Final Environmental Impact Statement

NIH Bethesda Surgery, Radiology, and Lab Medicine Building

National Institutes of Health
Bethesda, Maryland

July 2020

National Institutes of Health
Turning Discovery Into Health

This page intentionally left blank.

FINAL ENVIRONMENTAL IMPACT STATEMENT

For

NIH BETHESDA

SURGERY, RADIOLOGY, AND LAB MEDICINE BUILDING

July 2020

Prepared for:
National Institutes of Health
U.S. Department of Health and Human Services

Prepared by:
URS Group, Inc. (an AECOM company)
10 Patewood Dr., Bldg. 6, Suite 500
Greenville, SC 29615
www.aecom.com

This Page Intentionally Left Blank

FINAL ENVIRONMENTAL IMPACT STATEMENT

For

NIH BETHESDA

SURGERY, RADIOLOGY, AND LAB MEDICINE BUILDING

NATIONAL INSTITUTES OF HEALTH
MONTGOMERY COUNTY
BETHESDA, MARYLAND
July 2020

Responsible Official:	Daniel G. Wheeland Director Office of Research Facilities Development and Operations
For Further Information, Contact:	Valerie Nottingham National Institutes of Health, ORF B13/2S11, 9000 Rockville Pike Bethesda, MD 20892 (301) 496-7775 nihnepa@mail.nih.gov

ABSTRACT

The National Institutes of Health (NIH) is contemplating construction and operation of a Surgery, Radiology, and Lab Medicine (SRLM) Building as an addition to the West Laboratory Wing of the Clinical Research Center (CRC) at the NIH Bethesda Campus. The need for the actions analyzed in this EIS is to maintain and improve performance of the NIH fundamental mission of clinical research by addressing deficiencies in the current facilities. These deficiencies include an inability of current facilities to house new technologies, concerns for the security and safety of patients, visitors, and staff, and an inability of the current Building 59/59A switching station to meet current and expected future electrical power needs.

The Proposed Action would re-locate the operations of several departments from their current locations to the newly constructed SRLM Building. To address deficiencies in the parking garage underneath the Clinical Center, a new Patient Parking Garage (PPG) would be constructed. To address deficiencies in the current power infrastructure in the Building 59 Switching Station and Building 59A Emergency Generator Station, a new Utility Vault (UV) would be constructed. In addition, a Service Yard would be constructed to house laboratory and clinical gas storage tanks. The No-Action Alternative would continue current NIH operations and would not construct the proposed facilities.

The NIH's preferred alternative is the Proposed Action alternative. The final decision will be announced in the Record of Decision.

This Page Intentionally Left Blank

SUMMARY

S.1 BACKGROUND

The National Institutes of Health (NIH) Bethesda Campus (hereafter referred to as "Campus") occupies approximately 310 acres of land within the Washington, D.C. metropolitan area in Montgomery County, Maryland. The NIH, an Operating Division of the United States (U.S.) Department of Health and Human Services (HHS), received the property on which the Campus is located through a series of generous land donations from Luke and Helen Woodward Wilson between 1935 and 1948. The Campus opened the doors of its first four buildings in 1939 and has since grown into a world renowned state-of-the-art biomedical research complex with over 20,000 employees.

The Campus contains over 90 buildings. These highly functional facilities enable the NIH to fulfill its mission of seeking fundamental knowledge about the nature and behavior of living systems and applying that knowledge to enhance health, lengthen life, and reduce the burdens of illness and disability. The Campus is home to 27 institutes and centers that support or conduct cutting-edge research on the following five key research themes:

- Applying genomics and other high throughput technologies;
- Translating basic science discoveries into new and better treatments;
- Using science to enable health care reform;
- Focusing on global health; and
- Reinvigorating and empowering the biomedical research community.

Building 10, the NIH Clinical Center (CC), is the world's largest clinical research hospital. The original building in the complex was constructed in 1955, and the complex has been expanded with additions, most recently the Mark O. Hatfield Clinical Research Center (CRC) in 2005. Operations currently housed in the CC, and which are the subject of the purpose and need for the actions evaluated in this Environmental Impact Statement (EIS), include the Departments of Perioperative Medicine and Interventional Radiology (DPM/IR), Radiology and Imaging Sciences (RADIS), and Laboratory Medicine (DLM) currently located in the Ambulatory Care Research Facility (ACRF), and the National Cancer Institute's (NCI) research laboratories currently located on floors 1W and 3W of the CRC West Laboratory Wing. Other existing ancillary facilities, including an underground patient parking garage and the Building 59/59A switching station, are located near and provide infrastructure support to the CC.

