submitted to the approving authority, with a copy to the State Clearinghouse. The State Application Identifier Number must be placed on any correspondence pertaining to this project. The State Clearinghouse must be kept informed if the approving authority cannot accommodate the recommendation.

Please remember, you must comply with all applicable state and local laws and regulations. If you need assistance or have questions, contact the State Clearinghouse staff person noted above at 410-767-4490 or through e-mail at nasrin.rahman@maryland.gov. **Also please complete the attached form and return it to the State Clearinghouse as soon as the status of the project is known. Any substitutions of this form must include the State Application Identifier Number. This will ensure that our files are complete.**

Thank you for your cooperation with the MIRC process.

Sincerely,



Linda C. Janey, J.D., Assistant Secretary

LCJ:NR
cc:

Tina Quinichette - MDOT
Amanda Degen - MDE

Greg Golden - DNR
Debra Falconer - ANAR

John Leocha/LaVerne Gray -
MDPLR&WC

Peter Conrad - MDPL
Beth Cole - MHT

14-0922_CRR.CLS.doc



Sustainable _____ Attainable _____

PROJECT STATUS FORM

Please complete this form and return it to the State Clearinghouse upon receipt of notification that the project has been approved or not approved by the approving authority.

TO: Maryland State Clearinghouse
 Maryland Department of Planning
 301 West Preston Street
 Room 1104
 Baltimore, MD 21201-2305

DATE: _____
 (Please fill in the date form completed)

FROM: _____
 (Name of person completing this form.)

PHONE: _____
 (Area Code & Phone number)

RE: State Application Identifier: MD20141204-0922
Project Description: Federal Coastal Consistency Determination (Revised - November 2014): Center for Cyber Security Studies, United States Naval Academy, Annapolis, Maryland (Prior: MD20140910-0737)

PROJECT APPROVAL	
This project/plan was:	<input type="checkbox"/> Approved <input type="checkbox"/> Approved with Modification <input type="checkbox"/> Disapproved
Name of Approving Authority:	Date Approved:
_____	_____

FUNDING APPROVAL			
The funding (if applicable) has been approved for the period of:			
_____ , 201__ to _____ , 201__ as follows:			
Federal \$:	Local \$:	State \$:	Other \$:
_____	_____	_____	_____

OTHER
<input type="checkbox"/> Further comment or explanation is attached

Lawrence J. Hogan, Jr., Governor
 Boyd K. Rutherford, Lt. Governor

MDPCH-1F

301 West Preston Street - Suite 1101 - Baltimore - Maryland - 21201
 Tel: 410.767.4500 - Toll Free: 1.877.767.6272 - TTY users: Maryland Relay - Planning.Maryland.gov



DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND WASHINGTON
1314 HARWOOD STREET SE
WASHINGTON NAVY YARD DC 20374-5018

IN REPLY REFER TO
5090
Ser ENV/110-14

Mr. Rodney Little
Director
Maryland Historical Trust
100 Community Place
Crownsville, Maryland 21032-2023

Attn: Ms. Amanda Apple

SUBJECT: REQUEST FOR SECTION 106 CONSULTATION - CENTER FOR CYBER
SECURITY STUDIES, UNITED STATES NAVAL ACADEMY

Dear Mr. Little:

NAVFAC Washington wishes to formally initiate Section 106 consultation for a new Center for Cyber Security Studies and associated parking garage to be located on the United States Naval Academy campus. A feasibility study was completed, and an Environmental Assessment is ongoing to determine all potential environmental impacts (see Enclosure 1). At this time, NAVFAC Washington can provide information on construction sites, structural massing and envelope design. Navy series letter PW-231 dated November 13, 2012 can be referenced for additional information.

Center for Cyber Security Studies (CCSS) Building

The proposed new academic building will provide dedicated classrooms, laboratories, faculty offices, and secure project areas for the new cyber curriculum. It will alleviate existing space deficiencies in cyber-related academic programs. The new building must be in proximity to the academic and administrative buildings it would serve, thereby limiting possible sites to the Lower Yard of the Academy. The two available spaces within the Lower Yard are the Waffle Lot and the Alumni Hall parking lot (see Enclosure 2).

The preferred site for the new CCSS is the Waffle Lot, which is the waterfront parking lot situated between Nimitz Library and Rickover Hall. This site is in close proximity to existing academic facilities and provides the opportunity for cross-discipline collaboration and direct synergies. The programs in

SUBJ: REQUEST FOR SECTION 106 CONSULTATION - CENTER FOR CYBER SECURITY STUDIES, UNITED STATES NAVAL ACADEMY

Rickover Hall, for example, frequently utilize the cyber curriculum. The Waffle Lot site allows the CCSS to reinforce and be reinforced by the other academic functions on the Lower Yard. Enclosure 3 includes a conceptual rendering and architectural models of proposed massing of a new CCSS building in the Waffle Lot. Note that only one dome would be required.

The alternate location for the new CCSS is the site west of Alumni Hall, known as the Alumni Hall parking lot. This site is not in the immediate vicinity of existing academic facilities and would not provide the same opportunities for close collaboration as the Waffle Lot. Two different footprints were considered for a proposed CCSS on the Alumni Hall parking lot (see Enclosure 4). For the building volume to meet current program needs, the new building would need to be five-to-seven stories in height. That height would not fit with the scale of the architectural context and would have adverse effects on the United States Naval Academy Historic District and Colonial Annapolis Historic District (see Enclosure 5). Avoiding or minimizing the effect by building one or more levels underground was deemed not feasible because the lower levels would be below the water table.

Parking Garage

The purpose of the new parking garage would be to alleviate existing parking shortages on the Upper and Lower Yards and allow for a reasonable amount of growth in the future. The Academy currently has a parking deficit of 156 spaces. With a 10% growth factor applied, the deficit becomes 172 spaces. Parking difficulties are one of the most common complaints about the Academy to the Superintendent. Both proposed CCSS sites are currently surface parking areas. Construction of the new academic building would permanently eliminate 111 spaces on the Waffle Lot or 147 spaces on the Alumni Hall parking lot, bringing the total parking deficit up to 319 spaces. Three sites were considered for the new parking garage: the Alumni Hall parking lot, the Fire House site, and the Lawrence Field site (see Enclosure 2).

The preferred site for the new parking garage is the Alumni Hall parking lot. The Alumni Hall parking lot consists of a lower lot and an upper lot, sited at slightly different elevations. Four designs at this site are under consideration (see Enclosure 6). The Navy wishes to meet mission parking requirements while minimizing visual effects on historic properties.

SUBJ: REQUEST FOR SECTION 106 CONSULTATION - CENTER FOR CYBER SECURITY STUDIES, UNITED STATES NAVAL ACADEMY

One alternative site is adjacent to the Fire House along Bowyer Road in the Upper Yard (across College Creek). Three designs were considered at this site (see Enclosure 7). However, this is not the preferred site because it is prone to flooding. In addition, the new parking garage would primarily be for faculty and staff, and this site is inconveniently distant from most of the campus buildings.

The other alternative site is Lawrence Field, which is located in the Upper Yard south of Halligan Hall. Three designs were considered at this site (see Enclosure 8). However, construction of a parking garage on this site would eliminate the historically open viewshed between Halligan Hall and College Creek. Also, as with the Fire House site, the Lawrence Field site is located an inconvenient distance from most of the campus.

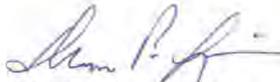
The Navy has contracted to perform Phase I archaeology at the Alumni Hall and Fire House sites. All background research will be completed, and shovel tests will be performed to the extent possible at unpaved locations. The Lawrence Field site was previously surveyed, and the Waffle Lot site is made land.

At this time, the Navy wishes to schedule a meeting with the Maryland Historical Trust in late March. The purpose of the meeting will be to discuss the preferred sites, massing of the buildings, and the affected viewsheds. Consulting parties will be notified of this project as outlined in Chapter X, Section 9 of the ICRMP for Naval Support Activity Annapolis.

If you have any questions or comments, the POC for this project will be Ms. Julie Darsie. She can be reached at (202) 685-1754 or julie.darsie@navy.mil.

SUBJ: REQUEST FOR SECTION 106 CONSULTATION - CENTER FOR CYBER SECURITY STUDIES, UNITED STATES NAVAL ACADEMY

Sincerely,



Thomas P. Lewis
Environmental Business Line
Coordinator
By direction

Enclosures:

- 1) Location of sites under consideration
- 2) View of Preferred CCSS site - Waffle Lot
- 3) Model of proposed Cyber Building at Waffle Lot site
- 4) Volume of proposed Cyber Building at Alumni Hall site
- 5) Height of proposed Cyber Building at Alumni Hall site
- 6) Volume of proposed Parking Garage at Alumni Hall site
- 7) Volume of proposed Parking Garage at Fire House site
- 8) Volume of proposed Parking Garage at Lawrence Field site

Copies to: Advisory Council on Historic Preservation
(Attn: K. Fanizzo)
Preservation Assistance and Heritage Areas, National
Park Service Northeast (Attn: D. Montagna)
Historic Preservation, City of Annapolis
(Attn: L. Craig)

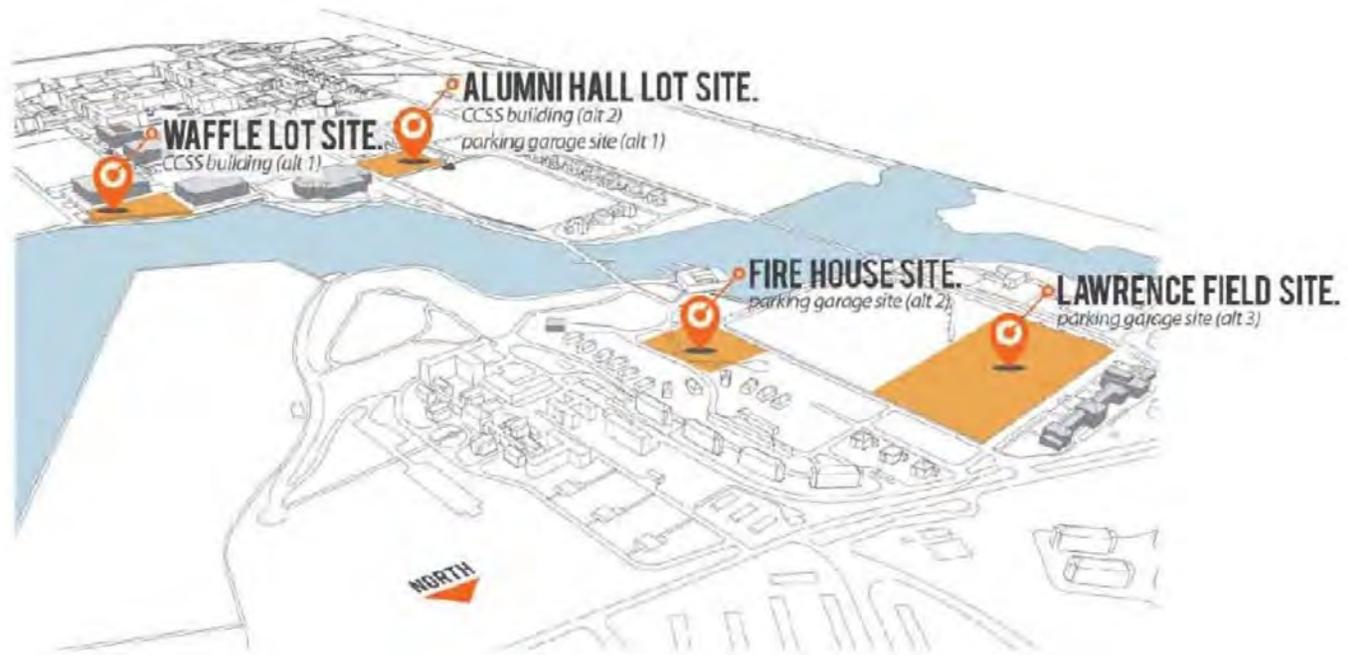
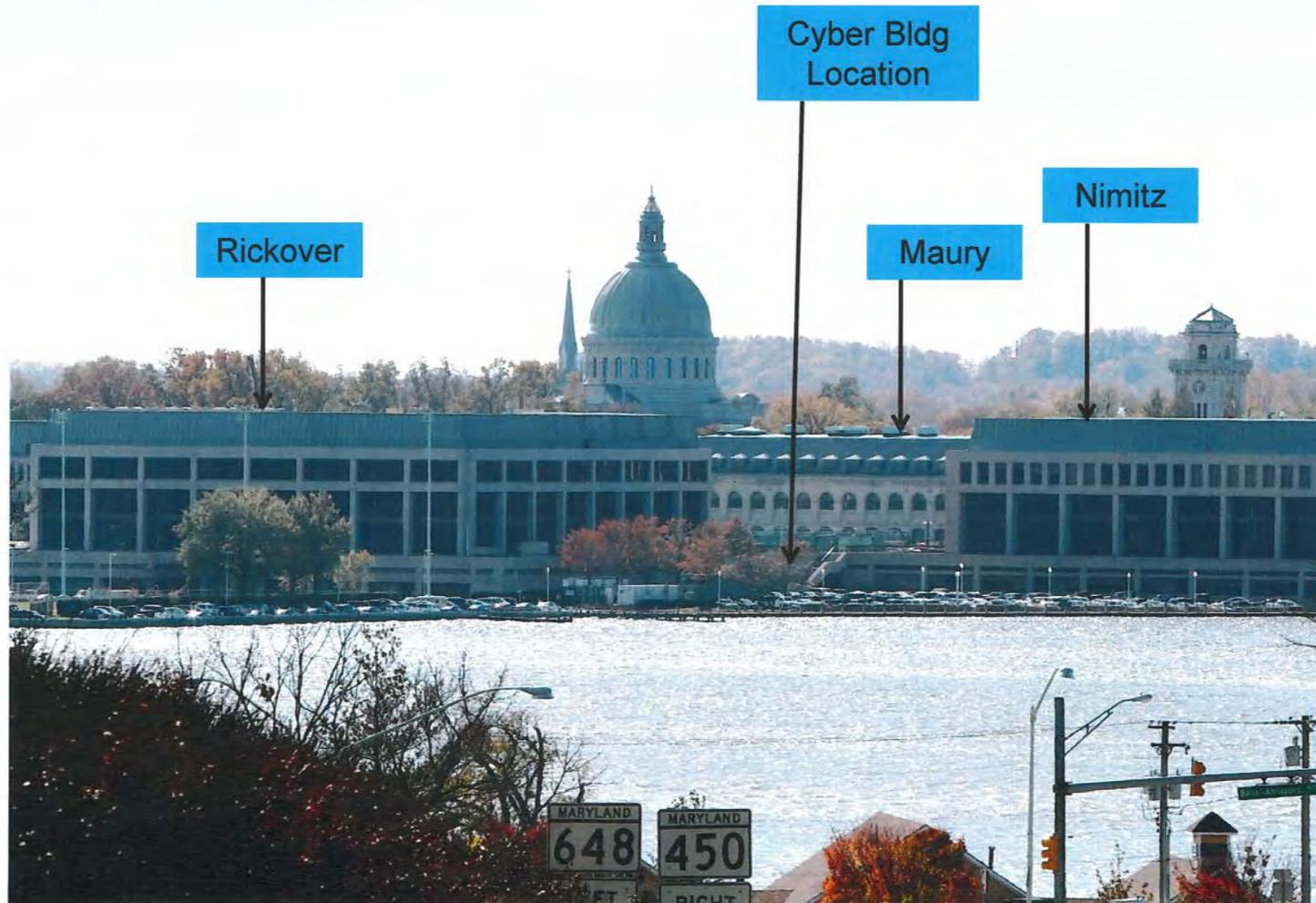


Fig. 1: The sites under consideration

Enclosure 1



Enclosure 2



Fig. 5. Rendering of the proposed Cyber Security Building

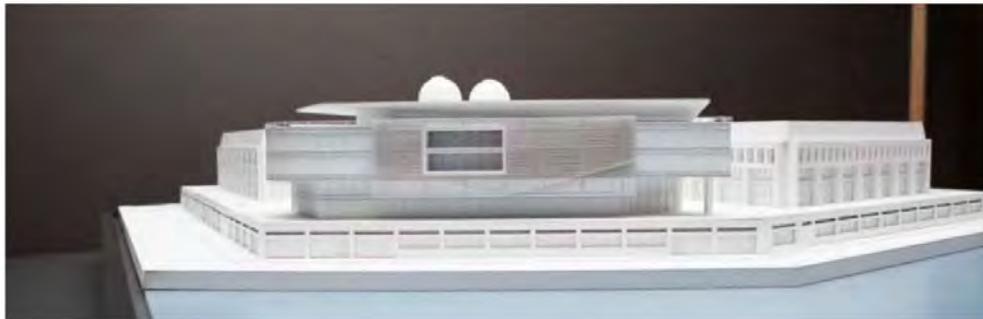


Fig.6. Model of the architectural context of the proposed Cyber Security Building

Enclosure 3



Fig. 7. Model of the proposed Cyber Security Building: view across Rickover Plaza



Fig. 8. Model of the proposed Cyber Security Building: plaza between Cyber Security Building and Rickover

Enclosure 3a



Fig. 5. *Option A*

Option A (Fig. 5) proposes a building with a smaller footprint, which respects the existing alignments and axes.



Fig. 6. *Option B*

Option B (Fig. 6) develops the full site and maximizes the size of the building.

Enclosure 4



Fig 7. Option A results in a building out of scale with the context.



Fig 8. Option B also results in an inappropriately scaled building.



Fig 9. A more appropriately scaled building; insufficiently sized to meet the building program.

Enclosure 5

OPTION A



Fig. 3. Option A



Fig. 4. Option A - Section

Option A is a three level garage with one level below grade. This option develops only the existing lower lot of the proposed site. The parking structure would be entered off of Balch Road, at elevation of 11 feet, outside of the 100-year flood plain. The elevation of the upper parking level would be only 7 feet higher than the upper lot grade. As indicated earlier, because this option incorporates an occupied parking level below an elevation of 10.8 feet, flood-proofing would be required.

Parking space summary: 159 net new spaces

Enclosure 6

OPTION B



Fig. 5 Option B



Fig. 6. Option B - Section

Option B is a three level garage developing both the upper and lower lots. The parking structure would be entered off of Balch Road, at elevation of 11 feet, outside of the 100-year flood plain. The elevation of the upper parking level would be 17 feet above the existing grade of the upper lot.

Parking space summary: 323 net new spaces

Enclosure 6a

OPTION C



Fig. 7 Option C

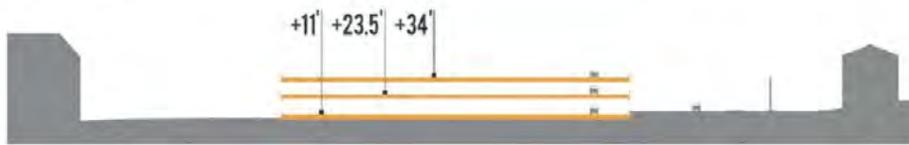


Fig. 8 Option C - Section

Option C is a three story parking structure developing the lower lot and half of the upper lot.

The first level of parking would occur at the existing lower lot elevation (no below grade parking). Option C is similar in all ways to Option B except that it contains one drive aisle / structural bay less, and therefore develops less of the upper lot.

Parking space summary: 241 net new spaces

Enclosure 6b

OPTION D



Fig. 9 Option D

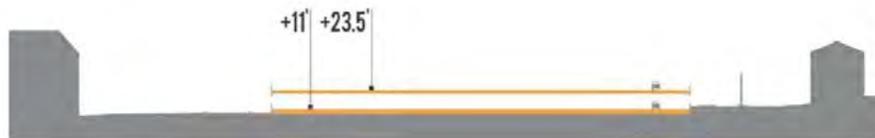


Fig. 10 Option D - Section

OPTION D is a two story parking structure fully developing both the lower and upper lots. The first level of parking would occur at the existing lower lot elevation (no below grade parking). Option D is similar to Option B except that is one level shorter.

Parking space summary: 131 net new spaces

Enclosure 6c

OPTION A



Fig. 2. Option A

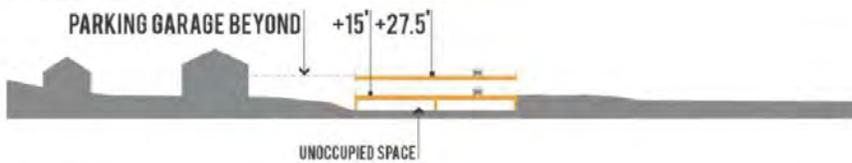


Fig. 3. Option A - Section

Option A is a two level garage.

This maximum footprint available on the proposed site is developed, while limiting the height. It does not include at-grade parking and avoids issues related to the flooding of the site.

The parking structure would be entered off of Bowyer Road, at elevation of 15 feet, as vehicles leave the checkpoint at Gate 8. A second level would occur above the entrance level, rising 12-1/2 feet above Bowyer Road. Additionally, a ramp would descend downward from the entrance for a short distance, providing more spaces without descending low enough to raise flooding concerns.

Parking space summary: 280 new spaces

Enclosure 7

OPTION B



Fig. 4. Option B



Fig. 5. Option B - Section

Option B is a three level garage. This option is similar to Option A except that an additional lower level of parking is added.

Parking space summary: 385 new spaces

Enclosure 7a

OPTION C



Fig. 6. Option C

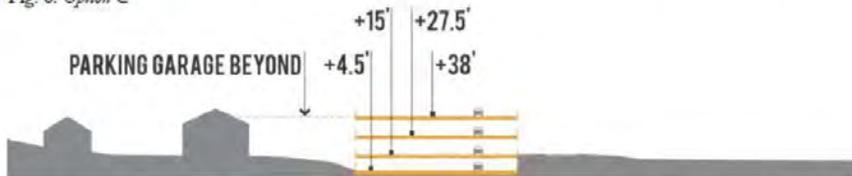


Fig. 7. Option C - Section

Option C is a four level garage, adding an additional level of height to Option B.

The additional level provides a significant amount of parking, however the top deck of Option C would rise 23 feet above Bowyer Road, straining the contextual constraints of the site. The increased height may require smaller trees lining Bowyer Road, as the canopies would not be able to spread above the structure. Additionally, the height will begin to significantly crowd and overshadow the single family housing north of the site.

Parking space summary: 536 new spaces

Enclosure 7b



Fig. 2 Option A



Fig. 3 Option A - Section

Option A is a single level garage with a softball and a baseball field elevated above the parking.

This option develops the maximum footprint available on the proposed site, while limiting the height and re-incorporating the existing softball and baseball fields into the new structure. Parking would occur at elevation of twenty four feet, similar to Bowyer Road adjacent to the site.

Parking space summary: 584 new spaces

Enclosure 8

OPTION B



Fig. 4 Option B



Fig. 5 Option B - Section

Option B is a two level garage.

This option develops the eastern half of the site, with parking on the upper level of the structure rather a ball field. This option would require either the loss or relocation of the existing eastern ball field. The remaining western ball field would be large enough to support a standard softball field.

Parking space summary: 767 new spaces

Enclosure 8a

OPTION C



Fig. 6 Option C



Fig. 7 Option C- Section

Option C is a surface parking lot.

This option develops the eastern half of the site into a surface parking lot and would require either the loss or relocation of the existing eastern ball field. The surface lot would be entered off of Bowyer Road, at elevation of 24 feet, before vehicles reach Gate 8.

Parking space summary: 284 new spaces

Enclosure 8b



DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND WASHINGTON
1314 HARWOOD STREET SE
WASHINGTON NAVY YARD DC 20374-5018

IN REPLY REFER TO
5090
Ser ENV/272-14
MAY 19 2014

Mr. Rodney Little
Director
Maryland Historical Trust
100 Community Place
Crownsville, MD 21032-2023

Attn: Ms. Amanda Apple

SUBJECT: PREFERRED ALTERNATIVE FOR GARAGE - CENTER FOR CYBER
SECURITY STUDIES, UNITED STATES NAVAL ACADEMY

Dear Mr. Little:

On March 7, 2014, NAVFAC Washington formally initiated consultation for the new Center for Cyber Security Studies (CCSS) and associated parking garage at the United States Naval Academy. NAVFAC Washington presented the site alternatives for the CCSS and parking garage and stated that the preferred alternatives were the "Waffle Lot" for the CCSS and the Alumni Hall parking lot for the parking garage. At this time, NAVFAC Washington is prepared to present the preferred alternative for the massing of the parking garage.

The parking garage will be situated on the current parking lot bounded by Decatur Road, Parker Road, Nulton Road/Harover Street, and Balch Road. The parking lot consists of a lower lot and an upper lot, sited at slightly different elevations. The three alternatives for the parking garage are described below. See Enclosure: Excerpts from P-621 Parking Garage Concept Submission for further information and massing studies.

- *Option 0 (2 stories, 26 feet tall):* Option 0 would consist of a two-story garage over the lower lot. The upper lot would remain as surface parking. Option 0 would have a garage footprint of 44,068 square feet and a garage area of 88,320 square feet. It would provide 236 garage spaces and 79 surface spaces.

SUBJ: PREFERRED ALTERNATIVE FOR GARAGE - CENTER FOR CYBER SECURITY STUDIES, UNITED STATES NAVAL ACADEMY

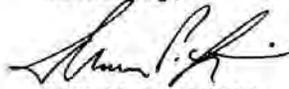
- *Option 1 (3 stories, 37 feet tall):* Option 1 would consist of a three-story, condensed-footprint garage over the lower lot. The upper lot would remain as surface parking. Option 1 would have a garage footprint of 35,545 square feet and a garage area of 106,650 square feet. It would provide 298 garage spaces and 99 surface spaces.
- *Option 2 (2 stories, 24 feet tall):* Option 2 would consist of a two-story, low-profile garage over the upper and lower lots. Option 2 would have a garage footprint of 121,526 square feet and a garage area of 52,900 square feet. It would provide 364 garage spaces.

The preferred alternative is Option 0 with the following modifications: the surrounding streets and surface parking will be re-stripped to accommodate more parking spaces; and the ramp between the two levels of the garage will be removed so that the lower level will be accessed only from Balch Road and the upper level will be accessed only from the surface lot. Option 0 was chosen because it combined a low profile and compact footprint. Option 1 was discarded because it was felt that a 3-story garage would be too visually disruptive and too massive in relation to Leahy Hall, the Officer's Club and Worden Field. Option 2 was discarded because its footprint would be immediately adjacent to the perimeter wall and Colonial Annapolis Historic District, and because its projected costs exceeded the budget.

NAVFAC Washington requests that the Maryland Historical Trust respond in writing with any comments or concerns about the preferred alternative for the parking garage. Phase Ia archaeology surveys for the proposed garage site are forthcoming in the near future. Concept designs for the CCSS Building are due in late June. If you have any questions, the POC for this project is Ms. Julie Darsie at 202.685.1754 or julie.darsie@navy.mil.

SUBJ: PREFERRED ALTERNATIVE FOR GARAGE - CENTER FOR CYBER
SECURITY STUDIES, UNITED STATES NAVAL ACADEMY

Sincerely,



THOMAS P. LEWIS
Environmental Business Line
Coordinator
By direction

Enclosure: Excerpts from P-621 Parking Garage Concept Submission

Copies to: Advisory Council on Historic Preservation
(Attn: K. Fanizzo)
Preservation Assistance and Heritage Areas,
National Park Service Northeast (Attn: D. Montagna)
Historic Preservation, City of Annapolis
(Attn: L. Craig)

P-621 Parking Garage Concept Submission
US Naval Academy
Annapolis, MD



OPTION 0: Exploring the NAVFAC Concept Sketch

Parking Configuration Description

This concept is based on the idea of preserving the parking provided by the current upper and lower surface lots. It proposes an elevated open structure above the existing lower lot creating a two-story condensed footprint solution. In this scheme, the upper lot is connected to the second level of the parking structure by a ramp.

Entrance into the parking structure is provided from Balch Road into the lower level with the central ramp in the path of travel. Connection to the surface lot is provided from the upper level perpendicular to the travel aisle. Configuration of the surface lot will be finalized based on storm water requirements and parking layout efficiency, but will likely be two-way drive aisles with an efficient mix 8'-6" spaces.

Site Layout and Finished Elevations

Overall Dimensions of the structured parking garage are 240' x 184'. The finished floor of the lower level is elevation 10'-0". The finished grade of the surface lot is 18'-5". The finished floor of the second level is elevation 22'-6". In this scheme, the continuous parapet height is elevation 26'-0". Stair and elevators will extend above that as necessary but will be minimized and not continuous conditions.

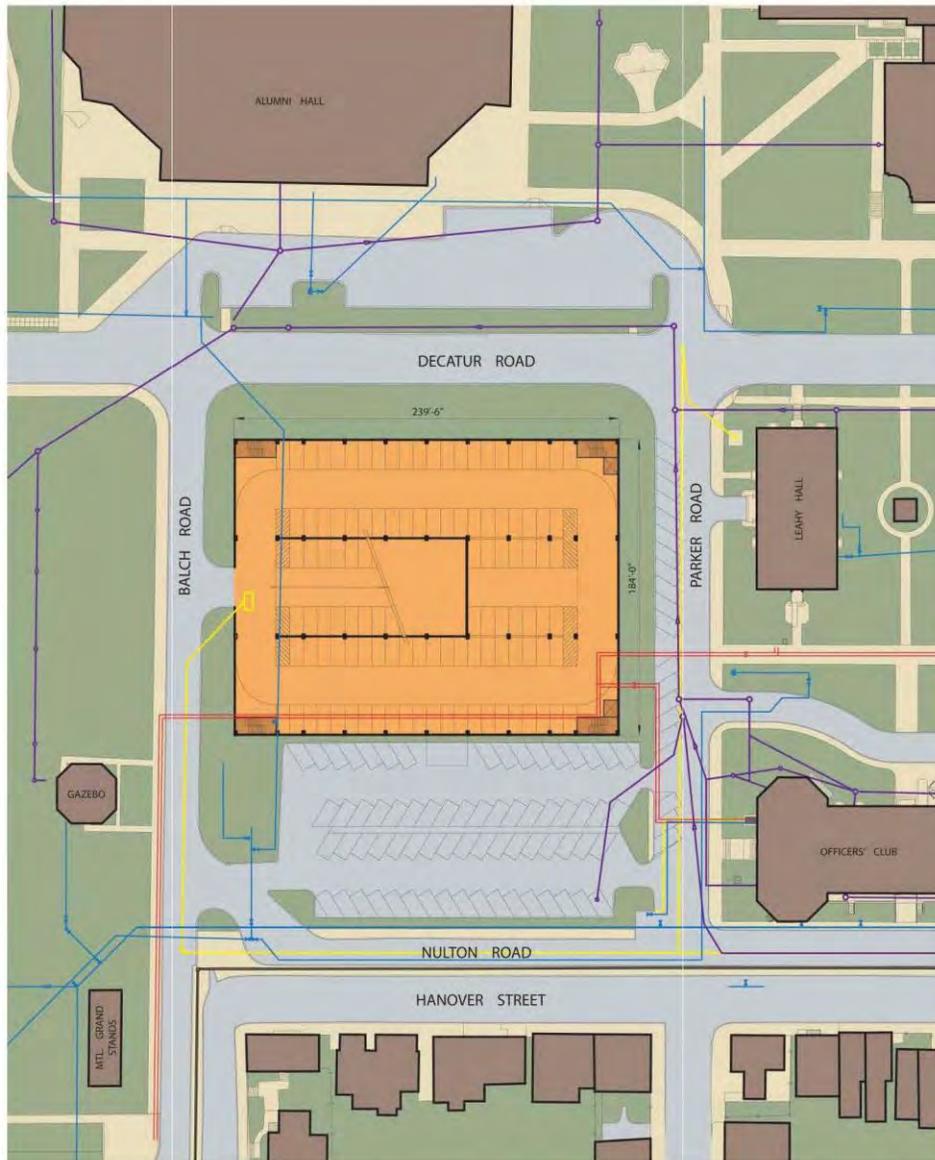
Parking Count

Parking Structure – 2 Levels	236
Reconfigured Surface Lot	79
Total Parking Spaces Provided By OPTION 0	315 Spaces
Height of Parapet	26'-0"
Cost (Precast)	\$10,215,000

Summary

While Option 0 maintains the preferred low profile and is within the CCL, it results in a net loss (315 -333 = -18) spaces for the Academy.

P-621 Parking Garage Concept Submission
US Naval Academy
Annapolis, MD



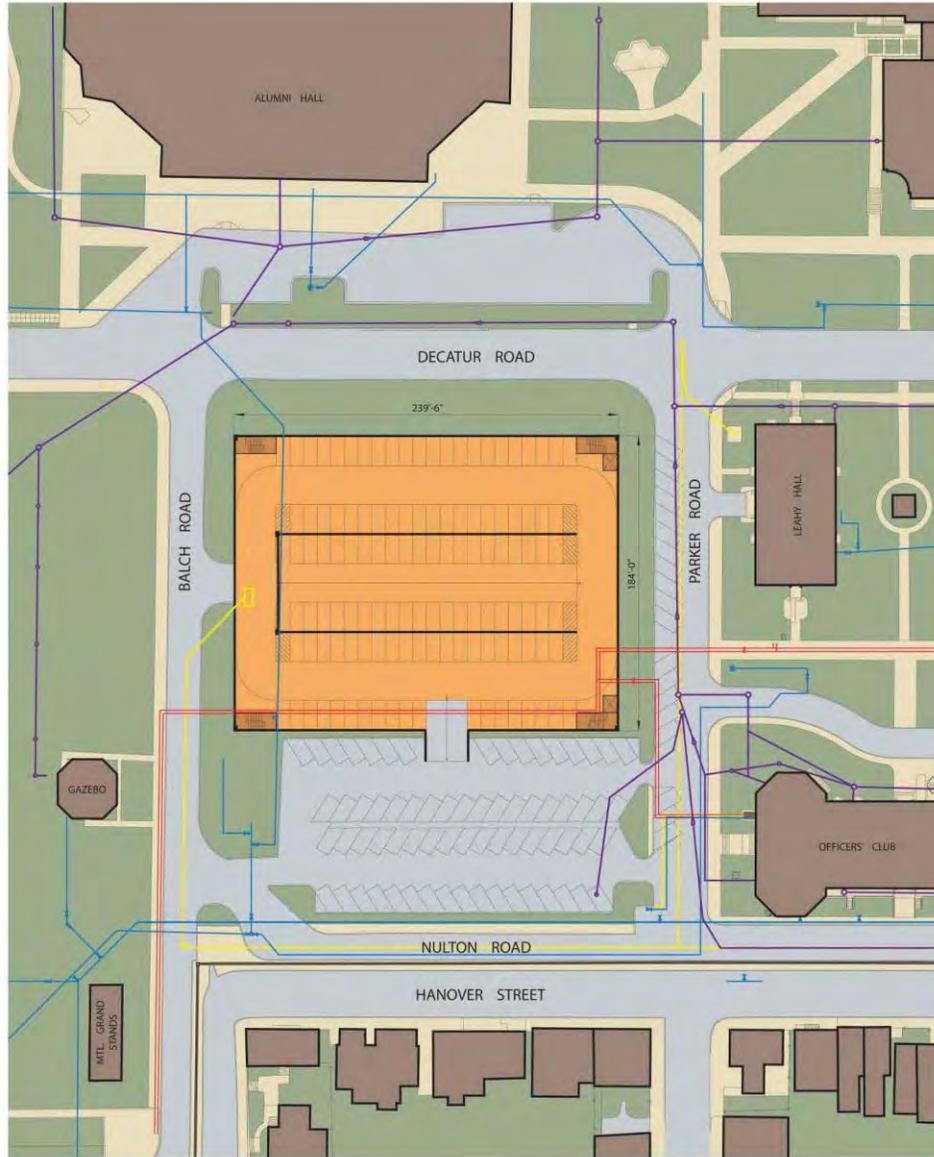
- POTABLE & RAW WATER
- SANITARY SEWER
- ELECTRICAL
- HIGH TEMP - H.W.

OPTION 0
GROUND FLOOR PLAN
ELEVATION +10'-0"

Part 2

11

P-621 Parking Garage Concept Submission
US Naval Academy
Annapolis, MD



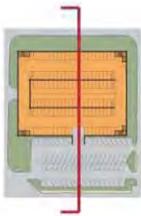
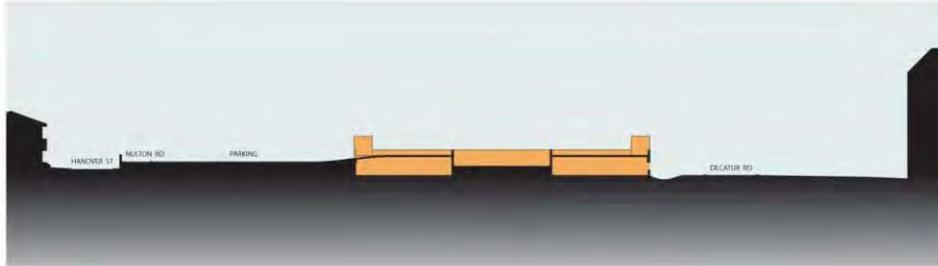
- POTABLE & RAW WATER
- SANITARY SEWER
- ELECTRICAL
- HIGH TEMP - H.W.

OPTION 0
2ND FLOOR PLAN
ELEVATION +22'-6"

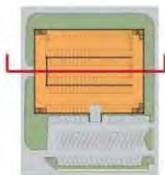
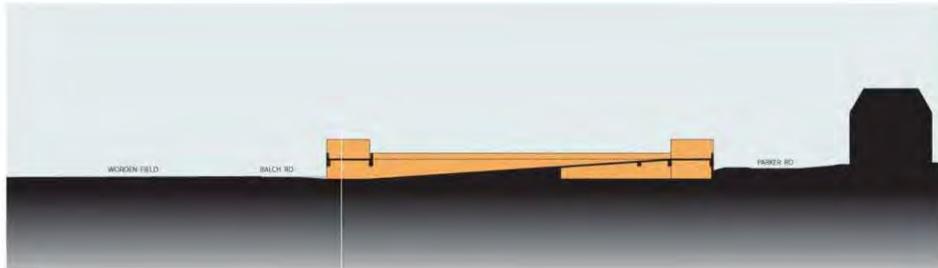
Part 2

12

P-621 Parking Garage Concept Submission
US Naval Academy
Annapolis, MD



OPTION 0
SECTION A



OPTION 0
SECTION B

Part 2

13

P-621 Parking Garage Concept Submission
US Naval Academy
Annapolis, MD



OPTION 1: Condensed Footprint w/ Surface Parking

Parking Configuration Description

Similar to Option 0, this concept incorporates a reconfigured surface parking at the location of the existing upper lot. This proposes a condensed footprint for the parking structure, reducing the storm water management burden. It provides a 3-story garage structure at the location of the current lower lot. Unlike the previous option, there is no connecting ramp. By omitting the additional circulation of the connection, both the structured garage and the surface parking are made more efficient and a higher parking count is achieved for both.

Entrance into the parking structure is provided from Balch Road into the lower level with the central ramp in the path of travel. Configuration of the surface lot will be finalized based on storm water requirements and parking layout efficiency, but will likely be two-way drive aisles with an efficient mix 8'-6" spaces.

Site Layout and Finished Elevations

Overall Dimensions of the structured parking garage are approximately 237' x 150'. The finished floor of the ground level is elevation 10'-0". The finished floor of the second level is elevation 22'-6" and at the third floor, elevation 33'-10". In this scheme, the continuous parapet height is elevation 37'-4". The finished grade of the surface lot is 21'-4". Stair and elevators will extend above that as necessary but will be minimized and not continuous conditions.

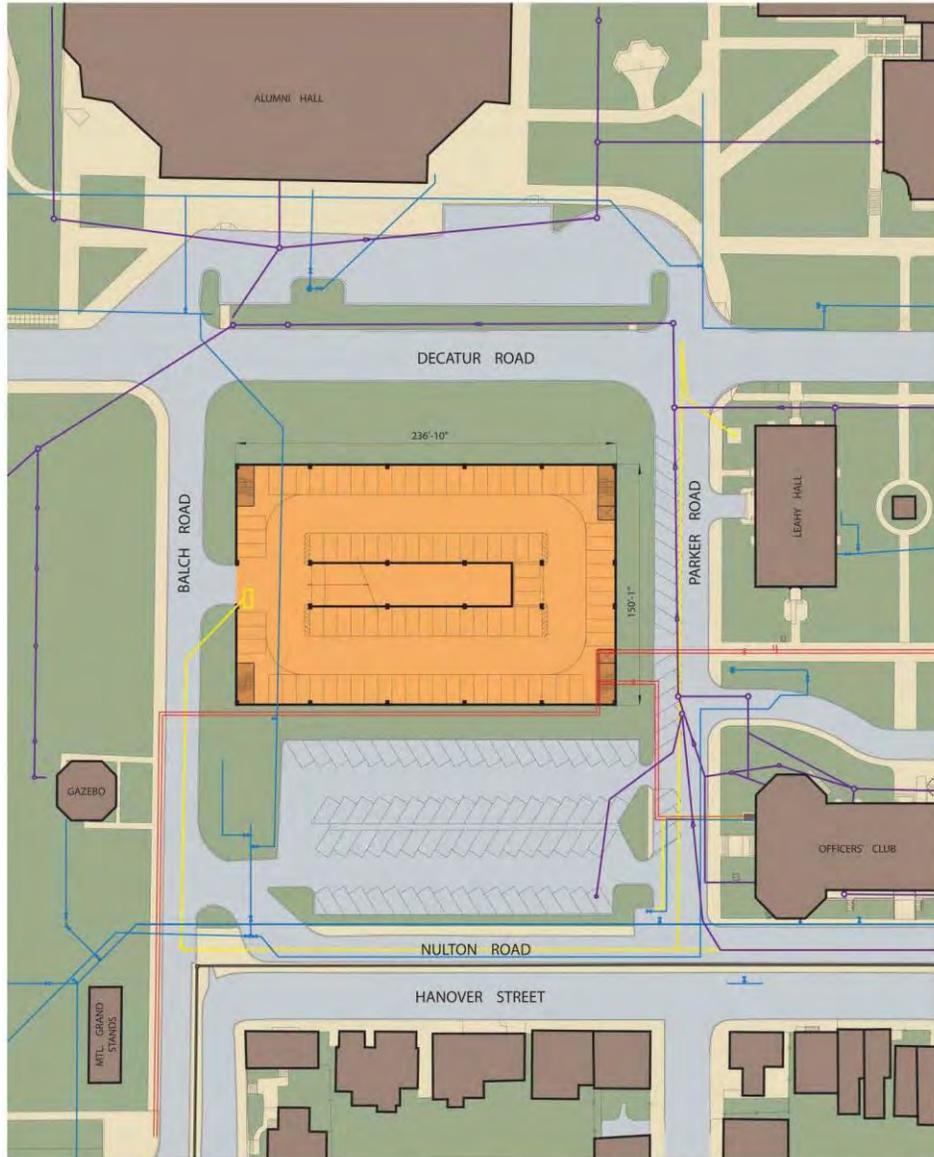
Parking Count

Parking Structure – 3 Levels	298
Reconfigured Surface Lot	99
Total Parking Spaces Provided By OPTION 1	397 Spaces
Height of Parapet	37'-4"
Cost (Precast)	\$12,291,000

Summary

Option 1 provides the most parking spaces (397-333 = 64) and is close to the project CCL. While it is the tallest option, the elevated structure is limited to the lower lot, lessening the impact on the neighborhood.

P-621 Parking Garage Concept Submission
US Naval Academy
Annapolis, MD



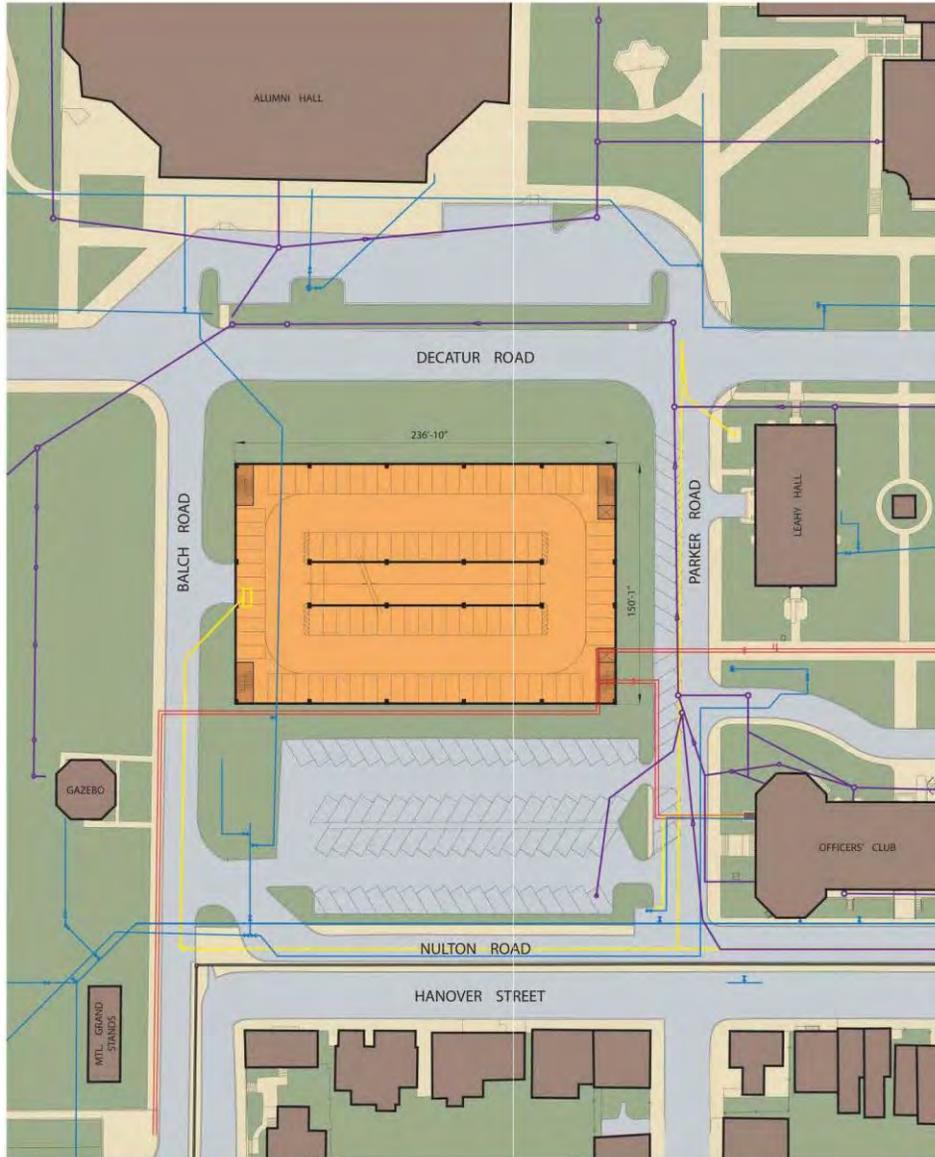
- POTABLE & RAW WATER
- SANITARY SEWER
- ELECTRICAL
- HIGH TEMP - H.W.

OPTION 1
GROUND FLOOR PLAN
ELEVATION +10'-0"

Part 2

15

P-621 Parking Garage Concept Submission
US Naval Academy
Annapolis, MD



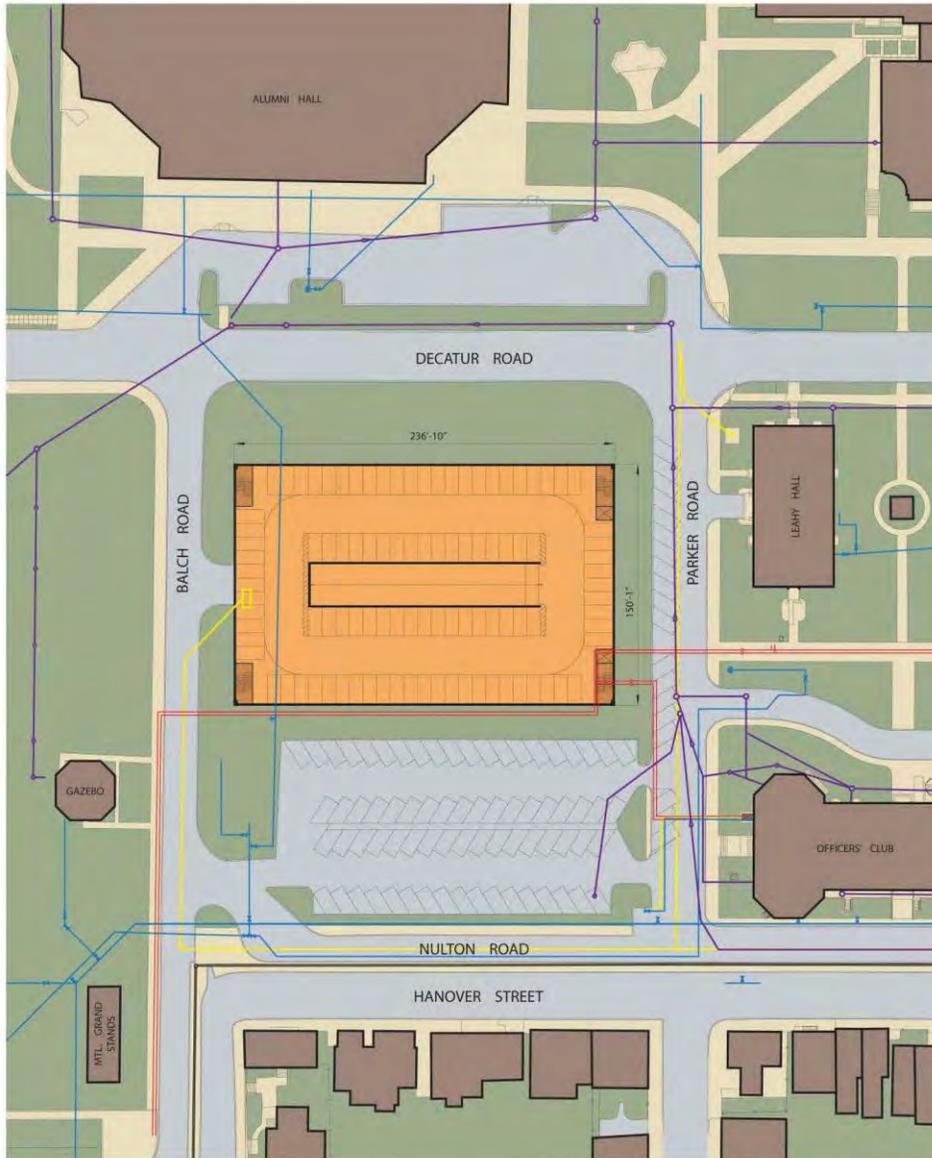
- POTABLE & RAW WATER
- SANITARY SEWER
- ELECTRICAL
- HIGH TEMP - H.W.

OPTION 1
2ND FLOOR PLAN
ELEVATION +22'-6"

Part 2

16

P-621 Parking Garage Concept Submission
US Naval Academy
Annapolis, MD



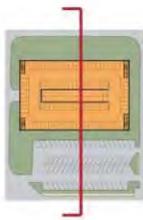
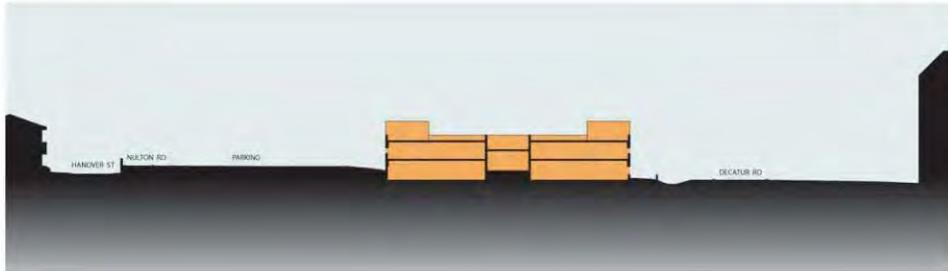
- POTABLE & RAW WATER
- SANITARY SEWER
- ELECTRICAL
- HIGH TEMP - H.W.