S.2 PURPOSE AND NEED FOR ACTION

The overall purpose of the actions analyzed in this EIS is to further the NIH fundamental mission of clinical research by providing facilities that support both NIH and congressional medical research initiatives.

The need for the actions analyzed in this EIS is to maintain and improve performance of this mission by addressing deficiencies in the current facilities. These deficiencies include:

- Spatial deficiencies;
- The inability of the current facilities to house new technologies;
- Patient, visitor, and staff security and safety concerns; and
- The inability of the existing Building 59/59A switching station to meet current and expected future electrical power needs.

In addition to addressing these deficiencies, any potential alternatives that propose construction of new facilities would need to include:

- Infrastructure support, including parking and electrical power, sufficient to support the new facility;
- Continuity of parking, electrical power, and other utilities to existing facilities and operations during construction; and
- Replacement of any existing facilities or operations displaced by the new facilities.

S.3 PROPOSED ACTION

The Proposed Action would re-locate the operations of several departments from their current locations to a newly constructed addition to the CRC, to be known as the Surgery, Radiology, and Lab Medicine (SRLM) Building. The Departments of Perioperative Medicine and Interventional Radiology (DPM/IR), RADIS, and DLM would be moved from their current locations within the ACRF. The research laboratories associated with the NCI would be moved from their current location on floors 1W and 3W of the West Laboratory Wing of the CC. The SRLM would also house the National Heart, Lung, and Blood Institute (NHLBI) Cardiac Catheterization Laboratory (Cath Lab). The NHLBI Cath Lab is currently located in the S and T Wing of Building 10. To address deficiencies in the parking garage underneath the CC, a new Patient Parking Garage (PPG) would be constructed. To address deficiencies in the current power infrastructure in the Building 59 Switching Station and Building 59A Emergency Generator Station, a new Utility Vault (UV) would be constructed. In addition, a Service Yard would be constructed to house laboratory and clinical gas storage tanks.

The proposed new facilities would be situated on the west side of the CC, as illustrated in Figure S-1. Elements that would be implemented as part of the Proposed Action are detailed below.

Surgery, Radiology, and Lab Medicine Building

The proposed SRLM would be an addition connected to the West Laboratory Wing of the CRC, between the CC and Convent Drive. The SRLM would be an approximately 527,100-gross square foot (gsf) building, with nine levels above grade, and two levels below grade. In addition to 527,100 gsf of space in the new building, the Proposed Action would include renovation of 102,600 gsf of existing space within the West Laboratory Wing of the CRC. The footprint of the SRLM would occupy 55,500 gsf.

A subsurface pedestrian tunnel would be constructed under Convent Drive linking the SRLM to the PPG. The pedestrian tunnel would connect the parking garage to the B2 level of Building 10 and the future SRLM Building across Convent Drive.

Patient Parking Garage

The proposed PPG would be constructed on the opposite (west) side of Convent Drive from the SRLM (Figure S-1). The PPG would be a multi-level, self-park garage, accommodating approximately 780 cars. The combined PPG and UV would be a rectangular building running along a north-south axis, approximately 500 feet long by 120 feet wide. The northern portion of the structure would be the parking garage, consisting of six open stories with an exposed top deck. The southern portion of the structure would be the UV, consisting of two stories which align with the first and third stories of the PPG. One vehicular entrance to the PPG would be connected to Center Drive and the Family Lodge driveway. A second vehicular entrance would be constructed on the south side of the PPG connecting to South Drive and enter the parking garage by running along the west side of the UV. A new pedestrian plaza at the south entrance to the PPG would connect to the sidewalk system and crosswalk across Convent Drive.