OPTION 1
3RD FLOOR PLAN
ELEVATION +33'-10"

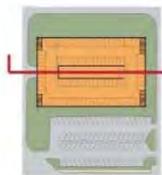
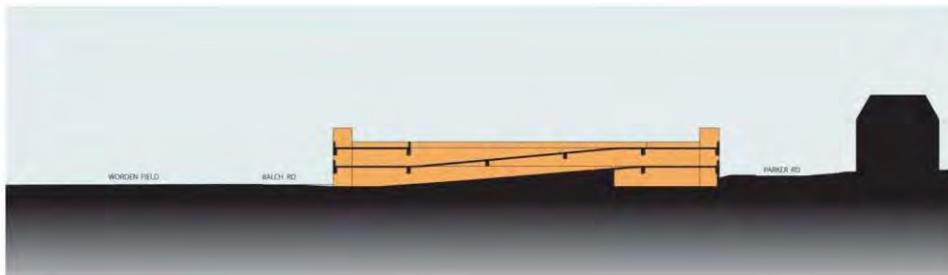
Part 2

17

P-621 Parking Garage Concept Submission
US Naval Academy
Annapolis, MD



OPTION 1
SECTION A



OPTION 1
SECTION B

Part 2

18

P-621 Parking Garage Concept Submission
US Naval Academy
Annapolis, MD



OPTION 2: Large Footprint; Low Profile

Parking Configuration Description

This concept takes advantage of the full site for the structured parking. This proposes a low profile, two-story parking garage solution. By eliminating the surface lot, this solution is able to provide the same amount of parking in a low-rise solution. Due to the change in elevation from Nulton to Decatur, the amount of exposed exterior wall will also be minimized as the second floor of the garage will be at grade on the Nulton Road side.

Entrance into the parking structure is provided from Balch Road into the lower level. A second entrance is provided from Nulton Road into the upper level with the ramp in the path of travel.

Site Layout and Finished Elevations

Overall Dimensions of the structured parking garage are approximately 211' x 288'. The finished floor of the ground level is elevation 8'-0". The finished floor of the second level is elevation 20'-6". In this scheme, the continuous parapet height is elevation 24'-0". Stair and elevators will extend above that as necessary but will be minimized and not continuous conditions.

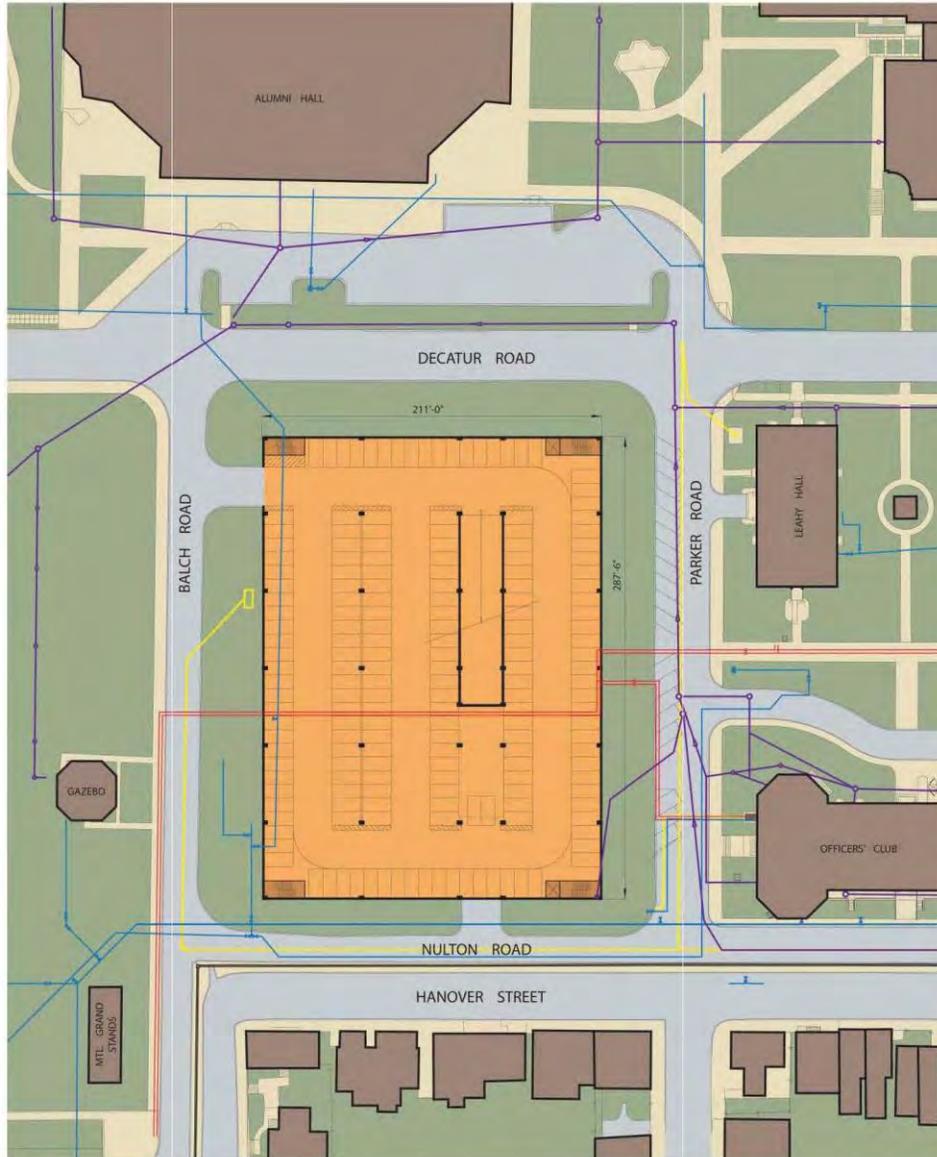
Parking Count

Parking Structure – 2 Levels	364
Surface Lot Eliminated	0
Total Parking Spaces Provided By OPTION 2	364 Spaces
Height of Parapet	24'-0"
Cost (Precast)	\$13,142,000

Summary

Option 2 provides sufficient parking (364-333 = 31) and has a lower profile than Option1, but is outside the range of the CCL.

P-621 Parking Garage Concept Submission
US Naval Academy
Annapolis, MD



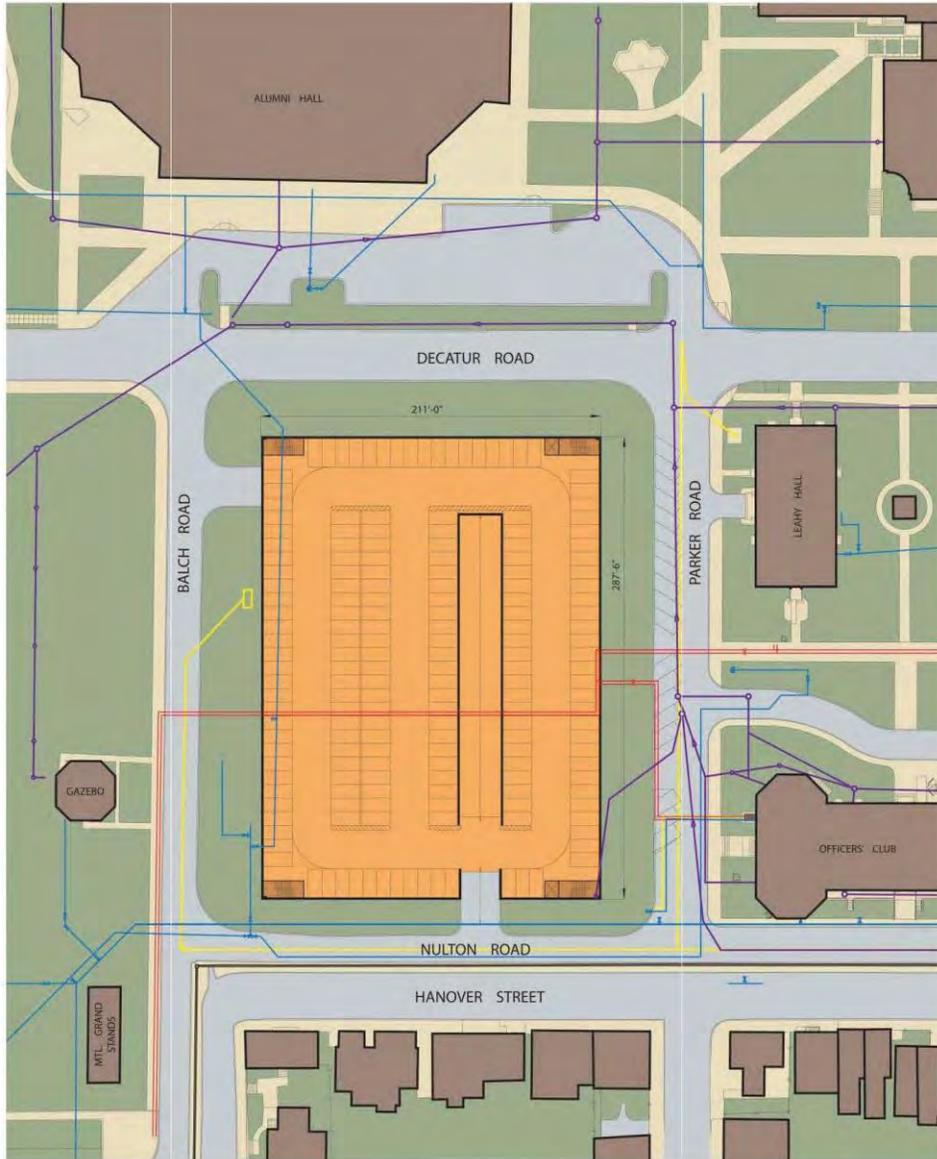
- POTABLE & RAW WATER
- SANITARY SEWER
- ELECTRICAL
- HIGH TEMP - H.W.

OPTION 2
GROUND FLOOR PLAN
ELEVATION +8'-0"

Part 2

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P-621 Parking Garage Concept Submission
US Naval Academy
Annapolis, MD



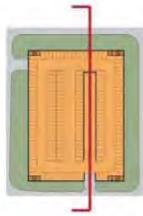
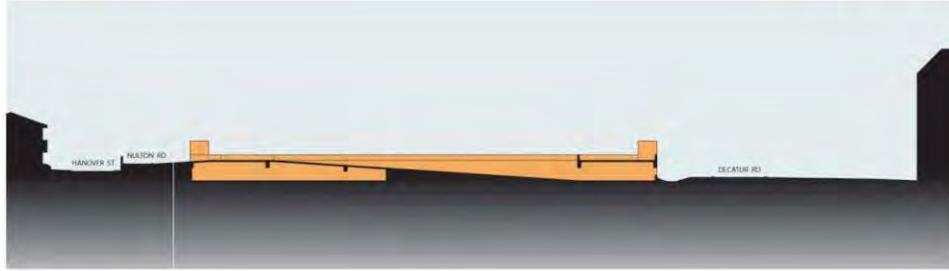
- POTABLE & RAW WATER
- SANITARY SEWER
- ELECTRICAL
- HIGH TEMP - H.W.

OPTION 2
2ND FLOOR PLAN
ELEVATION +20'-6"

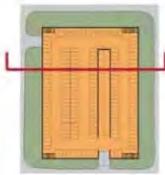
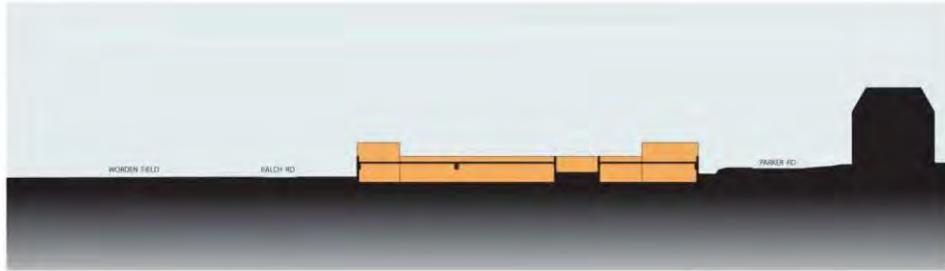
Part 2

21

P-621 Parking Garage Concept Submission
US Naval Academy
Annapolis, MD



OPTION 2
SECTION A



OPTION 2
SECTION B



DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND WASHINGTON
1314 HARWOOD STREET SE
WASHINGTON NAVY YARD DC 20374-5018

IN REPLY REFER TO
5090
Ser EV/415-14
JUL 3 2014

Mr. Rodney Little
Director
Maryland Historical Trust
100 Community Place
Crownsville, MD 21032-2023

Attn: Ms. Amanda Apple

Dear Ms. Apple:

SUBJECT: PHASE 1A ARCHAEOLOGY STUDY AND 35% CONCEPT DESIGN FOR
PARKING GARAGE - CENTER FOR CYBER SECURITY STUDIES,
UNITED STATES NAVAL ACADEMY

On March 7, 2014, NAVFAC Washington formally initiated consultation for the new Center for Cyber Security Studies (CCSS) and associated Parking Garage at the United States Naval Academy. On May 20, 2014, NAVFAC Washington submitted the preferred alternative for the massing of the Parking Garage. At this time, NAVFAC Washington is prepared to submit the Phase IA Archaeological Investigations for the project as well as the 35% Concept Design for the Parking Garage.

Phase IA Archaeological Investigations were conducted for two sites under consideration for the CCSS and Parking Garage: the "Alumni Hall" site and the "Fire House" site. Two other sites were eliminated from study; the "Waffle Lot" site because it consists of made land, and the "Lawrence Field" site because it was previously investigated. Shovel tests were deemed not practical at either the Alumni Hall or Fire House Sites due to pavement and deep fills. Therefore, Phase IA Investigations included geotechnical studies as well as examination of maps, aerial photographs, historic photographs and previous surveys. Phase IA Investigations concluded with no further work recommended due to the levels of fill and disturbance found at both sites. The Navy requests MHT's concurrence that the Center for Cyber Security Studies (CCSS) and associated Parking Garage will have no effect on archaeological resources.

The May 20, 2014 consultation stated that the Navy had selected Option 0 with some modifications as the preferred

The May 20, 2014 consultation stated that the Navy had selected Option 0 with some modifications as the preferred alternative for the massing of the parking garage on the Alumni Hall site. Option 0a, as the modified version is known, will consist of a two-story garage over the lower lot, with the upper lot remaining as surface parking. The above-grade, open garage will have two stairwells and elevator towers. The garage will measure 185.6 feet east to west and 247 feet north to south. The elevator and stair towers will stand at the northeast and northwest corners along Decatur Road. The upper level parapet wall will measure 24 feet 9 inches amsl. The tops of the elevator and stair tower roofs will measure 33 feet 3 inches amsl. By comparison, the Academy perimeter wall between Nulton Road and Hanover Street ranges from 23 feet 8 inches amsl at the intersection with Balch Road to 30 feet amsl at the intersection with Parker Road. The distance between the south wall of the garage and the perimeter wall will be approximately 150 feet. The distance between the elevator and stair towers and the perimeter wall will be approximately 380 feet. Lighting will consist of pole-mounted fixtures of the same height as the elevator and stair towers. The façade is still in early design, but will feature perforated copper to tie with the surrounding campus. The upper lot and other surface areas around the garage will be repaved, restriped, and re-landscaped.

The Navy determined that construction of the parking garage has the potential to cause effects on the following historic properties: the Colonial Annapolis National Historic Landmark and the United States Naval Academy National Historic Landmark. The parking garage has the potential for visual effect on Colonial Annapolis, specifically on the viewshed from Hanover Street between Wagner Street and College Avenue. However, the Navy believes the visual effect will be minimal. The south end of the parking garage will be only 11 inches higher than the lowest point of the parapet wall and will be 150 feet back from the wall. The elevator and stair towers will stand 9 feet 7 inches higher than the lowest point of the parapet wall however they will be approximately 380 feet back from the wall. Only the tops of the elevator and stair towers will be visible from the public way on the south side of Hanover Street. Landscaping can be used to further minimize the visual effect. Therefore, the Navy finds that construction of the parking garage will have no adverse effect on the Colonial Annapolis National Historic Landmark.

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The parking garage will have an effect on the United States Naval Academy National Historic Landmark. Construction of the parking garage will not result in physical destruction, alteration or removal of any part of the Beaux Arts architecture or campus design for which the Academy is significant, nor will it result in neglect, sale, transfer or lease of the property. Construction of the parking garage will introduce a new visual element to the Academy, however the Navy does not believe it will diminish the integrity of the Academy. The parking garage will be constructed on a parcel that is currently a surface parking lot and will match the setback of the adjacent Leahy Hall. The parking garage will be two stories tall, which is lower than the adjacent Alumni Hall (5 stories) and Leahy Hall (3 stories). It will have approximately the same width as Alumni Hall. The depth of the garage will be banked into the adjacent Upper Lot. Although the garage will utilize different proportions and massing from the traditional academic buildings of the Academy, it will be compatible in terms of size and scale. The proposed material palette for the parking garage is concrete and perforated copper left to patinate naturally. Copper is one of the major materials that characterize the Academy, therefore its use on the garage will be compatible with the character of the Academy. The Navy finds that construction of the parking garage will have no adverse effect on the United States Naval Academy National Historic Landmark.

The Navy hereby requests your concurrence on two findings: 1) construction of the CCSS and parking garage will have no effect on archaeological resources; and 2) construction of the parking garage will have no adverse effect on the Colonial Annapolis National Historic Landmark or United States Naval Academy National Historic Landmark. If you have any questions or require additional information, the POC at NAVFAC Washington is Julie Darsie at (202)685-1754 or julie.darsie@navy.mil. We look forward to learning of the findings of this project.

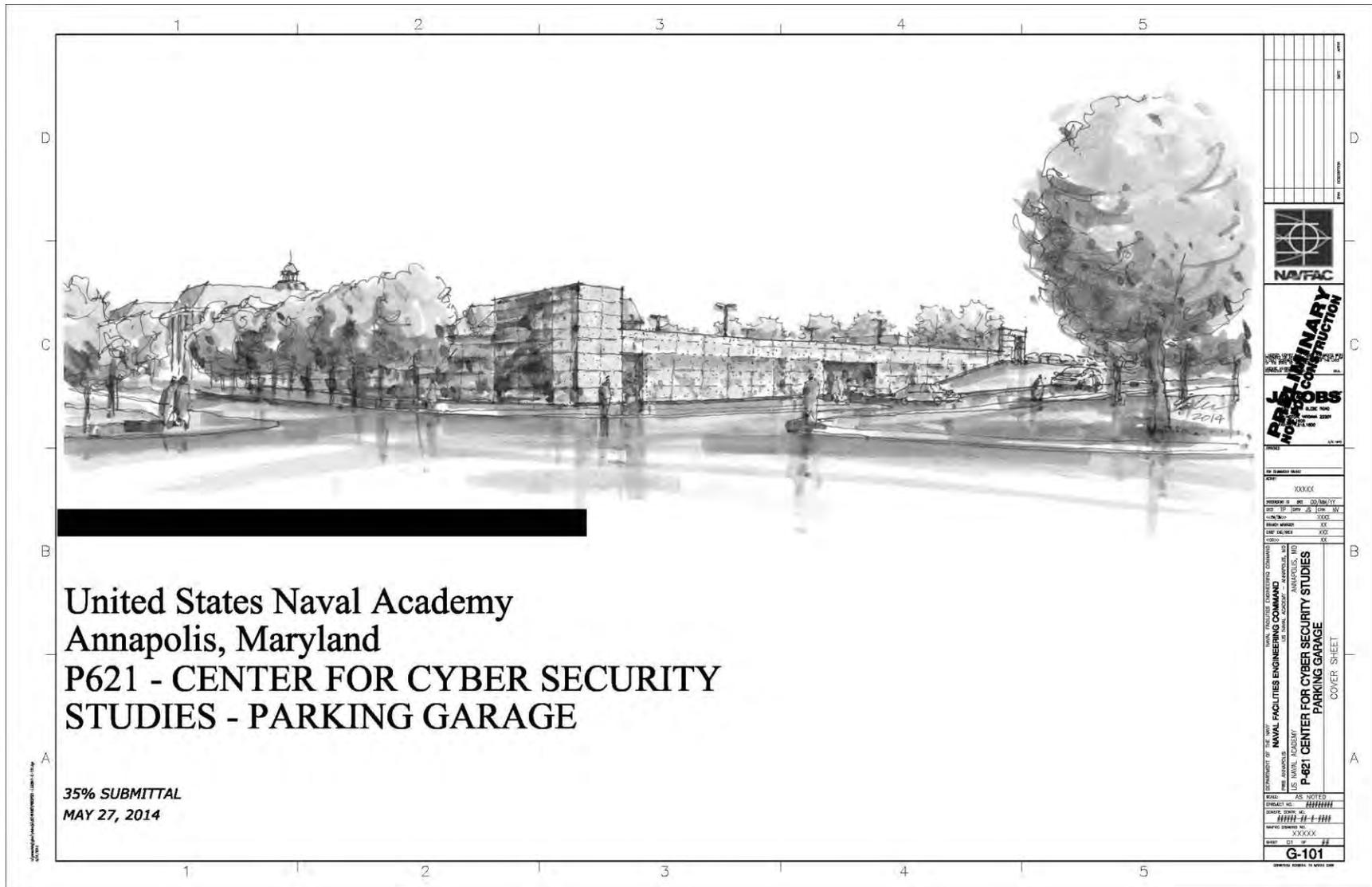
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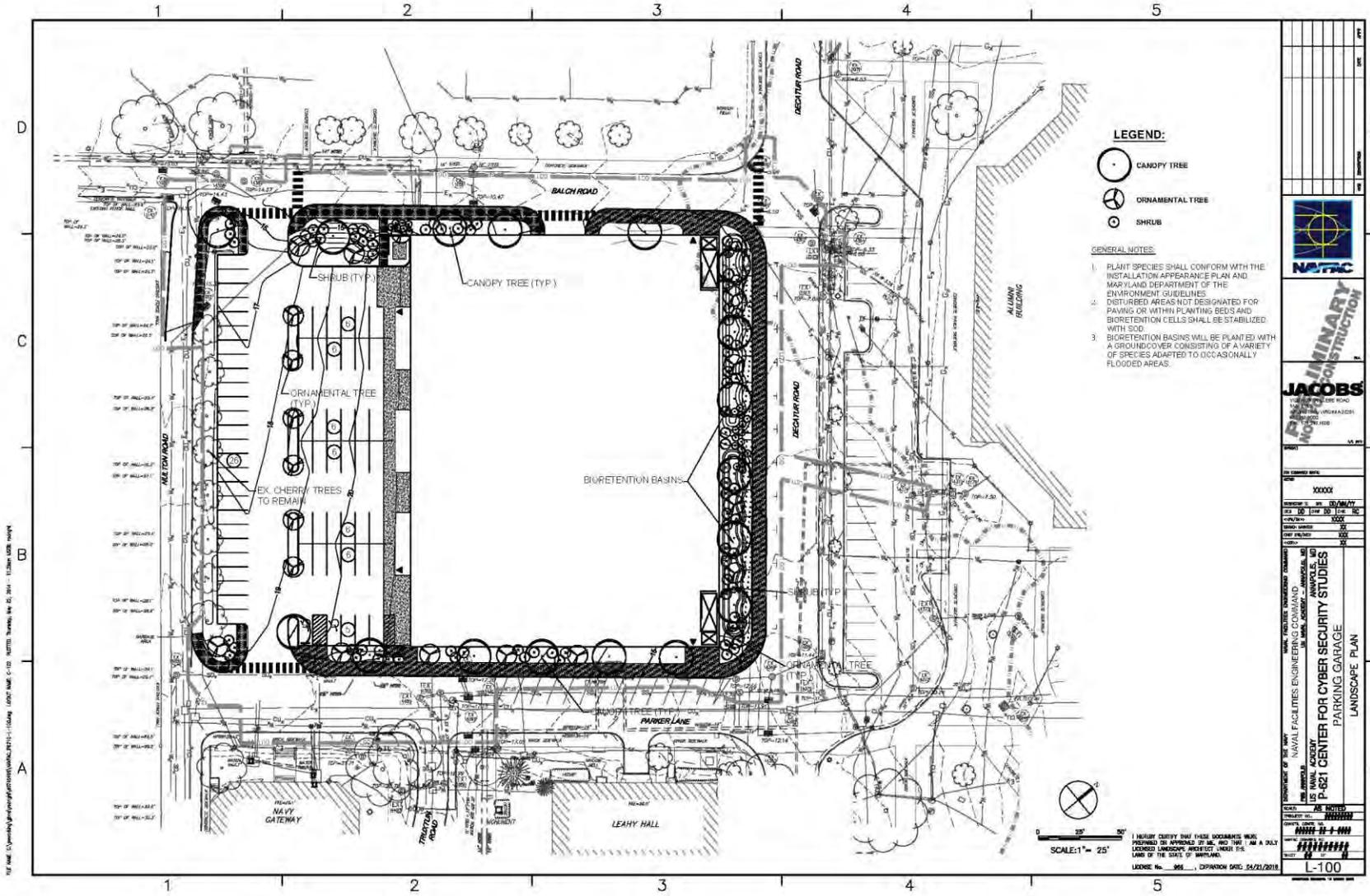


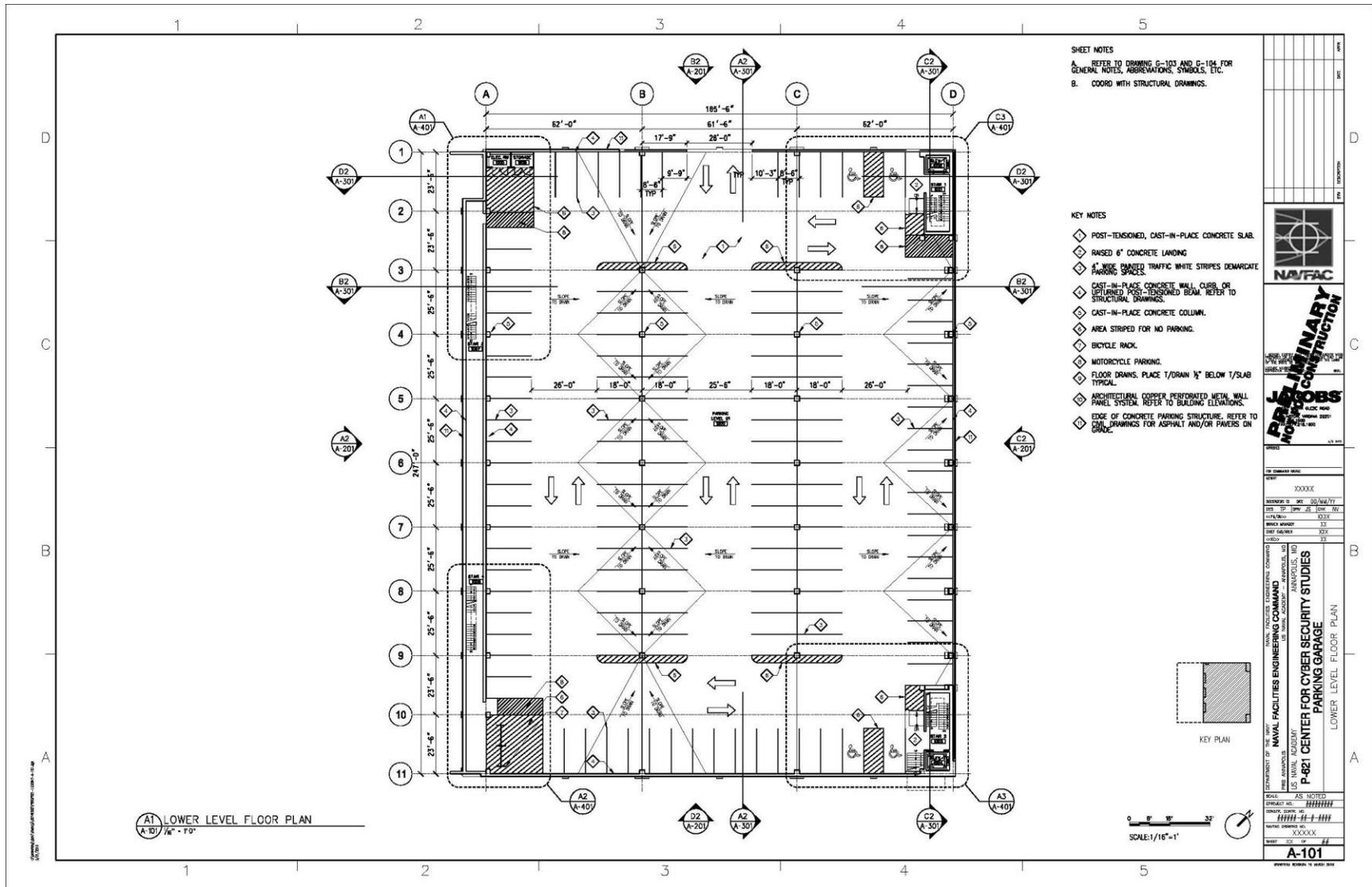
THOMAS P. LEWIS
Environmental Business Line
Coordinator
By direction

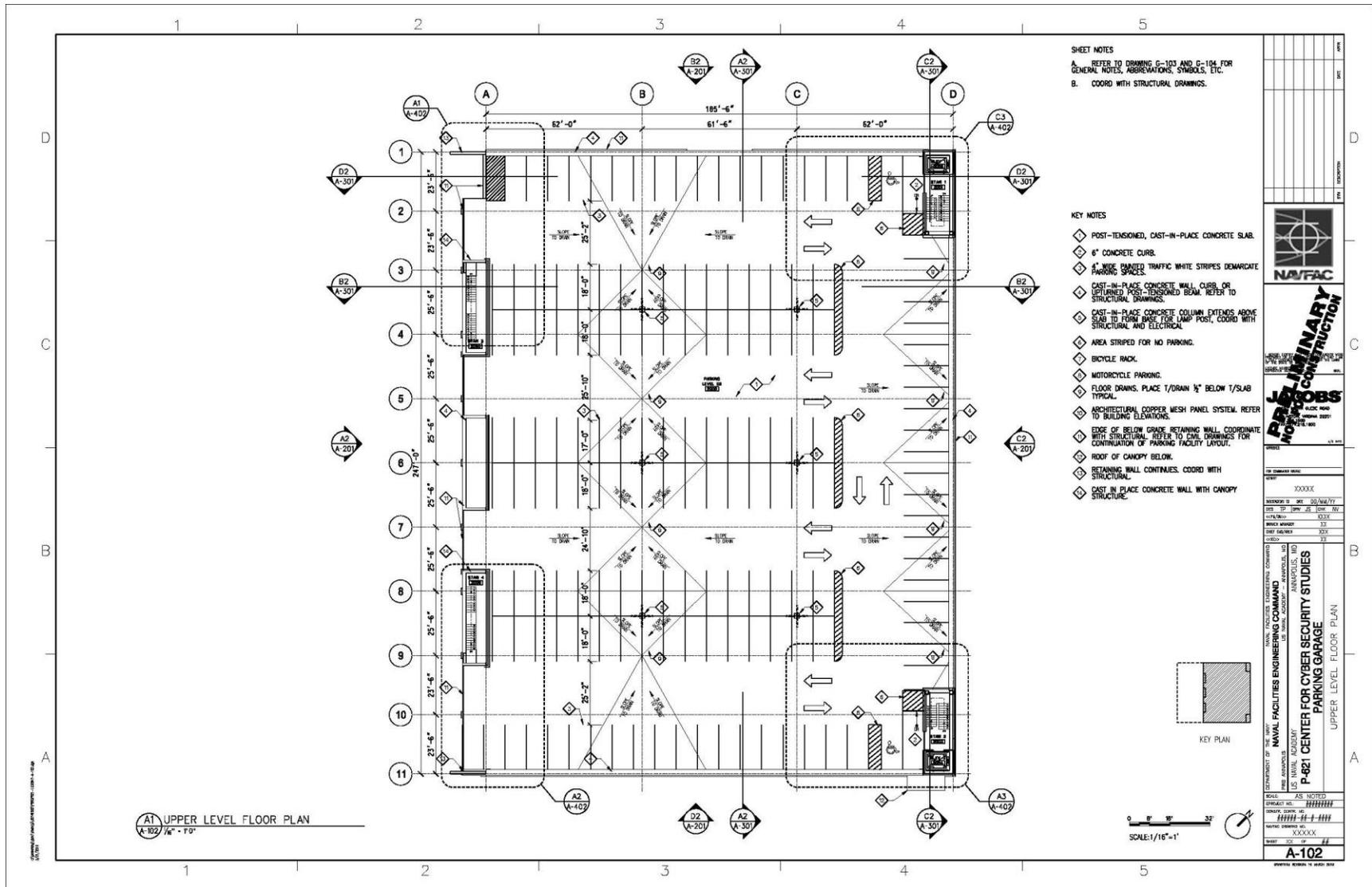
Enclosure (1) P621 - Center for Cyber Security Studies - Parking
Garage, 35% Submittal
(2) Parking Garage Color Renderings
(3) Parking Garage Height Comparison

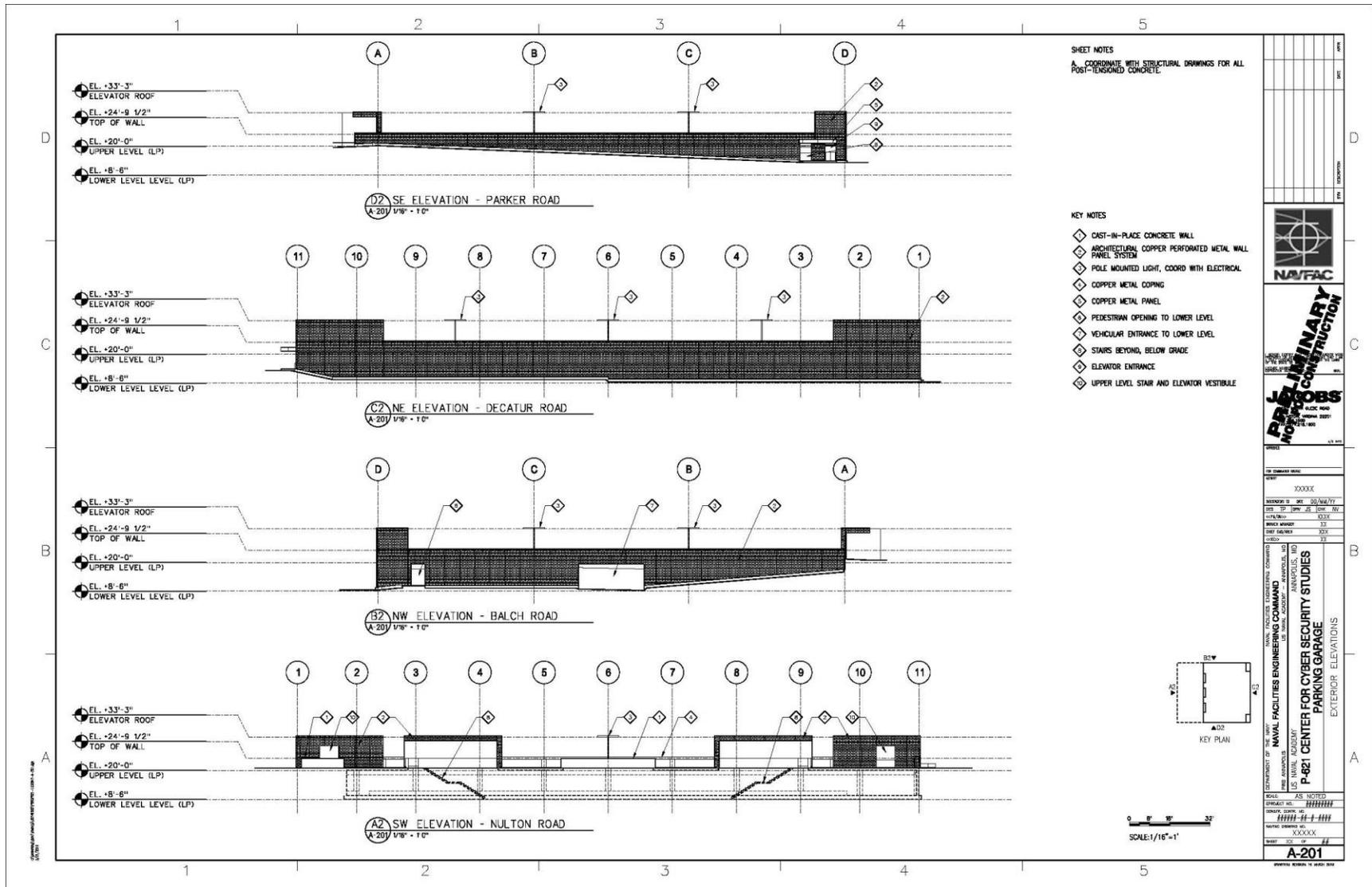
Copies to: Lisa Craig, City of Annapolis

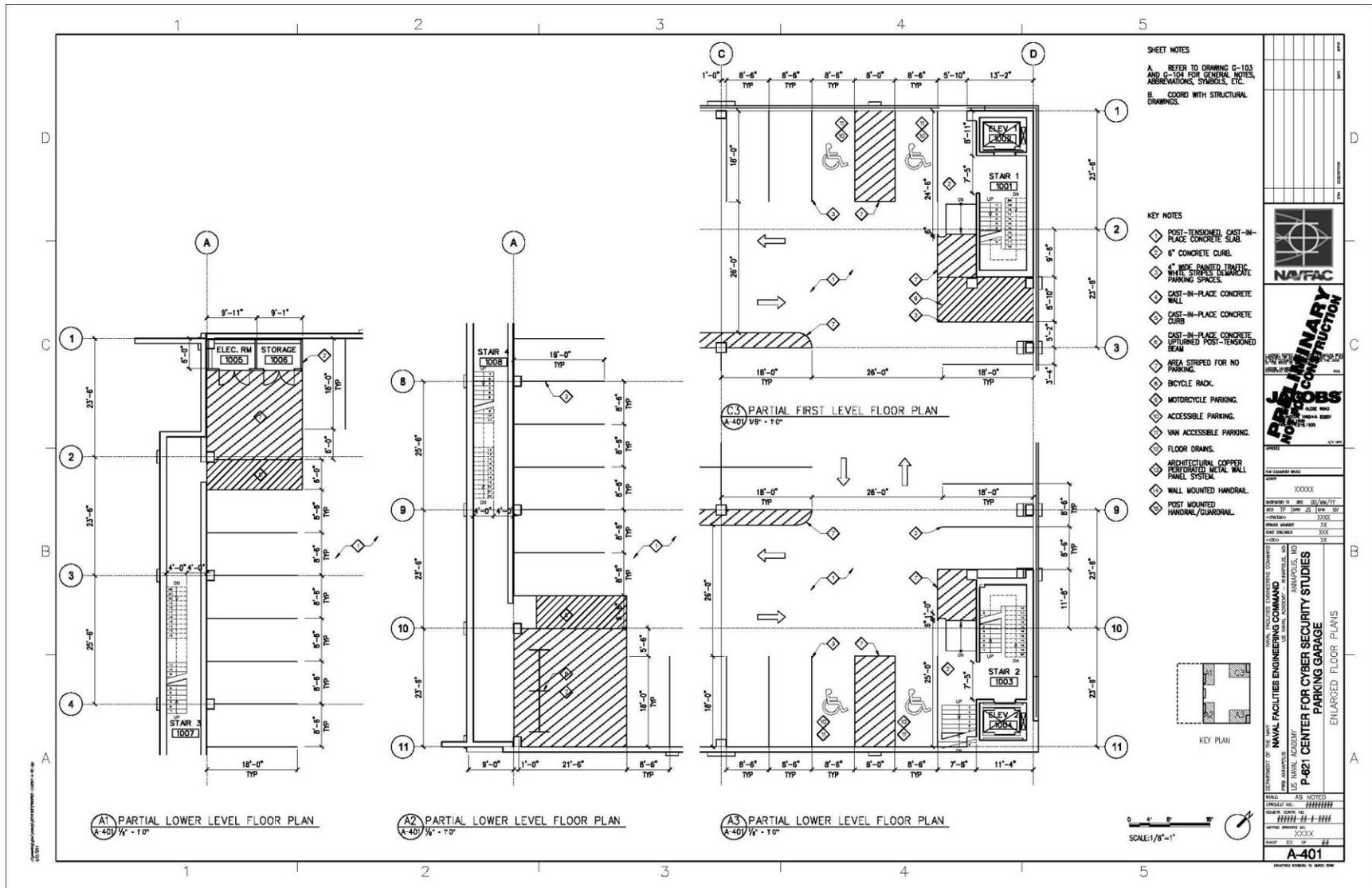


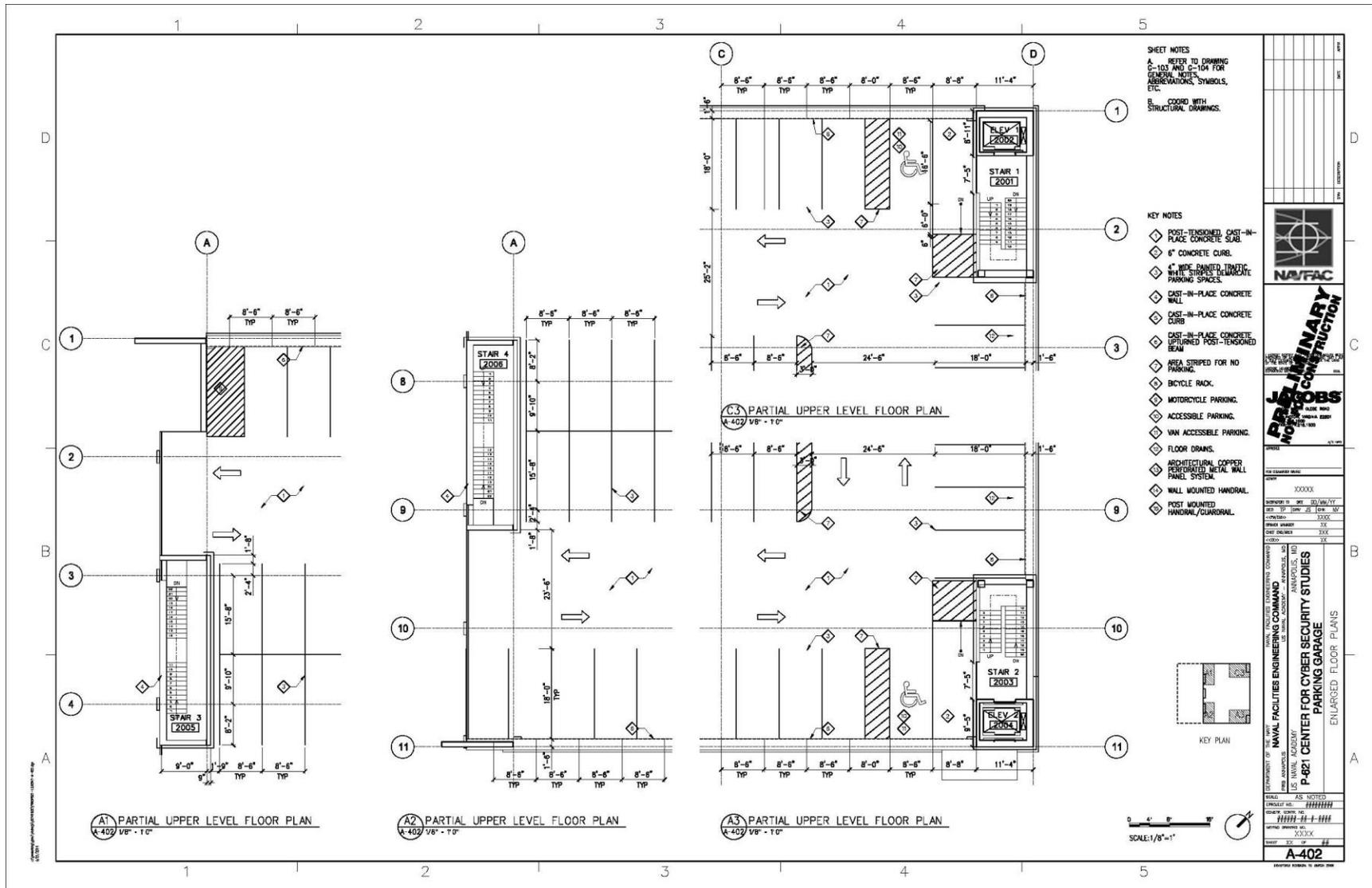












Enclosure 2: Parking Garage Color Renderings



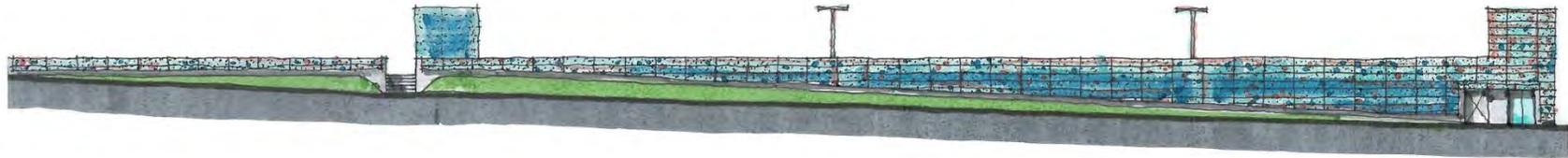
Enclosure 2: Parking Garage Color Renderings



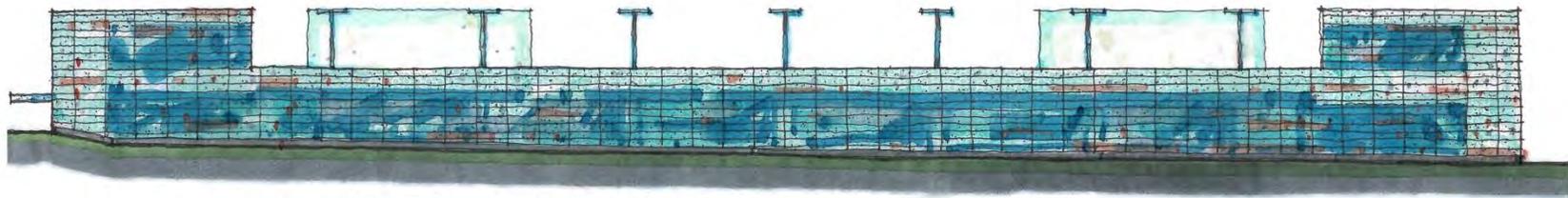
Enclosure 2: Parking Garage Color Renderings



Enclosure 2: Parking Garage Color Renderings



SE ELEVATION - PARKER ROAD
1/16" = 1' 0"

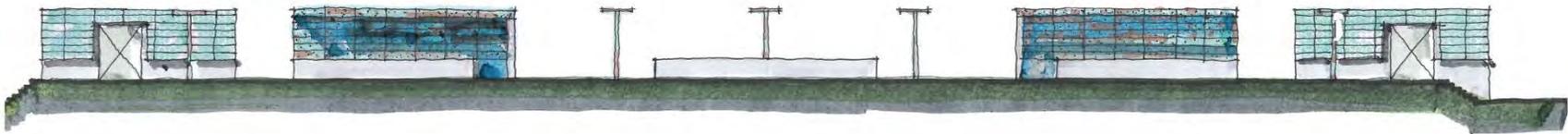


NE ELEVATION - DECATUR ROAD
1/16" = 1' 0"

Enclosure 2: Parking Garage Color Renderings



NW ELEVATION - BALCH ROAD
1/16" = 1' 0"

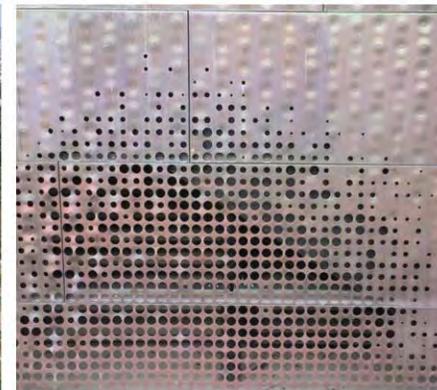
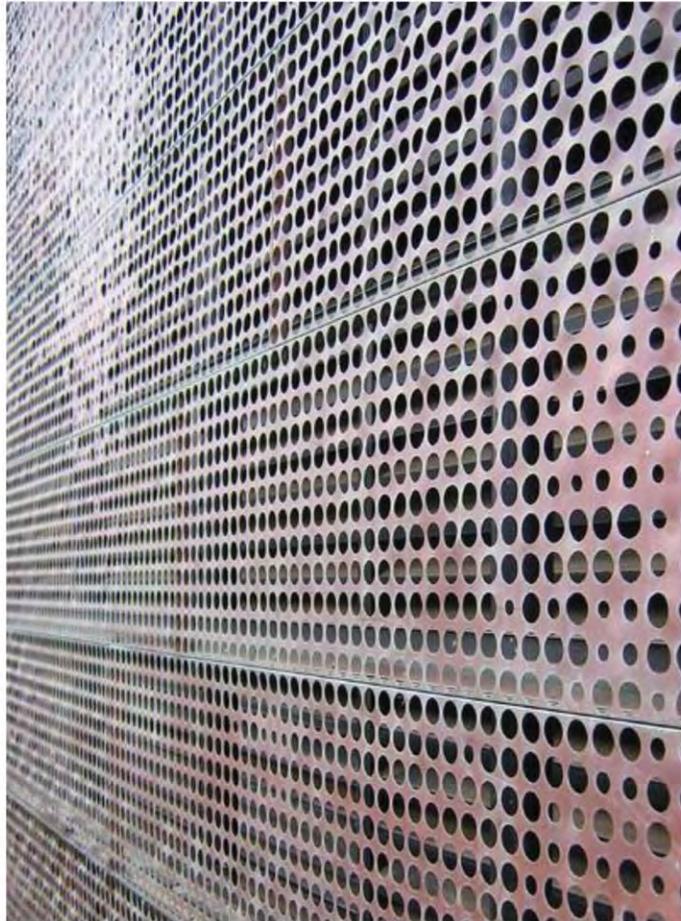


SW ELEVATION - NULTON ROAD
1/16" = 1' 0"

Exterior Perforated Copper Panel



Enclosure C: Parking Garage Color Renderings



JACOBS

Exterior Perforated Copper Panel



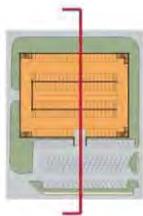
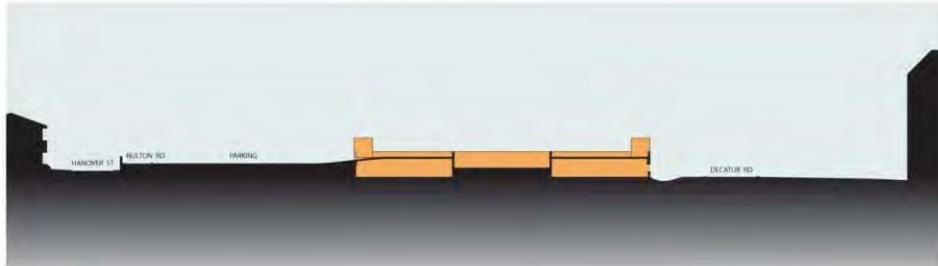
Enclosure C: Parking Garage Color Renderings



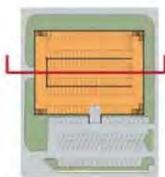
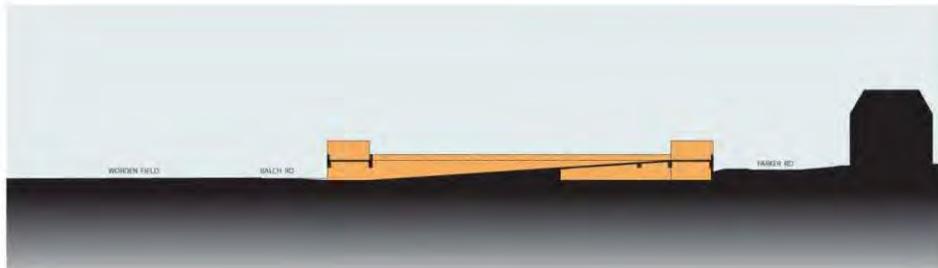
JACOBS

Enclosure 3: Height Comparison

(Notes: ramp between levels and tower closest to Hanover St. have been eliminated.)



OPTION 0
SECTION A



OPTION 0
SECTION B



DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND WASHINGTON
1314 HARWOOD STREET SE
WASHINGTON NAVY YARD DC 20374-5018

IN REPLY REFER TO
5090
Ser EV/442-14
JUL 18 2014

Mr. Rodney Little
Director
Maryland Historical Trust
100 Community Place
Crownsville, MD 21032-2023

Attn: Ms. Amanda Apple

Dear Ms. Apple:

SUBJECT: DRAFT PROGRAMMATIC AGREEMENT - CENTER FOR CYBER
SECURITY STUDIES, UNITED STATES NAVAL ACADEMY

Per 36 CFR 800.14(b), the Navy wishes to develop a Programmatic Agreement in consultation with the Maryland Historical Trust in order to govern the implementation of the Center for Cyber Security Studies at the United States Naval Academy in Annapolis, Maryland. The Navy foresees that the effects on historic properties will not be fully determined prior to approval of this undertaking. The first draft of the Programmatic Agreement is enclosed for your review and comment. We look forward to a collaborative and productive consultation on this undertaking. If you have any questions or require additional information, the POC at NAVFAC Washington is Julie Darsie at (202)685-1754 or julie.darsie@navy.mil.

Sincerely,

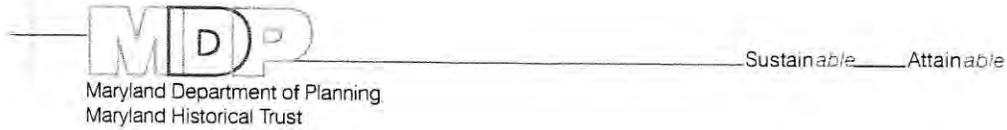
A handwritten signature in blue ink, appearing to read "Thomas P. Lewis", is written over the typed name.

THOMAS P. LEWIS
Environmental Business Line
Coordinator
By direction

Enclosure 1: Draft Programmatic Agreement

Copies to: Katherine Kerr, Advisory Council on Historic
Preservation
Dennis Montagna, National Park Service Northeast
Region
Lisa Craig, City of Annapolis

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September 26, 2014

Thomas P. Lewis
Environmental Business Line Coordinator
Department of the Navy
Naval Facilities Engineering Command Washington
1314 Harwood St., SE
Washington Navy Yard, DC 20374-5018

Re: Center for Cyber Security Studies and Parking Garage
United States Naval Academy
Anne Arundel County, Maryland

Dear Mr. Lewis:

Thank you for your letters and ongoing coordination, pursuant to Section 106 of the National Historic Preservation Act of 1966, regarding the above-referenced undertaking. We value the Navy's proactive efforts to involve the Maryland Historical Trust (Trust) through multiple meetings, site visits, and conference calls during project planning for this major initiative. The Trust, Maryland's State Historic Preservation Office, reviewed the submitted materials and offers the following comments and concurrence.

The project entails construction of the new Center for Cyber Security Studies (CCSS) and associated parking garage at the United States Naval Academy (AA-359), a National Historic Landmark (NHL). The preferred site for the CCSS is the Waffle Lot, the waterfront parking lot situated between Nimitz Library and Rickover Hall, and the preferred alternative for the parking garage is the Alumni Hall parking lot. We agree that construction of this major new facility and parking garage has the potential to adversely affect the NHL historic district. We appreciate the Navy's concerted intent and initiatives to avoid and minimize adverse effects through sensitive siting and design. Since the undertaking will be handled as a Design-Build contract, full details regarding the specific design and materials remain undecided at this time. The Trust believes the best approach is to negotiate a Programmatic Agreement (PA) for the entire undertaking. The PA would establish design principles and procedures for ongoing coordination, as well as specify agreed upon treatment measures to minimize and resolve any potential effects as the project moves forward to design and construction.

The Navy conducted an archeological overview study to examine the project areas' potential for containing archeological sites. Trust staff carefully reviewed the following report, prepared by Cardno TEC on behalf of the Navy: *Phase IA Archeological Investigations for the Center for Cyber Security Studies, United States Naval Academy, Annapolis, Anne Arundel County, Maryland* (Sebestyen 2014). The study entailed detailed background research and an evaluation of prior disturbance to make an informed assessment regarding the undertaking's potential to affect archeological resources and the need for further work. Based on the documentation presented in the report, we agree that the project areas have been extensively disturbed and are not likely to contain archeological resources eligible for the National Register of Historic Places. Thus, archeological field investigations are *not warranted* for this undertaking.

We look forward to working with the Navy and other consulting parties to successfully complete the Section 106 consultation for this important undertaking. If you have questions or require further assistance, please contact

Martin O Malley, Governor
Anthony G. Brown, Lt. Governor

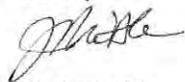
Richard Eberhart Hall, AICP Secretary
Amanda Stakem Conn, Esq., Deputy Secretary

Maryland Historical Trust - 100 Community Place - Crownsville - Maryland - 21032
Tel: 410 514 7600 - Toll Free: 1 800 756 0119 - TTY users: Maryland Relay - MHT Maryland.gov

Thomas P. Lewis
Center for Cyber Security Studies and Parking Garage
United States Naval Academy
September 4, 2014
Page 2 of 2

Amanda Apple (for historic structures) at 410-514-7630 / amanda.apple@maryland.gov or Beth Cole (for archeology) at 410-514-7631 / beth.cole@maryland.gov. Thank you for providing us this opportunity to comment.

Sincerely,



J. Rodney Little
Director / State Historic Preservation Officer

JRL/EJC/ARA/201403581

cc: Julie Darsie (NAVFAC)
Kimberly Hickey (NSA Annapolis)
Dennis Montagna (NPS NE Region)
Lisa Craig (City of Annapolis)



DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND WASHINGTON
1314 HARWOOD STREET SE
WASHINGTON NAVY YARD DC 20374-5018

IN REPLY REFER TO
5090
Ser EV/651-14
OCT 29 2014

Mr. Rodney Little
Director
Maryland Historical Trust
100 Community Place
Crownsville, MD 21032-2023

Attn: Ms. Amanda Apple

Dear Ms. Apple:

SUBJECT: 100% DESIGN FOR PARKING GARAGE - CENTER FOR CYBER
SECURITY STUDIES, UNITED STATES NAVAL ACADEMY

On March 7, 2014, NAVFAC Washington formally initiated consultation for the new Center for Cyber Security Studies (CCSS) and associated Parking Garage at the United States Naval Academy. On May 20, 2014, NAVFAC Washington submitted the preferred alternative for the massing of the Parking Garage. On July 3, 2014, NAVFAC Washington submitted the 35% Concept Design for the Parking Garage. While the Maryland Historical Trust verbally concurred that the proposed location, massing and height would have no adverse effect on the United States Naval Academy National Historic Landmark or Colonial Annapolis National Historic Landmark, the proposed cladding was not finalized.

At this time, NAVFAC Washington is submitting the 100% design for the parking garage. The location, massing and height are the same as in the 35% design. The proposed cladding is zinc metal panels, perforated in three different patterns. Drawings A201, A202 and A211 in the enclosed drawing package (Enclosure 1) show a proposed arrangement of the three patterns in staggered, horizontal bands. The muted gray of the zinc complements the granite, glazed brick and patinated copper palette of the Flagg buildings. Samples of the zinc panels were shared at the October 22, 2014 project meeting among the Maryland Historical Trust, NAVFAC Washington and United States Naval Academy. The landscaping around the garage will be a mix of native deciduous and evergreen trees and shrubs, as shown on Drawings L-100 and L-501. Evergreens will consist of six bald cypress placed at even intervals along the Decatur Road

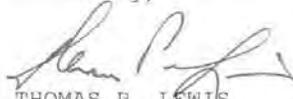
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(northeast) elevation. Twelve sweetbay magnolias will be interspersed among them.

The Navy finds that construction of the parking garage with perforated zinc cladding will have no adverse effect on the United States Naval Academy National Historic Landmark or the Colonial Annapolis National Historic Landmark. The Navy believes that the parking garage will meet the Secretary of the Interior's Standard No. 9 for new construction in that it will be differentiated from the historic buildings yet will be compatible with their massing, size and scale. The Navy requests your review of and concurrence with this finding.

If you have any questions or require additional information, the POC at NAVFAC Washington is Julie Darsie at (202)685-1754 or julie.darsie@navy.mil. We look forward to learning of the findings of this project.

Sincerely,



THOMAS P. LEWIS
Environmental Business Line
Coordinator
By direction

Enclosures (1) P621 - Center for Cyber Security Studies -
Parking Garage, 100% Drawings
(2) Parking Garage Color Renderings
(3) CD-Rom with drawings and renderings

Copies to: Dennis Montagna, National Park Service Northeast
Region
Lisa Craig, City of Annapolis

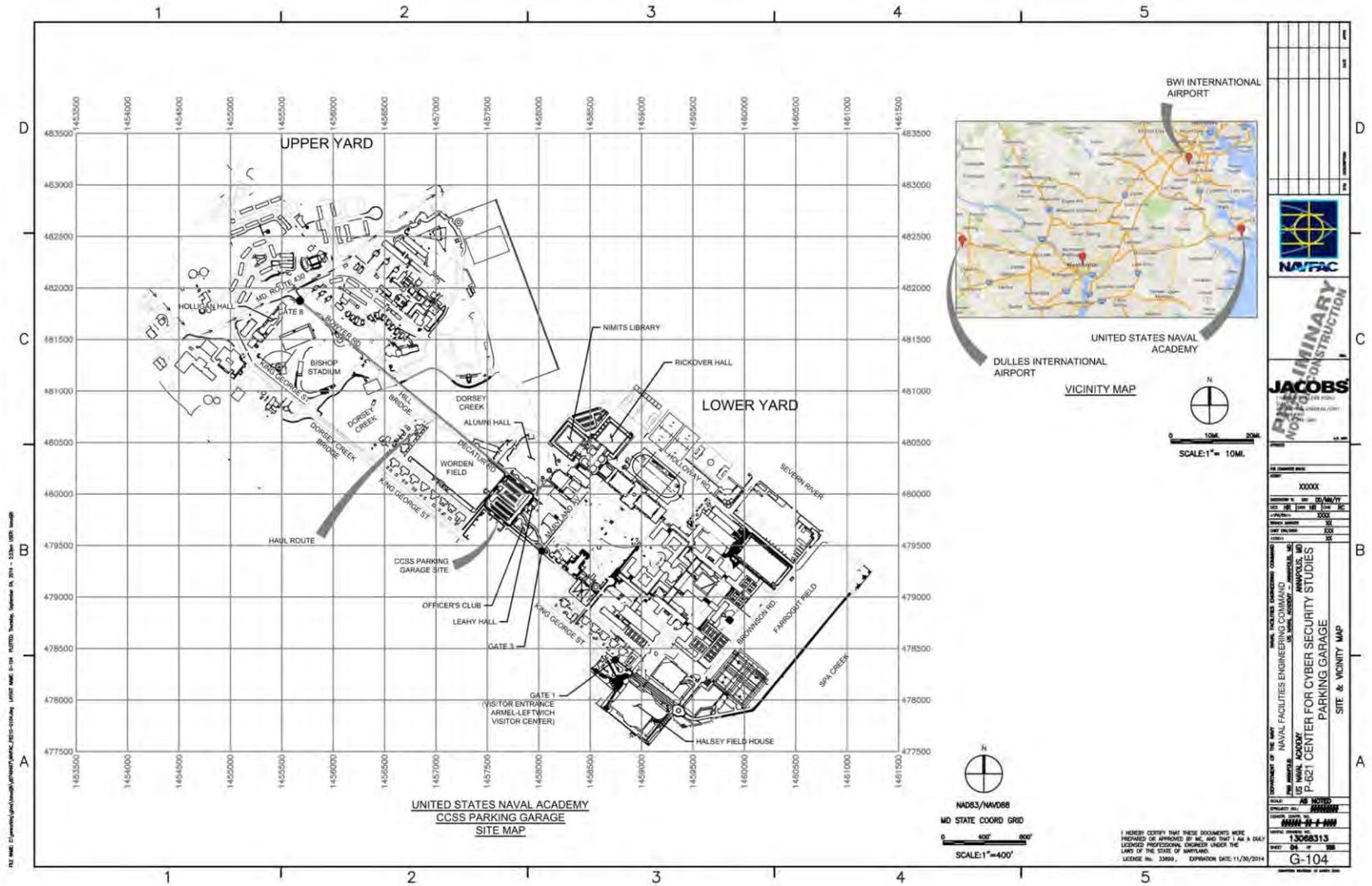


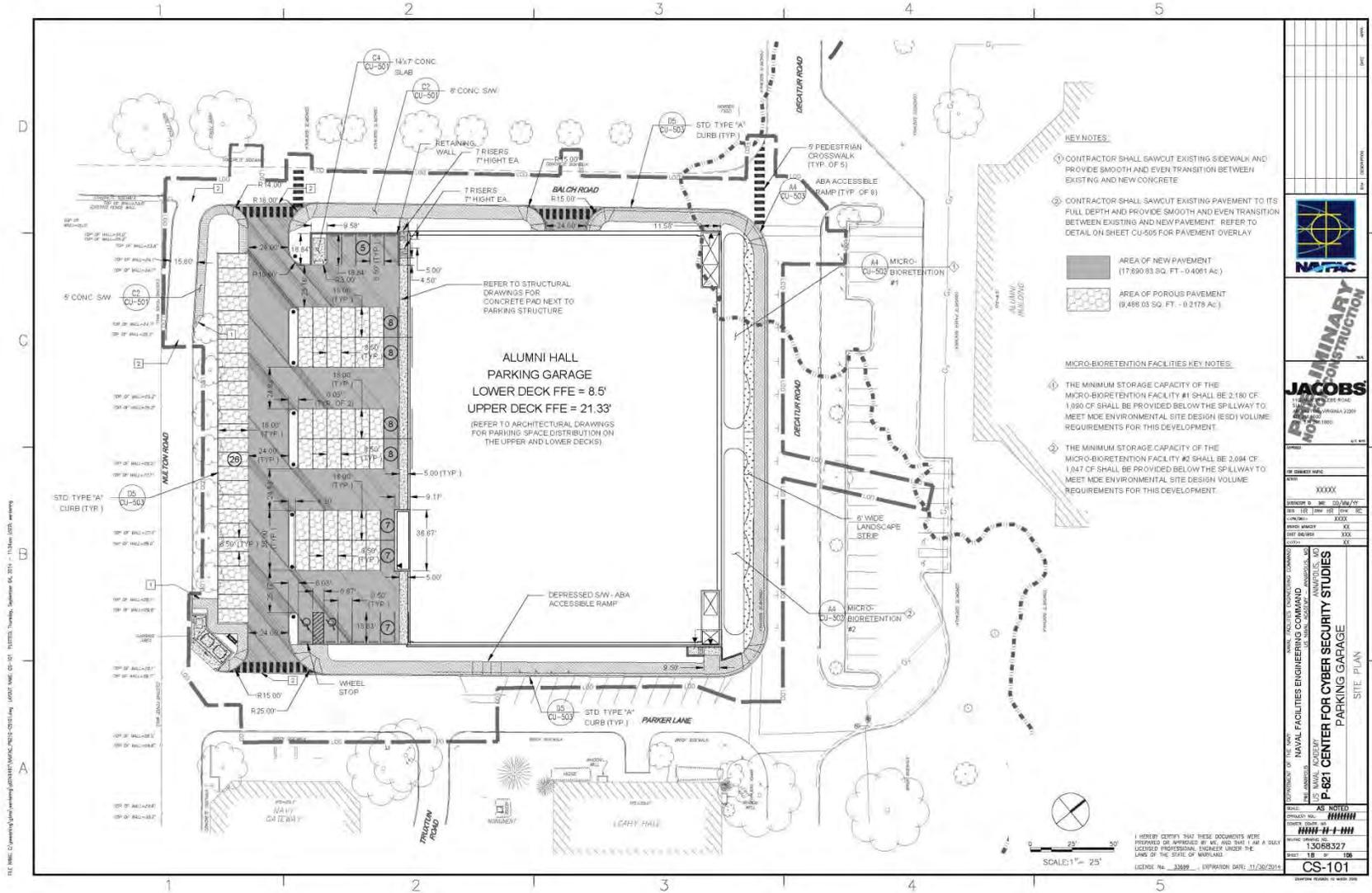
United States Naval Academy
Annapolis, Maryland
P621 - CENTER FOR CYBER SECURITY
STUDIES - PARKING GARAGE

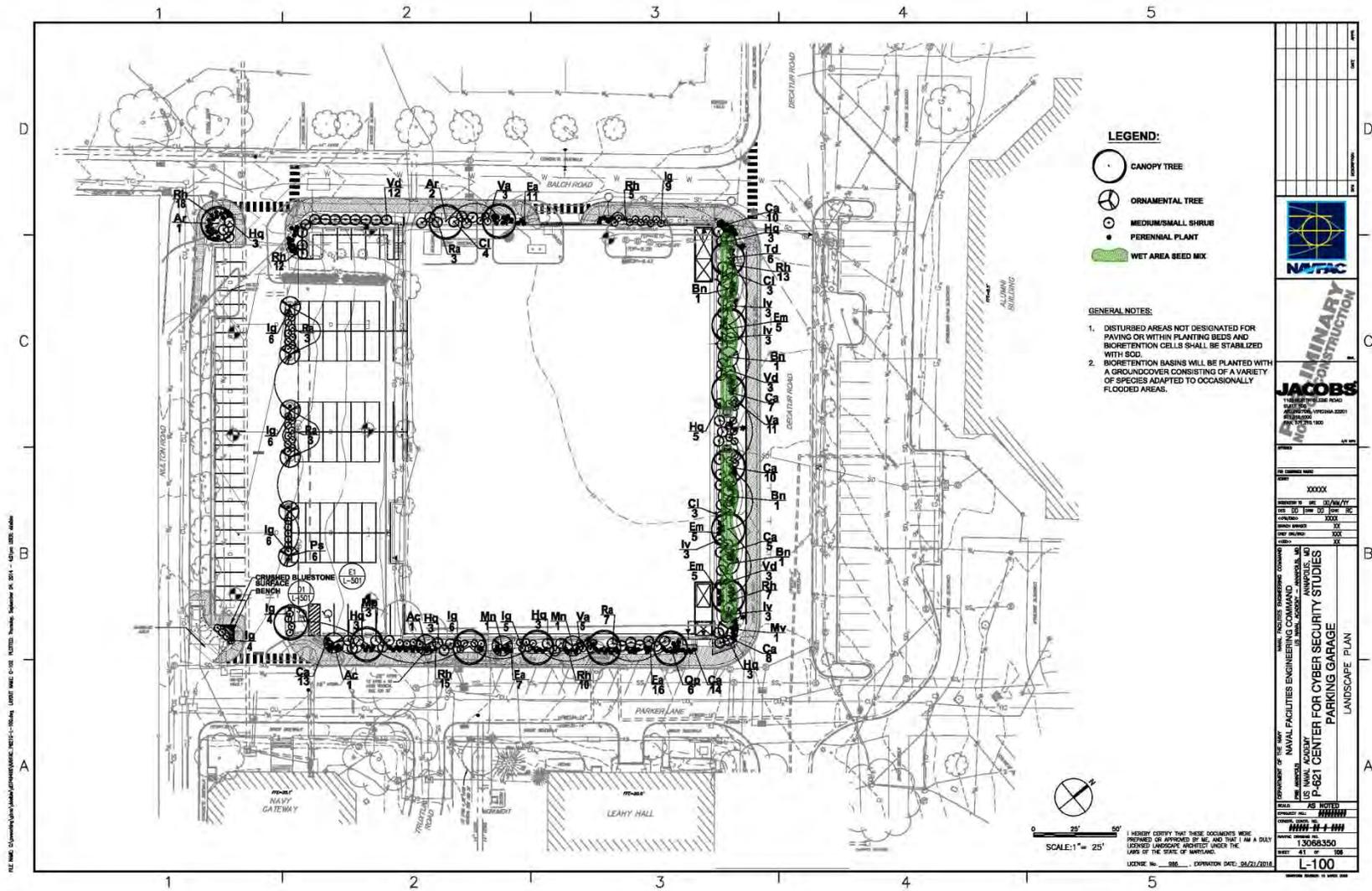
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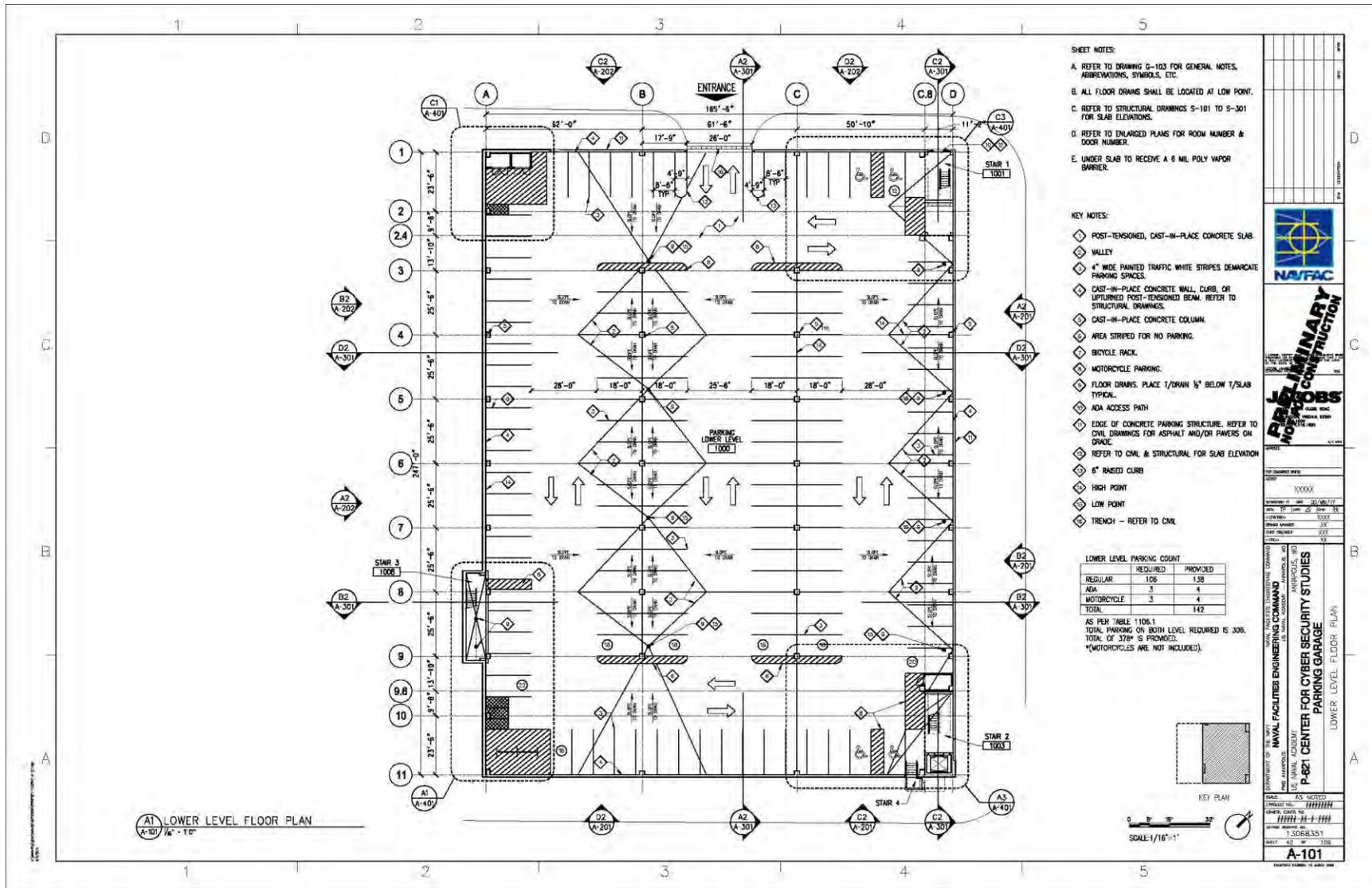
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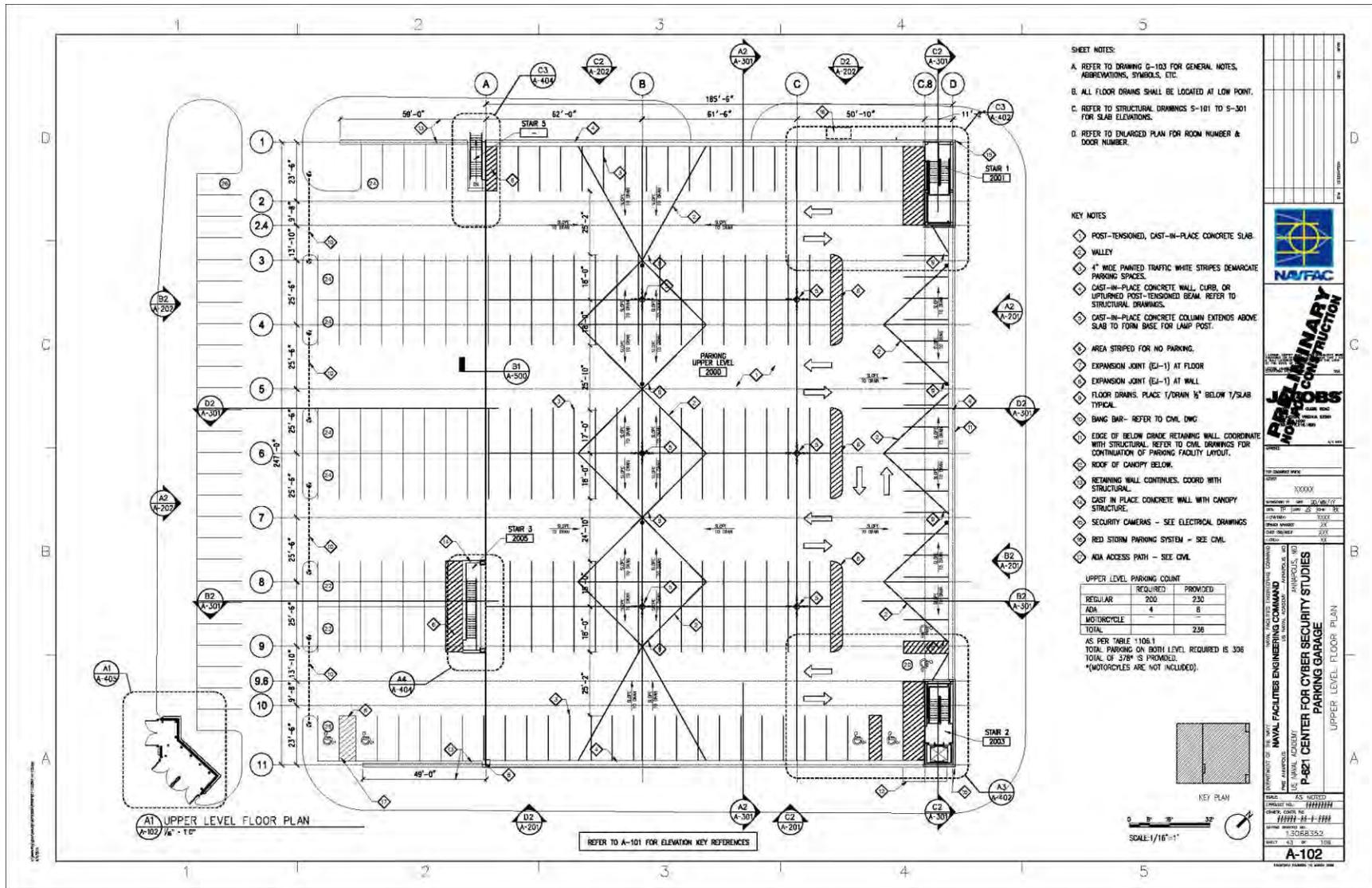
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GENERAL SYMBOLS	ARCHITECTURAL/STRUCTURAL SYMBOLS AND ABBREVIATIONS			GENERAL NOTES
<p>REFERENCE</p> <p>COLUMN LINE GRID DESIGNATION </p> <p>CENTER LINES </p> <p>MATCH LINE SYMBOL </p> <p>BREAK LINES </p> <p>ELEVATION SYMBOL </p> <p>DRAWING/DETAIL TITLE </p> <p>DETAIL NUMBER </p> <p>SHEET ON WHICH DETAIL IS DRAWN OR SCHEDULED </p> <p>DETAIL TITLE REFERENCE </p> <p>DETAIL DESIGNATION </p> <p>SHEET ON WHICH DETAIL IS DRAWN </p> <p>SECTION CUT </p> <p>ELEVATION REFERENCE </p> <p>PLAN NORTH/PROJECT NORTH </p> <p>NEW ROOM/AREA NUMBER </p> <p>DEMOLITION </p> <p>REVISION </p> <p>REVISION DESIGNATION </p> <p>KEYED NOTE </p> <p>GRAPHIC SCALE </p>	<p>MATERIALS</p> <p>EARTH, ETC. </p> <p>CONCRETE, ETC. </p> <p>METALS </p> <p>MASONRY </p> <p>WOOD </p> <p>GYPSPUM </p> <p>GLASS </p> <p>INSULATION </p> <p>SYMBOLS</p> <p>CONTRACTOR'S ACCESS ROUTE </p> <p>VEHICULAR TRAFFIC DIRECTION </p> <p>RAISED FLOOR PANELS AND/OR CEILING GRID </p> <p>WALL </p> <p>AREA DESIGNATION </p> <p>DOOR NUMBER </p> <p>LOUVER NUMBER </p> <p>FINISH SYMBOL </p> <p>WALL TYPE NUMBER </p> <p>ELECTRICAL PANEL </p> <p>FLOOR DRAW </p> <p>STEEL LADDER </p> <p>SUMP </p>	<p>ABBREVIATIONS</p> <p>A AC AIR CONDITIONING ADJ ADJACENT ADR ACCESS ROOF ABOVE FINISH FLOOR ALT ALTERNATE APPROX APPROXIMATE ARCH ARCHITECT(URAL) AUXIL AUXILIARY AVG AVERAGE</p> <p>B BEL BELOW BLDG BUILDING BLOC BLOCKING BM BENCHMARK OR BEAM BRG BEARING BASEM BASEMENT</p> <p>C CAB CABINET CC CEILING GRID CL CENTER LINE CLR CLEAR CLS CLOSET CMU CONCRETE MASONRY UNIT COL COLUMN COOR COORDINATE CONC CONCRETE CONT CONTINUOUS COR CONTRACTING OFFICER REPRESENTATIVE</p> <p>D DET DOUBLE DET DETAIL DIA DIAMETER DN DOWN DIM(S) DIMENSION(S)</p> <p>E EA EACH EL ELEVATION ETS EDGE OF SLAB EPDM ETHYLENE-PROPYLENE-DIENE-MONOMER ROOFING EQ EQUIPMENT EXIST EXISTING EXT EXTERIOR</p> <p>F FD FIRE DAMPER OR FLOOR DRAIN FE FIRE EXTINGUISHER FEC FIRE EXTINGUISHER CABINET FF FINISHED FLOOR FF FINISH FLR FLOOR FLUOR FLUORESCENT FR FIRE RATED FRC FIRE RATED CONSTRUCTION</p> <p>G GALV GALVANIZED GEN GENERAL CONTRACTOR GFU GOVERNMENT FURNISHED EQUIPMENT GL GLASS GWS GYPSPUM WALL BOARD</p> <p>H HW HIGH HD HAND HP HIGH POINT HORIZ HORIZONTAL HSS HOLLOW STRUCTURAL STEEL HT HEIGHT HVAC HEATING VENTILATION AND AIR CONDITIONING</p> <p>I INSL INSULATION IQZ INDOOR AIR QUALITY</p> <p>L LBS POUNDS LF LINEAR FOOT LL LEVEL</p> <p>M MAS MASONRY MAT MATERIAL MAX MAXIMUM MECH MECHANICAL MET METAL MIN MINIMUM MO MASONRY OPENING MOD MODIFICATION</p> <p>N NC NOT IN CONTRACT NO NUMBER NOM NOMINAL NS NOT TO SCALE</p> <p>O OC ON CENTER OH OPPOSITE HAND OPP OPPOSITE</p> <p>P PNL PANEL PSI POUND PER SQUARE INCH PVC POLYVINYL CHLORIDE PRD PAINTED</p> <p>R RAD RADIUS RAF RAISED ACCESS FLOOR RCP REFLECTED CEILING PLAN RFD ROOF DRAIN REF REFERENCE RF RADIO FREQUENCY RM ROOM RO ROUGH OPENING</p> <p>S SCH SCHEDULE SHT SHEET SM SIMILAR SPEC SPECIFICATIONS SQ SQUARE SS STAINLESS STEEL STL STEEL STR STRUCTURAL SUSP SUSPENDED</p> <p>T TOB TO BE DETERMINED TOC TOP OF CONCRETE TOP OF STEEL TOW TOP OF WALL TYP TYPICAL TH THICKNESS</p> <p>U UNL UNDERWRITER'S LABORATORIES, INC. UNL UNLESS NOTED OTHERWISE UTIL UTILITY</p> <p>V VB VINYL BASE VCT VINYL COMPOSITE TILE VERT VERTICAL VERIFY IN FIELD</p> <p>W W WIDE W/ WITH W/O WOOD OR WIDTH W/O WITHOUT</p>	<p>GENERAL NOTES</p> <ol style="list-style-type: none"> IT IS THE INTENT OF THE CONTRACTING OFFICER REPRESENTATIVE (COR) THAT THIS WORK BE IN CONFORMANCE WITH ALL REQUIREMENTS OF THE BUILDING AUTHORITIES HAVING JURISDICTION OVER THIS TYPE OF CONSTRUCTION. THE GENERAL CONTRACTOR (GC) AND CONTRACTORS SHALL DO THEIR WORK IN CONFORMANCE WITH ALL APPLICABLE CODES AND REGULATIONS. THE GC AND CONTRACTOR SHALL VERIFY ALL CONDITIONS AND DIMENSIONS AT THE JOB SITE AND REPORT ANY DISCREPANCIES BETWEEN THE DRAWING AND EXISTING CONDITIONS TO THE COR PRIOR TO COMMENCING WORK. NO DEMOLITION WORK SHALL PROCEED UNTIL CONFLICTS ARE RESOLVED TO THE SATISFACTION OF COR. REFER TO CIVIL DRAWING FOR SCOPE OF DEMOLITION WORK. THE GC SHALL AT ALL TIMES KEEP THE PREMISES FREE FROM THE ACCUMULATION OF WASTE MATERIALS OR DEBRIS CAUSED BY CONSTRUCTION. AT THE COMPLETION OF WORK, ALL WASTE, INCLUDING: TOOLS, CONSTRUCTION EQUIPMENT, MACHINERY, AND SURPLUS MATERIALS SHALL BE REMOVED FROM THE JOB SITE. ANY WORK WHICH REQUIRES DEACTIVATION OF UTILITY SERVICES SHALL BE COORDINATED WITH COR PRIOR TO COMMENCING WORK. THE MECHANICAL CONTRACTOR SHALL COORDINATE ALL PENETRATIONS AND EQUIPMENT SUPPORTS WITH THE GENERAL CONTRACTOR. DIMENSION LINES SHOWN ON ARCHITECTURAL SHEETS ARE FROM COLUMN CENTER LINES AND FACE OF MASONRY, CONCRETE OR FINISHED FACE OF WALL, UNLESS OTHERWISE NOTED. DO NOT SCALE DRAWINGS. CONSTRUCTION ACCESS, PARKING, OFFICES AND EXTENT/SIZE OF CONSTRUCTION SIGNING AREA SHALL BE COORDINATED WITH COR. ROUGH OPENING (R.O.) AND MASONRY OPENING (M.O.) DIMENSIONS SHOWN ON DRAWING ARE NOMINAL OR MODULAR DIMENSIONS MAY VARY DEPENDING ON THE TYPE OF BUILDING ELEMENT. CONTRACTOR SHALL REFER TO AND CROSS REFERENCE DETAILS, DIMENSIONS, NOTES, AND REQUIREMENTS SHOWN ON ARCHITECTURAL DRAWINGS WITH RELATED REQUIREMENTS SHOWN ON OTHER DISCIPLINE DRAWINGS. 	<p>PRELIMINARY NOT FOR CONSTRUCTION</p> <p>DATE: 10/20/15 DRAWN BY: [Name] CHECKED BY: [Name] SCALE: AS NOTED SHEET NO: 1-1-1111 PROJECT NO: 130225312 TITLE: G-103</p>











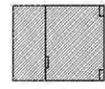
- SHEET NOTES:**
- A. REFER TO DRAWING G-103 FOR GENERAL NOTES, ABBREVIATIONS, SYMBOLS, ETC.
 - B. ALL FLOOR DRAINS SHALL BE LOCATED AT LOW POINT.
 - C. REFER TO STRUCTURAL DRAWINGS S-101 TO S-301 FOR SLAB ELEVATIONS.
 - D. REFER TO ENLARGED PLAN FOR ROOM NUMBER & DOOR NUMBER.

- KEY NOTES:**
- ◇ POST-TENSIONED, CAST-IN-PLACE CONCRETE SLAB.
 - ▽ VALLEY
 - ◇ 4" WIDE PAINTED TRAFFIC WHITE STRIPES DEMARCATe PARKING SPACES.
 - ◇ CAST-IN-PLACE CONCRETE WALL, CURB, OR UPLIFTEd POST-TENSIONED BEAM. REFER TO STRUCTURAL DRAWINGS.
 - ◇ CAST-IN-PLACE CONCRETE COLUMN EXTENDS ABOVE SLAB TO FORM BASE FOR LAMP POST.
 - ◇ AREA STRIPED FOR NO PARKING.
 - ◇ EXPANSION JOINT (EJ-1) AT FLOOR
 - ◇ EXPANSION JOINT (EJ-1) AT WALL
 - ◇ FLOOR DRAINS, PLACE 1/4" DRAIN 1" BELOW 1/4" SLAB TYPICAL.
 - ◇ BANG BAR- REFER TO CIVIL DWG.
 - ◇ EDGE OF BELOW GRADE RETAINING WALL. COORDINATE WITH STRUCTURAL. REFER TO CIVIL DRAWINGS FOR CONTINUATION OF PARKING FACILITY LAYOUT.
 - ◇ ROOF OF CANOPY BELOW.
 - ◇ RETAINING WALL CONTINUES. COORD WITH STRUCTURAL.
 - ◇ CAST IN PLACE CONCRETE WALL WITH CANOPY STRUCTURE.
 - ◇ SECURITY CAMERAS - SEE ELECTRICAL DRAWINGS
 - ◇ RED STORM PARKING SYSTEM - SEE CIVIL
 - ◇ ADA ACCESS PATH - SEE CIVIL

UPPER LEVEL PARKING COUNT

REGULAR	REQUIRED	PROVIDED
ADA	4	B
MOTORCYCLE	-	B
TOTAL		236

AS PER TABLE 1106.1
 TOTAL PARKING ON BOTH LEVEL REQUIRED IS 306
 TOTAL OF 378" IS PROVIDED.
 *(MOTORCYCLES ARE NOT INCLUDED).

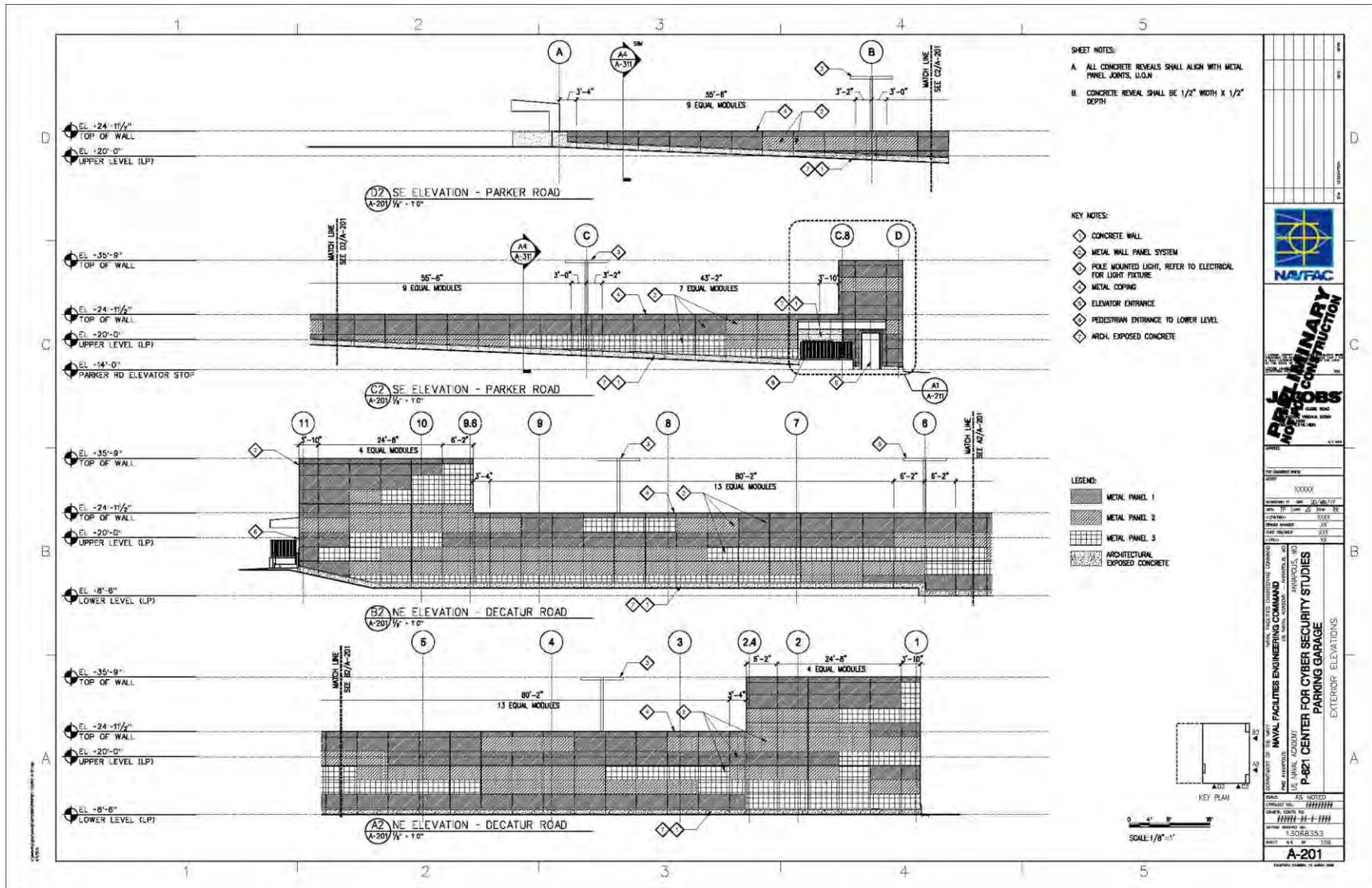


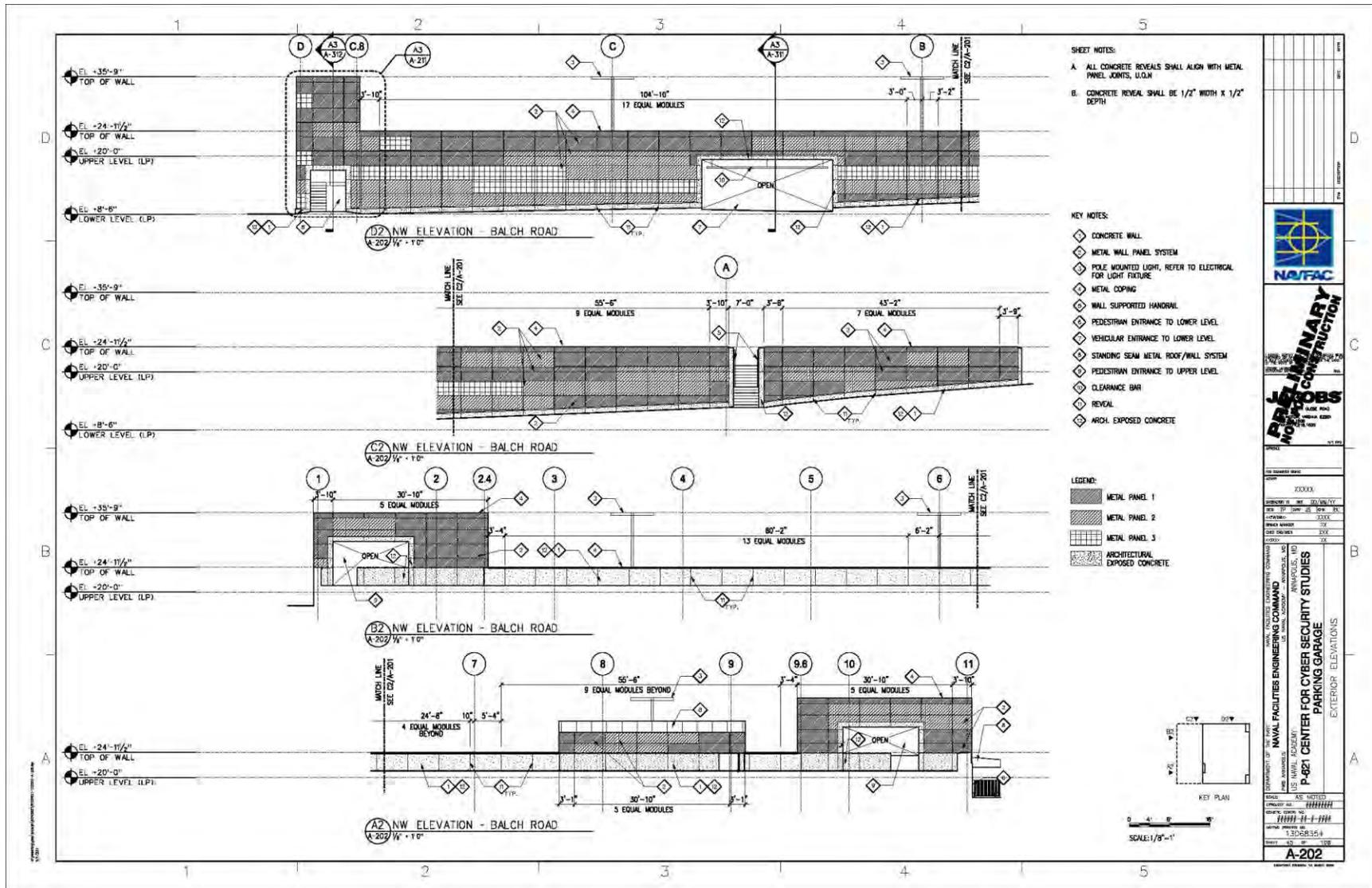
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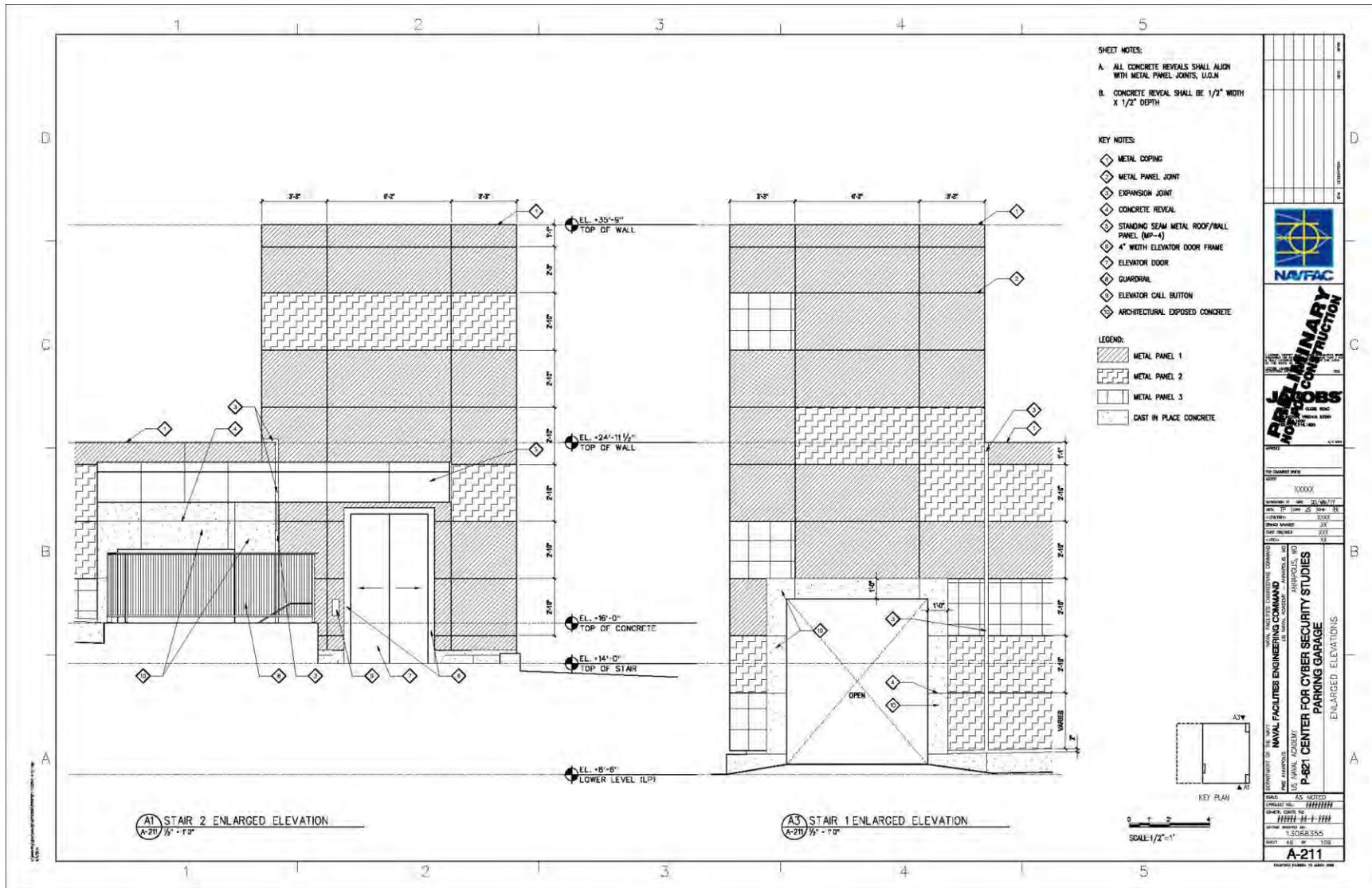
NAVAL FACILITIES ENGINEERING COMMAND
 4000 BALTIMORE AVENUE
 ANNAPOLIS, MD 21404-5000

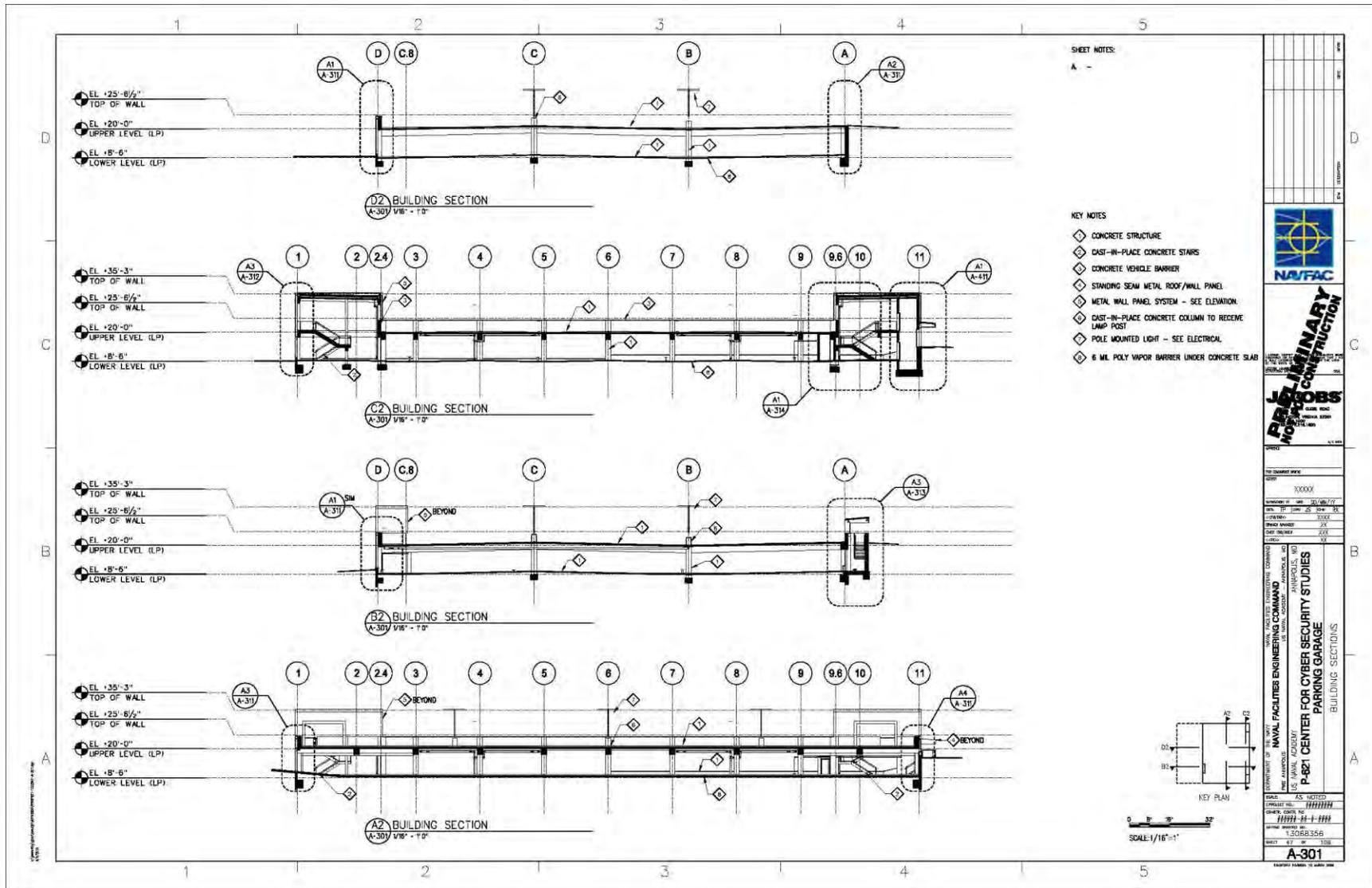
P-821 CENTER FOR CYBER SECURITY STUDIES
 PARKING GARAGE
 UPPER LEVEL FLOOR PLAN

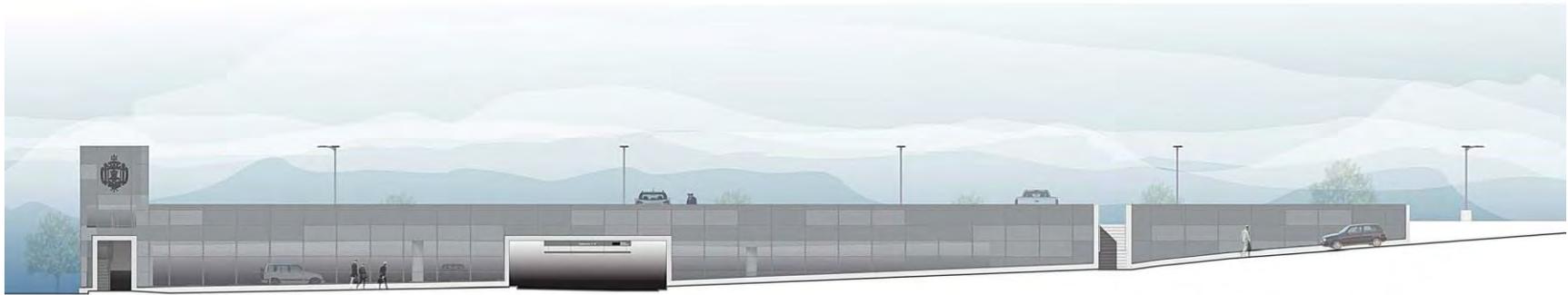
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DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND WASHINGTON
1314 HARWOOD STREET SE
WASHINGTON NAVY YARD DG 20374-5018

IN REPLY REFER TO:
5090
Ser EV/662-14
OCT 29 2014

Ms. Katherine R. Kerr
Program Analyst
Advisory Council on Historic Preservation
401 F Street NW, Suite 308
Washington, DC 20001-2637

SUBJECT: PROGRAMMATIC AGREEMENT REGARDING DESIGN OF CENTER FOR
CYBER SECURITY STUDIES, UNITED STATES NAVAL ACADEMY,
ANNAPOLIS, MARYLAND

Dear Ms. Kerr:

NAVFAC Washington proposes to enter into a Programmatic Agreement regarding the design of the Center for Cyber Security Studies (CCSS) at the United States Naval Academy (USNA) in Annapolis, Maryland. The reason for the Programmatic Agreement is that the effects of the CCSS on historic properties cannot be fully determined prior to obligation of construction funds. Per 36 CFR 800.11(e) and 800.14(a)(2), NAVFAC Washington herein submits the project information and proposed alternative procedures to the Advisory Council for review and comment.

Description of Undertaking

The CCSS would be a dedicated and secure space for the cyber curriculum at the USNA. An approximately 206,000 square foot multistory building would be constructed at the Lower Yard (the academic core of the USNA campus on the east side of College Creek) to house the CCSS as well as three related academic departments. The CCSS building would contain classrooms, teaching and research laboratories, lecture halls, a SCIF, study rooms, offices, an observatory, and a rooftop multipurpose space. The CCSS building would have a contemporary design, with primary facades constructed of concrete, glass, and metal to reinforce the function of the building as a state-of-the-art center of a modern, high-tech curriculum. Nonetheless, the building would be designed in a manner that is visually compatible to the size, scale, massing and color of adjacent buildings, as the site for the CCSS is within the USNA National Historic Landmark district.

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The preferred site is an existing surface parking lot. This triangular site consists of made land between Nimitz Library (Building 589) and Rickover Hall (Building 590), overlooking College Creek. The parking lot is protected by a concrete seawall and separated from the seawall by a sidewalk and McNair Road. Reflecting both the site and adjacent buildings, the CCSS would have a plinth plus five stories supported by a deep pile foundation. The footprint and massing of the building would have the same triangular configuration as the site. Enclosure 1 shows the project location; Enclosure 2 shows a conceptual rendering of the building.

Area of Potential Effect

The Area of Potential Effect (APE) includes the USNA, areas of the city of Annapolis adjacent to the installation, and areas with water-related views of the proposed site. Enclosure 3 shows the area of potential effect and identified historic properties.

Identification of Historic Properties within APE

NAVFAC Washington worked with the Maryland Historical Trust and the City of Annapolis to identify the following historic properties within the APE.

- The USNA was designated an NHL on July 4, 1961 and was automatically placed on the NRHP in 1966 when the Register was created by the passage of the NHPA. The USNA Historic District is nationally significant for its pivotal role in American naval affairs and the education of naval officers in both military and academic studies, and for exemplifying the design principles of Beaux Arts architecture and the work of New York architect Ernest Flagg, who designed the plan of the main campus and its core buildings in the early twentieth century. The preferred site is adjacent to two contributing buildings, Nimitz Library (Building 589) and Rickover Hall (Building 590).
- The Colonial Annapolis Historic District was designated an NHL in 1965 and included in the NRHP in 1966. The district as defined by the NRHP was expanded in 1984. Colonial Annapolis has national significance as the site of the Continental Congress in 1783-1784 and the Annapolis Convention in 1786, which led to the Constitutional Convention in 1787. The district is also nationally significant in the areas of architecture and urban planning as one of the first planned cities in colonial America, as

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a rare example of a modified baroque plan, and for its several outstanding examples of high Georgian design. As the capital of both the Colony and State of Maryland, the district also has state significance as the center of colonial and state government, politics, and commerce. The APE includes 15 properties individually listed in the NRHP that also contribute to the Colonial Annapolis Historic District.

- Ferry Point Farm was recorded in the Maryland Inventory of Historic Properties in 1997 and was recommended eligible for inclusion in the NRHP for its association with the Brice family, one of Anne Arundel County's oldest and historically prominent families, and as a locally significant example of an early-nineteenth century vernacular farmhouse. No formal determination of eligibility has been completed for the Ferry Point Farm; however, for the purposes of this undertaking, this property is being treated as eligible for listing in the NRHP. The property is located on the north shore of the Severn River.

Effects on Historic Properties

- The potential for effects on the USNA Historic District is the primary reason for the proposed Programmatic Agreement. The CCSS building would comprise a plinth plus five stories. Incorporating a plinth continues an architectural precedent at the Lower Yard, as several existing academic buildings across its eastern edge, including Rickover Hall (Building 590) and Nimitz Library (Building 589), have plinths. The upper five stories of the CCSS building would extend above the plinth in a single mass and have similar setbacks to Rickover Hall and Nimitz Library. The footprint and massing of both the plinth and the five stories would mirror the triangular configuration of the site. This proposed building composition respects the existing spatial organization and architectural context of the waterfront edge of the Lower Yard. Furthermore, the height of each story would be the minimum possible so that the overall height of the CCSS building would be compatible with Rickover Hall and Nimitz Library and would not obstruct views of the USNA Chapel dome to and from the Severn River. To reflect the function of the CCSS building as an advanced teaching center of a cutting-edge, futuristic program, the Navy proposes erecting a contemporary-style facility built of glass, metal, and concrete. The contemporary style of the CCSS building

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would clearly differentiate it as an addition to the USNA Historic District. Nonetheless, the design would be compatible with the surrounding buildings. NAVFAC Washington believes that the CCSS could be designed to have no adverse effect on the USNA Historic District. Nevertheless, the design and construction schedule will not allow the effects to be fully determined before obligation of construction funds. Therefore, at the suggestion of the Maryland Historical Trust, NAVFAC Washington proposes alternative procedures under a Programmatic Agreement.

- Construction of the CCSS would not be expected to change the visual character or physical features of the Colonial Annapolis Historic District. The CCSS would be approximately 1,100 feet northeast of the Colonial Annapolis Historic District. Views from this portion of the historic district towards the CCSS would be blocked by several USNA buildings.
- Construction of the CCSS would not be expected to have an adverse visual effect on the Ferry Point Farm. Ferry Point Farm is situated on the north shore of the Severn River with direct views of the USNA waterfront. The CCSS building would introduce a new visual element within the viewshed of Ferry Point Farm. However, the CCSS building would be visually compatible in height, size, color, proportion and massing with its immediate context. The new building would not diminish Ferry Point Farm's historic association with the Brice family or its architectural significance.

Public Involvement

Under the NEPA process, a public scoping meeting was held for the CCSS building on February 5, 2014. The scoping meeting was conducted in an open house format designed to inform the public about the proposed action and NEPA process, and allow the public to identify to USNA and NAVFAC representatives issues and concerns they would like to see addressed. During the scoping meeting, the USNA Superintendent gave a presentation on the Center for Cyber Security Studies and the objectives of the proposed action. Following the presentation, the public was provided the opportunity to ask questions and comment on the project. A total of 22 individuals signed in at the meeting, including one elected official. The public had five ways to provide comments during the scoping period: 1) submit written comments during the public scoping meeting; 2) provide comments orally to a stenographer at the scoping meeting; 3) provide comments orally by telephoning the USNA Public Affairs Office; 4) submit comments electronically; or 5) mail written comments

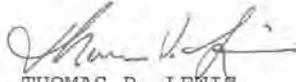
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Ser EV/662-14

to USNA Public Affairs Office. A total of 10 comments were received during the scoping period from February 5, 2014 to March 7, 2014. The primary issues that were raised during scoping related to water resources and transportation. In addition, there were comments related to cultural resources, pertaining to the architectural style of the CCSS building and how it could relate to the tradition and values of the USNA. A second, open house-style public meeting was held on June 18, 2014 at the Loews Annapolis Hotel. The Superintendent of the Naval Academy started the meeting with a presentation on the project. Sixteen people attended. One person left a comment about midshipmen parking. Both meetings featured a display on the Section 106 process manned by a Cultural Resources Professional.

In addition to public meetings, NAVFAC Washington has communicated with the following consulting parties: Maryland Historical Trust, National Park Service Northeast Region, and City of Annapolis Historic Preservation Division, which is representing the Colonial Annapolis Historic District and Ferry Point Farm.

A draft of the proposed Programmatic Agreement is attached as Enclosure 4. NAVFAC Washington herein requests the Advisory Council's review of and comment on the alternative procedures. The POC at NAVFAC Washington is Julie Darsie at (202)685-1754 or julie.darsie@navy.mil.

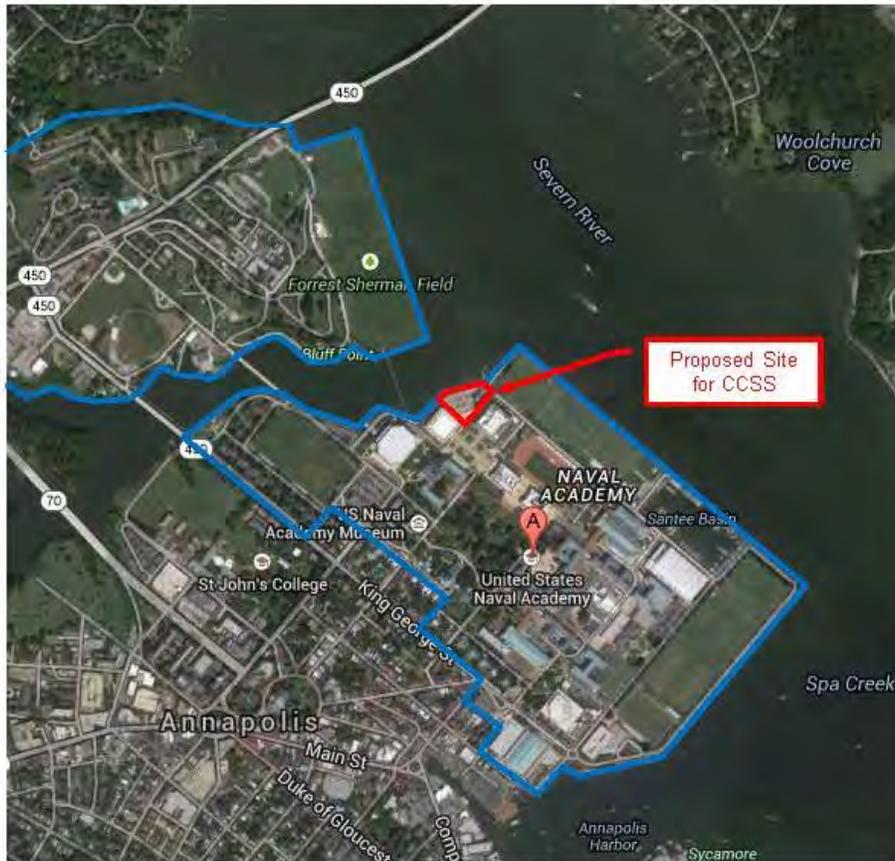
Sincerely,



THOMAS P. LEWIS
Environmental Business Line
Coordinator
By direction

Enclosures: 1) Site Location Map
 2) Rendering of Proposed Building
 3) Area of Potential Effect and Identified
 Historic Sites
 4) Draft Programmatic Agreement

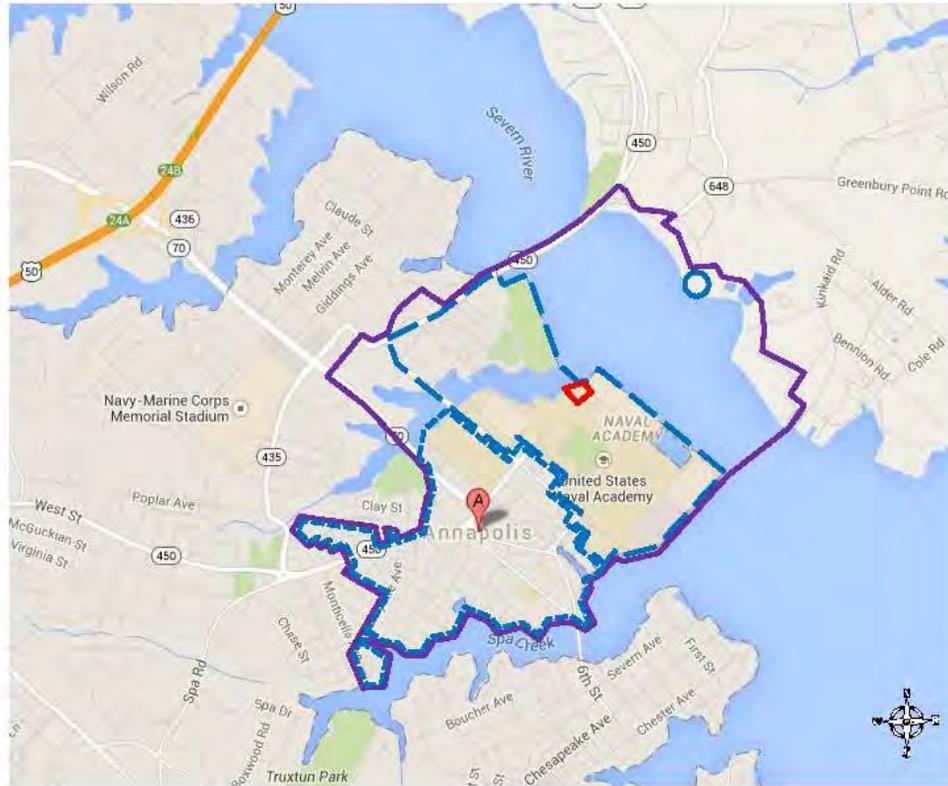
Enclosure 1: Site Location Map



Enclosure 2: Rendering of Proposed Building



Enclosure 3: Area of Potential Effect and Identified Historic Sites



-  Area of Potential Effect
-  Site Location
-  Colonial Annapolis Historic District (NHL & NR combined)
-  United States Naval Academy National Historic Landmark
-  Ferry Point Farm

**PROGRAMMATIC AGREEMENT AMONG
THE DEPARTMENT OF THE NAVY,
THE MARYLAND STATE HISTORIC PRESERVATION OFFICER AND
THE NATIONAL PARK SERVICE NORTHEAST REGION
REGARDING
THE CENTER FOR CYBER SECURITY STUDIES
AT THE UNITED STATES NAVAL ACADEMY,
ANNAPOLIS, MARYLAND**

WHEREAS, the Commandant, Naval District Washington (Navy) proposes to design and construct a Center for Cyber Security Studies (Undertaking) at the United States Naval Academy, Annapolis, Maryland (Academy), to consist of a new, approximately 206,000 square foot, multistory building on the Lower Yard of the Academy; and

WHEREAS, the Navy has defined the Undertaking's Area of Potential Effect (APE) as the Academy, that part of the City of Annapolis adjacent to the Academy, and those areas north of the Severn River with over-water views of the Academy; and

WHEREAS, the APE includes the National Historic Landmark and National Register-listed United States Naval Academy (AA-359), the National Historic Landmark and National Register-listed Colonial Annapolis Historic District (AA-137) and the potentially National Register-eligible Ferry Point Farm (AA-948); and

WHEREAS, the Undertaking is the subject of an Environmental Assessment (EA) with a Finding of No Significant Impact (FONSI) to be issued March 2015; and

WHEREAS, pursuant to 36 CFR Sections 800.3 and 800.14, regulations implementing Section 106 of the National Historic Preservation Act (16 USC Section 470f), the Navy has determined that the Undertaking has the potential to cause effects on historic properties and that those effects cannot be fully determined prior to obligation of construction funds. Therefore, the Navy proposes to develop alternate procedures to implement Section 106 for the Undertaking; and

WHEREAS, pursuant to 36 CFR Sections 800.6 and 800.14, the Navy has consulted with the Maryland State Historic Preservation Officer (SHPO) regarding the Undertaking and the development of alternate procedures; and

WHEREAS, pursuant to 36 CFR Sections 800.6(a)(1)(i), 800.10(b), and 800.14(b) the Navy has invited the Advisory Council on Historic Preservation (ACHP) to participate in this consultation, and the ACHP has elected not to participate; and

WHEREAS, pursuant to 36 CFR Section 800.10(c), the Navy has invited the National Park Service – Northeast Region (NPS) to participate in this consultation, and the NPS has elected to be a consulting party; and

WHEREAS, pursuant to 36 CFR Section 800.2(c), 800.6(a), and 800.14(b), the Navy has invited the City of Annapolis (City) to participate in this consultation on behalf of the Colonial Annapolis Historic District and Ferry Point Farm, and the City has elected to be a consulting

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Center for Cyber Security Studies
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party; and

WHEREAS, the Navy, in accordance with 36 CFR Section 800.2(d)(3), used the agency's procedures for public involvement under the National Environmental Policy Act (NEPA) to inform the public of the Undertaking and solicit their views on its effect on historic properties, has distributed the draft EA to appropriate state and federal agencies and the public, and will distribute the final EA.

WHEREAS, pursuant to 36 CFR Section 800.14(b), the Navy and the SHPO have developed procedures in this Programmatic Agreement to ensure that assessment of effects and development of treatment and mitigation plans for unforeseen effects to the Academy, Colonial Annapolis Historic District or Ferry Point Farm are properly coordinated with all phases of the design and construction of the undertaking.

NOW, THEREFORE, the Navy and the SHPO (parties) agree that the Undertaking shall be implemented in accordance with the following stipulations in order to take into account foreseen and unforeseen future effects to historic properties.

Definitions:

Calendar Day: A twenty-four (24) hour period of time (12:00 midnight to 12:00 midnight EDT) as described in the Gregorian Calendar, adopted by Great Britain with the American Colonies in 1752 A.D., and by the various U.S. States and Territories.

Qualified Historic Architect: means a person who meets the Secretary of Interior's Professional Standards (48 FR Section 44716).

Qualified Archaeologist: means a person who meets the Secretary of Interior's Professional Standards (48 FR Section 44716).

Qualified Architectural Historian: means a person who meets the Secretary of Interior's Professional Standards (48 FR Section 44716).

STIPULATIONS

The Navy will ensure that avoidance of adverse effects to any previously identified historic properties is the preferred treatment and will utilize all feasible, prudent and practical measures to avoid, minimize or mitigate adverse effects. The Navy, in coordination with the SHPO and NPS, will ensure that the following measures are carried out:

I. Design Principles: The Navy will ensure that the following measures are incorporated into the design process for the Undertaking:

- A. The Center for Cyber Security Studies will be differentiated from existing construction at the Academy but will be compatible with the Academy in terms of its massing, size, scale and architectural features. The design will be consistent with the standards for new construction set forth in the *Secretary of the Interior's Standards for Rehabilitation* (36

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CFR Section 68).

- B. The Navy will first strive to design the Center for Cyber Security Studies in a way that minimizes its height as well as the massing of the top floor while still accommodating program requirements.
- C. The concrete plinth that forms the ground-level base of Rickover Hall and Nimitz Library will be extended as an element of the Center for Cyber Security Studies so as to maintain the feature and spatial relationship that characterizes the Rickover-Nimitz complex.

II. Professional Qualification Standards:

- A. All preservation and design related work carried out in accordance with this Agreement shall be overseen by a person or persons meeting The Secretary of the Interior's Professional Qualification Standards (48 FR Section 44716) for the appropriate discipline.
- B. The Navy will ensure that the designer is aware of and complies with the requirements of the Programmatic Agreement.

III. Design Review Process

- A. The Navy will invite the SHPO, NPS and City to observe the Design Competition Presentations. The SHPO, NPS and City will submit written comments to the Navy within fifteen (15) calendar days of each presentation. The Navy will take into account and incorporate the SHPO's, NPS's and City's comments to the maximum extent possible.
- B. The Navy will receive for review two additional submissions from the Navy-selected designer. The submissions will occur at 35% and 65% design. The Navy will provide the SHPO, NPS and City with anticipated dates of the submissions upon award of the design contract.
- C. The Navy will provide the SHPO, NPS and City with a hard copy of the 35% design, to consist of a site plan, elevations and renderings. The Navy will then offer to host a site visit and review meeting with the designer, SHPO, NPS and City. The SHPO, NPS and City will have 15 calendar days before the site visit to review the 35% design. The SHPO, NPS and City will submit written comments to the Navy within thirty (30) calendar days of receipt of the 35% design. The Navy will take into account and incorporate the SHPO's, NPS's and City's comments to the maximum extent possible.
- D. The Navy will provide the SHPO, NPS and City with a hard copy of the 65% design, to consist of a site plan, elevations and renderings. The Navy will then offer to host a site visit and review meeting with the designer, SHPO, NPS and City. The SHPO, NPS and City will have fifteen (15) calendar days before the site visit to review the 65% design. The SHPO, NPS and City will submit written comments to the Navy within thirty (30) calendar days of receipt of the 65% design. The Navy will take into account and

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incorporate the SHPO's, NPS's and City's comments to the maximum extent possible.

- E. The Navy, SHPO and NPS acknowledge that it is their desire and intent to ensure that the Undertaking avoids and satisfactorily minimizes the potential for adverse effects on historic properties. To meet this goal, the Navy, SHPO, NPS and City will cooperatively and collaboratively work together throughout the design process to affirm that the Undertaking adheres to the principles established in the *Secretary of the Interior's Standards for the Treatment of Historic Properties* (36 CFR Section 68).
- F. If the Navy determines that the Undertaking will have an adverse effect on historic properties, the Navy will continue consultation with the SHPO, NPS, ACHP and City in order to mitigate the adverse effect.

IV. Unexpected or Unanticipated Discovery of Historic Properties: Per 36 CFR Section 800.13(b)(3), should archaeological resources be unexpectedly encountered during implementation of the Undertaking, the Navy will stop work and make reasonable efforts to protect the resource. The Navy will have a Qualified Archaeologist visit the site to evaluate the resource. The Navy will notify the SHPO and ACHP within 48 hours of the discovery and will provide an assessment of the National Register eligibility of the resource and a plan to resolve adverse effects. The Navy will request responses from the SHPO and ACHP within 48 hours of notification. The Navy will implement the plan to resolve adverse effects and report to the SHPO and ACHP when actions taken to resolve adverse effects are completed.

V. Dispute Resolution: Should any Signatory to this PA (Navy, SHPO or NPS) object at any time to any actions proposed or the manner in which the terms of this PA are implemented, the Navy shall consult with the Signatory to resolve the objection. If the Navy determines that such objection cannot be resolved, the Navy will:

- A. Forward all documentation relevant to the dispute, including the Navy's proposed resolution, to the ACHP. The Navy shall ask the ACHP to provide the Navy with its advice on the resolution of the objection within thirty (30) days of receiving adequate documentation. Prior to reaching a final decision on the dispute, the Navy shall prepare a written response that takes into account any timely advice or comments regarding the dispute from the ACHP, Signatories and Concurring Parties, and provide them with a copy of this written response. The Navy will then proceed according to its final decision.
- B. If the ACHP does not provide its advice regarding the dispute within the thirty (30) day time period, the Navy may make a final decision on the dispute and proceed accordingly. Prior to reaching such a final decision, the Navy shall prepare a written response that takes into account any timely comments regarding the dispute from the Signatories and Concurring Parties to the PA, and provide them and the ACHP with a copy of such written response.
- C. The Navy's responsibility to carry out all other actions subject to the terms of this PA that are not the subject of the dispute remain unchanged.

VI. Amendments:

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- A. Any Signatory to this PA may propose an amendment.
- B. The amendment process starts when one Signatory notifies the others in writing requesting an amendment. The notification will include the proposed amendment and the supporting reasons. The Signatories shall consult to consider any proposed amendment.
- C. An amendment shall not take effect until it has been agreed to and executed by all Signatories.
- D. If an amendment cannot be agreed upon, the dispute resolution process set forth in Stipulation III will be followed.

VII. Termination: Any Signatory may terminate this PA in part or in whole by providing thirty (30) calendar days written notice to the other Signatories, providing that the Signatories will consult during the period prior to termination to seek agreement on amendments or other actions that would avoid termination. In the event of full termination, the Signatories will comply with 36 CFR Section 800 regarding the Undertaking. In the event only a portion of the PA is terminated, the remainder of the Stipulations will remain in effect, and the PA will be amended to reflect the change in accordance with the provisions of Stipulation VI.

VIII. Anti-Deficiency Act:

- A. The Anti-Deficiency Act, 31 U.S.C. Section 1341, prohibits federal agencies from incurring an obligation of funds in advance of or in excess of available appropriations. Accordingly, the Navy and the SHPO agree that any requirement for obligation of funds arising from the terms of this PA shall be subject to the availability of appropriated funds for that purpose, and that the Stipulations contained in this PA shall not be interpreted to require the obligation or expenditure of funds in violation of the Anti-Deficiency Act.
- B. If compliance with the Anti-Deficiency Act impairs the Navy's ability to implement the Stipulations of this PA, the Navy shall consult with the Signatories. If an amendment is necessary, the provisions of Stipulation VI shall be followed.

IX. Term of this PA: This PA will become effective upon the last date of signature and will remain in force for six (6) years unless previously extended by the Navy, SHPO or NPS. If the terms of this PA are not implemented prior to its expiration, and if the Navy chooses to continue with the undertaking, the Navy will re-initiate consultation in accordance with the requirements of 36 CFR Section 800.

Execution and implementation of the terms of this PA will serve as evidence of the fact that the Navy has afforded the ACHP an opportunity to comment on this Undertaking, and that the Navy has taken into account the effects of the Undertaking on historic properties.

**PROGRAMMATIC AGREEMENT AMONG
THE DEPARTMENT OF THE NAVY,
THE MARYLAND STATE HISTORIC PRESERVATION OFFICER AND
THE NATIONAL PARK SERVICE NORTHEAST REGION
REGARDING
THE CENTER FOR CYBER SECURITY STUDIES
AT THE UNITED STATES NAVAL ACADEMY,
ANNAPOLIS, MARYLAND**

David Slusher
Comptroller
Naval District Washington

Date

M. K. Rich
Rear Admiral, U.S. Navy
Commandant
Naval District Washington

Date

DRAFT

**PROGRAMMATIC AGREEMENT AMONG
THE DEPARTMENT OF THE NAVY,
THE MARYLAND STATE HISTORIC PRESERVATION OFFICER AND
THE NATIONAL PARK SERVICE NORTHEAST REGION
REGARDING
THE CENTER FOR CYBER SECURITY STUDIES
AT THE UNITED STATES NAVAL ACADEMY,
ANNAPOLIS, MARYLAND**

J. Rodney Little
State Historic Preservation Officer
State of Maryland

Date

DRAFT

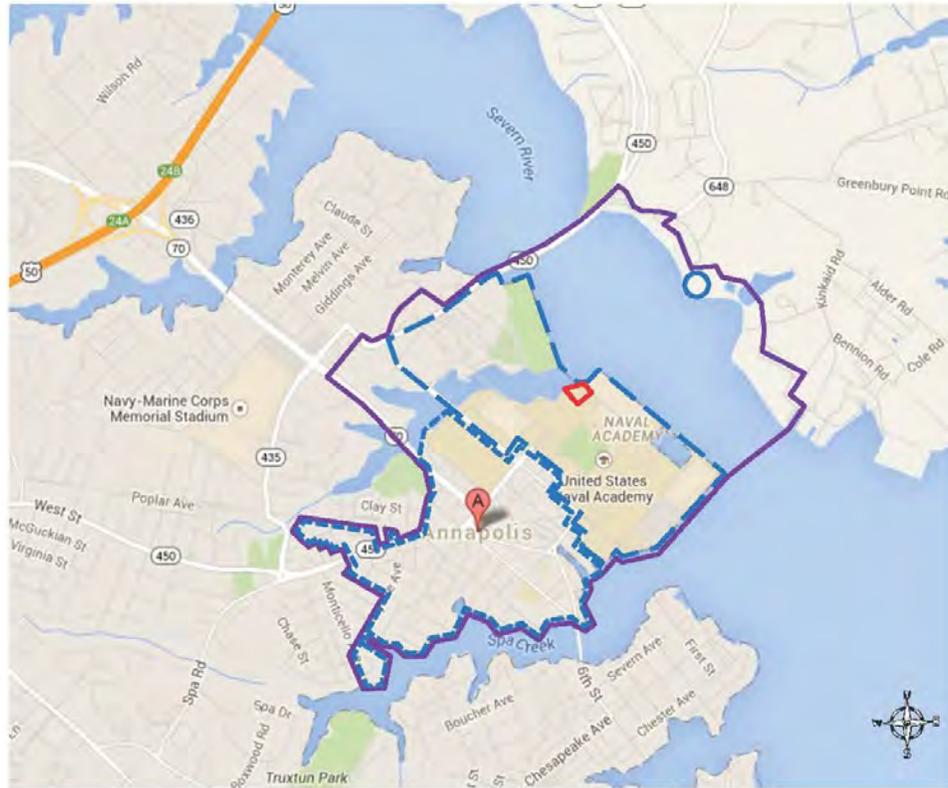
**PROGRAMMATIC AGREEMENT AMONG
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AT THE UNITED STATES NAVAL ACADEMY,
ANNAPOLIS, MARYLAND**

National Park Service

Date

DRAFT

Attachment A: Area of Potential Effect and Identified Historic Sites



-  Area of Potential Effect
-  Site Location
-  Colonial Annapolis Historic District (NHL & NR combined)
-  United States Naval Academy National Historic Landmark
-  Ferry Point Farm

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Milford Wayne Donaldson, FAIA
Chairman

Clement A. Price, Ph.D.
Vice Chairman

John M. Fowler
Executive Director



Preserving America's Heritage

December 10, 2014

Honorable Ray Mabus
Secretary of the Navy
2000 Navy Pentagon
Washington, DC 20350-2000

Ref: *Design and Construction of the Center for Cyber Security Studies
United States Naval Academy National Historic Landmark
United States Naval Academy, Anne Arundel County, Maryland*

Dear Secretary Mabus:

In response to a notification by the Naval Facilities Engineering Command Washington (NAVFAC Washington), the Advisory Council on Historic Preservation (ACHP) will participate in consultation for the referenced project. Our decision to participate in this consultation is based on the *Criteria for Council Involvement in Reviewing Individual Section 106 Cases*, contained within our regulations. The criteria are met for this proposed undertaking because of potential effects to a National Historic Landmark and questions of policy or interpretation of the Section 106 regulations.

Section 800.6(a)(1)(iii) of our regulations requires that we notify you, as the head of the agency, of our decision to participate in consultation. By copy of this letter, we are also notifying Captain A. M. Edmonds, Commanding Officer, NAVFAC Washington, and Real Admiral M. K. Rich, Commandant, Naval District Washington, of this decision.

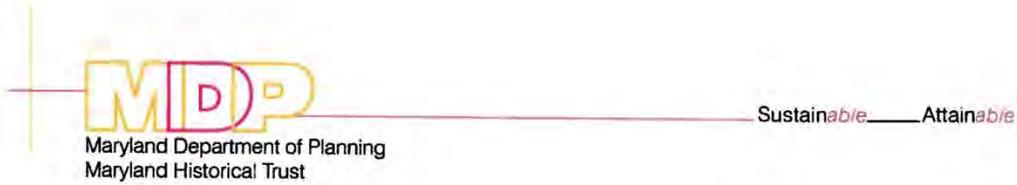
Our participation in this consultation will be handled by Ms. Katharine R. Kerr who can be reached at (202) 517-0216 or via e-mail at kkerr@achp.gov. We look forward to working with your agency and other consulting parties to develop a programmatic agreement for this undertaking that will address potential adverse effects on historic properties.

Sincerely,

John M. Fowler
Executive Director

ADVISORY COUNCIL ON HISTORIC PRESERVATION
401 F Street NW, Suite 308 • Washington, DC 20001
Phone: 202-517-0200 • Fax: 202-517-6381 • achp@achp.gov • www.achp.gov

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December 16, 2014

Matthew Klimoski
Environmental Division Director
Naval Facilities Engineering Command Washington
Public Works Department Annapolis
181 Wainwright Road, Stop 21A
Annapolis, MD 21402

Re: Section 106 Compliance
Parking Garage
U.S. Naval Academy, Annapolis, Maryland

Dear Mr. Klimoski:

Thank you for providing the Maryland Historical Trust (Trust), the State Historic Preservation Office, with the opportunity to review the above-referenced undertaking, received by the Trust on November 3, 2014, with respect to potential effects on historic properties, pursuant to Section 106 of the National Historic Preservation Act. Trust staff carefully reviewed your submittal, and we offer the following comments.

The Navy is proposing to construct a two story parking garage within the National Historic Landmark U.S. Naval Academy Historic District. Based on the submitted documentation, as well as information in our inventory records, we concur with the Navy's determination that the proposed undertaking will have no adverse effect so long as the following condition is met.

- The Navy will continue coordination regarding the design of the exterior zinc cladding, for the parking garage, with the Trust. The Trust would like to see the perforation pattern in the zinc panels more formalized and artistic. Once a new plan is developed please submit it for review and comment by the Trust.

We look forward to working with the Navy to successfully complete the project's historic preservation review. Thank you for your cooperation in this matter. If you have any questions or require further assistance, please do not hesitate to contact me at amanda.apple@maryland.gov.

Sincerely,

Amanda R. Apple
Preservation Officer
Maryland Historical Trust

ARA\201405783
CC: Dennis Montagna (NPS)
Julie Darsie (NAVFAC Washington via email)

Martin O Malley, Governor
Anthony G Brown, Lt. Governor

Richard Eberhart Hall, A/CP Secretary
Amanda Stakem Conn, Esq, Deputy Secretary

Maryland Historical Trust - 100 Community Place - Crownsville - Maryland - 21032
Tel. 410 514 7600 - Toll Free 1.800.756.0119 - TTY users: Maryland Relay - MHT Maryland.gov

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**PROGRAMMATIC AGREEMENT
AMONG
NAVAL DISTRICT WASHINGTON,
THE MARYLAND STATE HISTORIC PRESERVATION OFFICER AND
THE ADVISORY COUNCIL ON HISTORIC PRESERVATION
REGARDING
THE CENTER FOR CYBER SECURITY STUDIES
AT THE UNITED STATES NAVAL ACADEMY,
ANNAPOLIS, MARYLAND**

WHEREAS, the Commandant, Naval District Washington (NDW) plans to design and construct a Center for Cyber Security Studies (Undertaking) at the United States Naval Academy, Annapolis, Maryland (Academy), pursuant to the National Defense Authorization Act for Fiscal Year 2015; and

WHEREAS, the Undertaking consists of a new, approximately 206,000 square foot, multistory building on the Lower Yard of the Academy; and

WHEREAS, NDW has defined the Undertaking's Area of Potential Effect (APE) as the Academy, that part of the City of Annapolis adjacent to the Academy, and those areas north of the Severn River with over-water views of the Academy, described in Appendix B; and

WHEREAS, NDW has determined that the Undertaking may have an adverse effect on the United States Naval Academy National Historic Landmark (AA-359) and the Colonial Annapolis National Historic Landmark (AA-137), which are listed in the National Register of Historic Places, and has consulted with the Maryland State Historic Preservation Officer (SHPO) pursuant to 36 CFR Part 800, of the regulations implementing Section 106 of the National Historic Preservation Act (54 U.S.C. § 306108); and

WHEREAS, NDW has consulted with the National Park Service (NPS), Northeast Region, in accordance with 36 CFR § 800.10(c) regarding the effects of the Undertaking on historic properties, and NPS has elected to be a consulting party to this Programmatic Agreement (PA); and

WHEREAS, NDW has invited the City of Annapolis (City) to participate in this consultation on behalf of the Colonial Annapolis National Historic Landmark regarding the effects of the Undertaking on historic properties and the City has elected to be a concurring party to this PA; and

WHEREAS, in accordance with 36 CFR § 800.6(a)(1), NDW has notified the Advisory Council on Historic Preservation (ACHP) of its potential adverse effect determination with specified documentation and the ACHP has chosen to participate in the consultation pursuant to 36 CFR § 800.6(a)(1)(iii); and

WHEREAS, the Undertaking will be constructed entirely on reclaimed land that has no religious or cultural significance to Indian Tribes; and

WHEREAS, NDW has determined that effects cannot be fully determined prior to obligation of construction funds and therefore proposes to develop this PA to implement Section 106 for the

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Center for Cyber Security Studies
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Undertaking in accordance with 36 CFR § 800.14(b)(3); and

WHEREAS, the purpose and need for this Undertaking is also subject to the National Environmental Policy Act (NEPA) and subject of an Environmental Assessment (EA); and

WHEREAS, NDW, in accordance with 36 CFR § 800.2(d)(3), used the agency's procedures for public involvement under NEPA to inform the public of the Undertaking and solicit their views on its effect on historic properties for Section 106; and

WHEREAS, NDW plans on designing and constructing the Undertaking under a Design/Build contract.

NOW, THEREFORE, NDW, the SHPO, and the ACHP (Signatories) agree that the undertaking shall be implemented in accordance with the following stipulations in order to take into account the effect of the undertaking on historic properties.

STIPULATIONS

NDW shall ensure that the following measures are carried out:

I. Request for Proposals:

- A. NDW shall provide the relevant sections of the draft Request for Proposal (RFP) to the SHPO, NPS, and City for review and comment. The SHPO, NPS, and City shall provide NDW with written comments within 30 days of receipt of the draft RFP. NDW shall take into account and incorporate the comments to the maximum extent possible.
- B. NDW shall incorporate the following design principles into the RFP:
 1. The Center for Cyber Security Studies shall be differentiated from existing construction at the Academy but compatible with the Academy in terms of its massing, size, scale and architectural features. The design shall be consistent with the standards for new construction set forth in the *Secretary of the Interior's Standards for Rehabilitation* (36 CFR Section 68).
 2. The Center for Cyber Security Studies shall be designed in a way that minimizes its height as well as the massing of the top floor while still accommodating program requirements.
 3. The concrete plinth that forms the ground-level base of Rickover Hall and Nimitz Library shall be extended as an element of the Center for Cyber Security Studies to maintain the feature and spatial relationship that characterizes the Rickover-Nimitz complex.
 4. The design process shall include phased submissions for review by consulting and concurring parties at the concept and design development phases, to consist of a site plan, elevations, floor plans and renderings for each phase.

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5. To the maximum extent possible, the Center for Cyber Security Studies shall be designed to minimize harm to the United States Naval Academy National Historic Landmark.
6. All preservation and design related work regarding the Center for Cyber Security Studies shall be carried out by a person or persons meeting the Secretary of the Interior's Professional Qualification Standards as set forth in 48 F.R. 44716 (September 29, 1983), as appropriate. See Definitions in Appendix A.

II. Design Review Process

- A. NDW shall invite the SHPO to observe the Design Competition Presentations. NDW shall notify the SHPO of the date, time and location of the Design Competition Presentations as soon as they are decided. The SHPO shall submit written comments to NDW within 15 days of each presentation. NDW shall take into account and incorporate the SHPO's comments to the maximum extent possible.
- B. NDW shall provide the SHPO, NPS, and City with a hard copy of the concept and design development submissions within seven days of receipt from the Navy-selected designer. NDW shall provide the SHPO, NPS, and City with anticipated dates of the submissions upon award of the design contract. NDW shall offer to host a site visit and review meeting with the SHPO, NPS, and City and the designer within 15 days of receipt of each submission. The SHPO, NPS, and City shall provide NDW with written comments within 30 days of receipt of each submission. NDW shall provide those comments to the Navy-selected designer and direct that they be taken into account and incorporated to the maximum extent possible.
- C. Should changes to the massing, size, scale, height, or architectural features of the Center for Cyber Security Studies occur after the SHPO, NPS and City provide comments on the design development submissions, NDW shall provide the SHPO, NPS and City additional opportunity to review and comment on the changes.

III. Documentation: Within three years of award of the Design-Build contract, NDW shall complete a 3D scanning program, to consist of field scanning, architectural Building Information Modeling (BIM), and BIM scheduling for the Ernest Flagg-designed Sampson, Mahan and Maury Halls. At Mahan Hall, the 3D scanning shall include the exterior, first story lobby including staircases, theater including balcony, and Hart Room. At Sampson and Maury Halls, the 3D scanning shall include the exteriors, main entrance staircases, and corner staircases. After the 3D scanning has been completed, NDW shall submit a selection of the resulting images representing all areas scanned to the SHPO for review and concurrence. The SHPO shall provide a written response within 30 days of receipt of the images. After concurrence by the SHPO, the 3D scans shall become the property of Naval Support Activity Annapolis Public Works Department. The 3D scanning program will provide NDW with detailed documentation of significant exterior and interior architectural features on the three buildings. The documentation will enable NDW personnel to closely examine hard-to-reach features, determine the extent of wear and damage, and plan appropriate rehabilitation, preservation and restoration projects. The documentation will also serve as a baseline against which NDW personnel can measure further deterioration or damage.

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Center for Cyber Security Studies
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IV. Unexpected or Unanticipated Discovery of Historic Properties: If potential historic properties are discovered or unanticipated effects on historic properties found, NDW shall implement protocols per 36 CFR § 800.13(b)(3).

V. Dispute Resolution: Should NDW or the SHPO object at any time to any actions proposed or the manner in which the terms of this PA are implemented, the two parties shall consult to resolve the objection. If the objection cannot be resolved, the NDW shall:

- A. Forward all documentation relevant to the dispute, including NDW's proposed resolution, to the ACHP. NDW shall ask the ACHP to provide NDW with its advice on the resolution of the objection within 30 days of receiving adequate documentation. Prior to reaching a final decision on the dispute, NDW shall prepare a written response that takes into account any timely advice or comments regarding the dispute from the ACHP or SHPO, and provide them with a copy of this written response. NDW will then proceed according to its final decision.
- B. If the ACHP does not provide its advice regarding the dispute within the 30 day time period, NDW may make a final decision on the dispute and proceed accordingly. Prior to reaching such a final decision, NDW shall prepare a written response that takes into account any timely comments regarding the dispute from the Signatories and Consulting Party to the PA, and provide them and the ACHP with a copy of such written response.
- C. NDW's responsibilities to carry out all other actions subject to the terms of this PA that are not the subject of the dispute remain unchanged.

VI. Amendments: This PA may be amended when such an amendment is agreed to in writing by the Signatories. The amendment will be effective on the date a copy signed by the Signatories is filed with the ACHP.

VII. Termination: If a signatory to this PA determines that its terms will not or cannot be carried out, that party shall immediately consult with the other Signatories to attempt to develop an amendment per Stipulation VI, above. If within 30 days (or another time period agreed to by the Signatories) an amendment cannot be reached, a Signatory may terminate the PA upon written notification to the other Signatories. Once the PA is terminated, and prior to work continuing on the undertaking, NDW must either (a) execute a Memorandum of Agreement pursuant to 36 CFR § 800.6 or (b) request, take into account, and respond to the comments of the ACHP under 36 CFR § 800.7. NDW shall notify the Signatories as to the course of action it will pursue.

VIII. Anti-Deficiency Act: The Anti-Deficiency Act, 31 U.S.C. Section 1341, prohibits federal agencies from incurring an obligation of funds in advance of or in excess of available appropriations. NDW will make reasonable and good faith efforts to secure the necessary funds to implement this PA in its entirety. If compliance with the Anti-Deficiency Act alters or impairs NDW's ability to implement the stipulations of this agreement, NDW shall consult in accordance with the amendment and terminations procedures found at Stipulations VI and VII of this agreement.

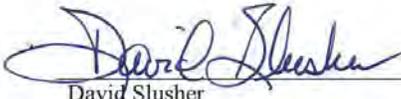
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IX. Term of this PA: This PA will become effective upon the last date of signature and will remain in force for six years unless extended by the signatories in accordance with Stipulation VI. If the terms of this PA are not implemented prior to its expiration, and if NDW chooses to continue with the Undertaking, NDW will re-initiate consultation in accordance with the requirements of 36 CFR Part 800.

Execution and implementation of the terms of this PA will serve as evidence of the fact that NDW has afforded the ACHIP an opportunity to comment on this Undertaking, and that NDW has taken into account the effects of the Undertaking on historic properties.

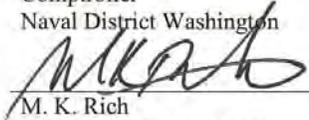
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AT THE UNITED STATES NAVAL ACADEMY,
ANNAPOLIS, MARYLAND**



David Slusher
Comptroller
Naval District Washington

4/16/15
Date

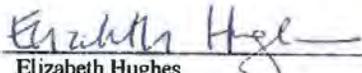


M. K. Rich
Rear Admiral, U.S. Navy
Commandant
Naval District Washington

17 APR 15
Date

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Elizabeth Hughes
State Historic Preservation Officer
Acting Director, Maryland Historical Trust

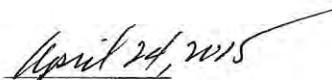
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ANNAPOLIS, MARYLAND**



John M. Fowler
Executive Director
Advisory Council on Historic Preservation



Date

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Center for Cyber Security Studies
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Appendix A: Definitions:

Calendar Day: A twenty-four (24) hour period of time (12:00 midnight to 12:00 midnight EDT) as described in the Gregorian calendar, adopted by Great Britain with the American Colonies in 1752 A.D., and by the various U.S. States and Territories.

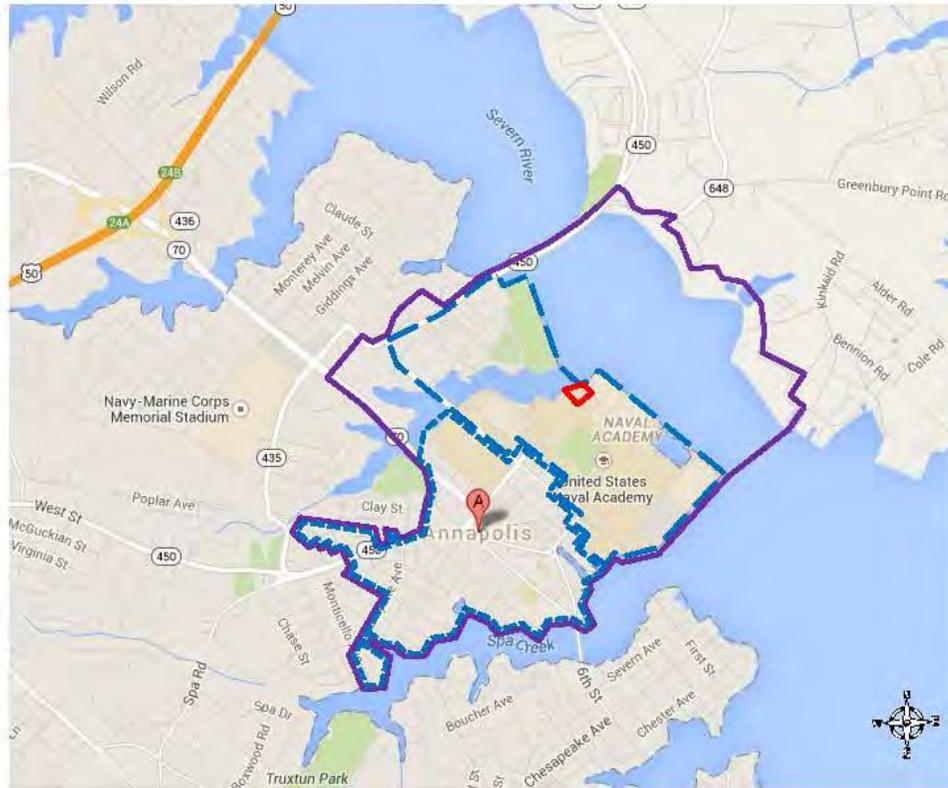
Qualified Historic Architect: A person who meets the Secretary of Interior's Professional Standards (48 F.R. Section 44716).

Qualified Archaeologist: A person who meets the Secretary of Interior's Professional Standards (48 F.R. Section 44716).

Qualified Architectural Historian: A person who meets the Secretary of Interior's Professional Standards (48 F.R. Section 44716).

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Appendix B: Area of Potential Effect and Identified Historic Sites



-  Area of Potential Effect
-  Site Location
-  Colonial Annapolis Historic District (NHL & NR combined)
-  United States Naval Academy National Historic Landmark