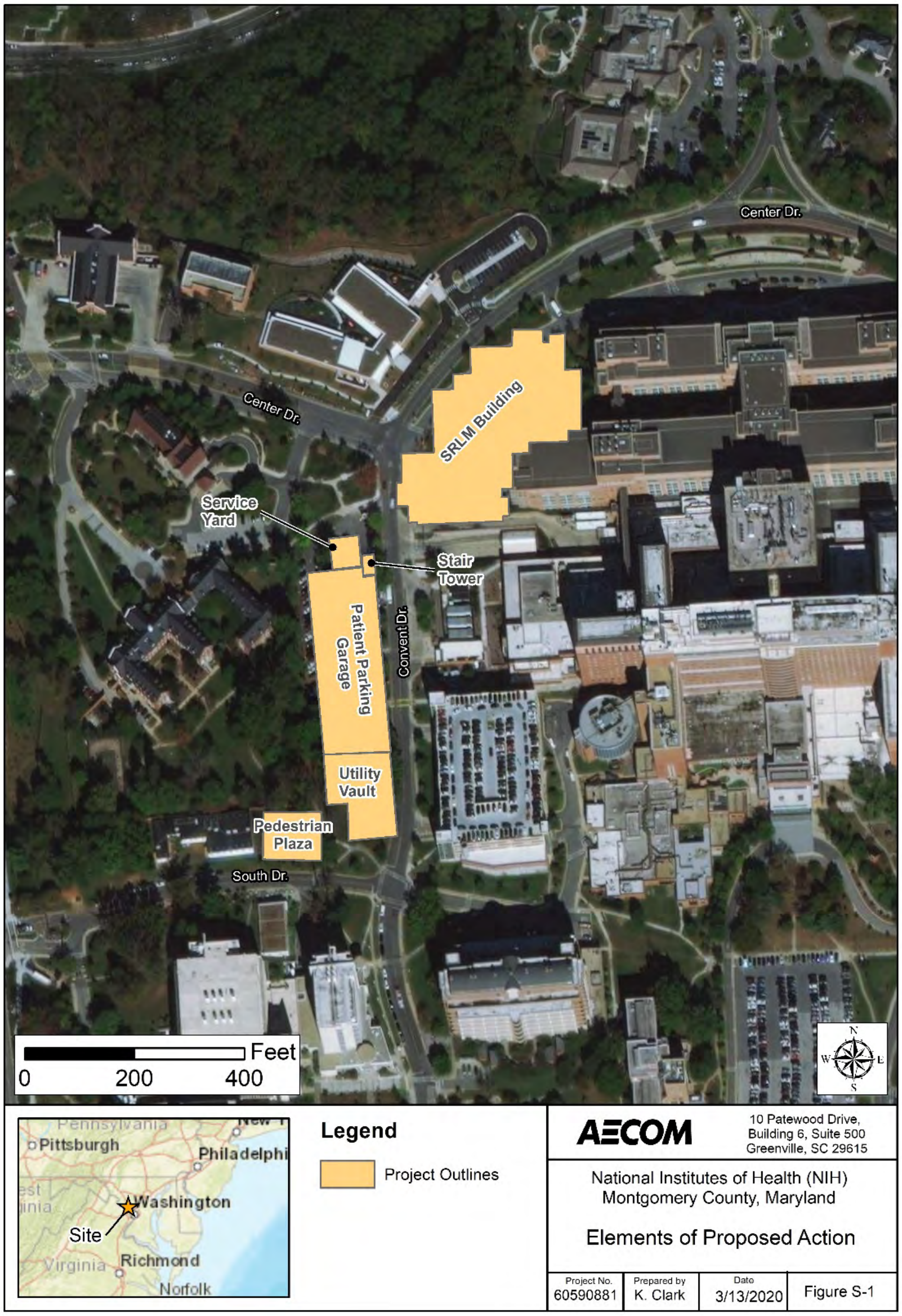


Figure S-1. Elements of the Proposed Action

There would be no changes to the current parking garage adjacent to the CC, MLP-9. There would also be no structural modifications to the current patient parking area, known as the Building 10 garage. The Building 10 garage would undergo a phased closure, eventually be closed to car traffic, and ultimately be converted to other uses (e.g., storage) once the new PPG is completed.

Utility Vault

The proposed UV would be located adjacent to the southern end of the PPG, on the west side of Convent Drive (Figure S-1). The vault would provide housing space for the (future) electrical switching station and emergency generator station to eventually replace the aging electrical equipment currently serving the hospital and biomedical research complex (CRC, ACRF and Building 10) via Buildings 59 and 59A. The utility vault would also house the new electrical distribution equipment, a 350-kW emergency generator, and a fire pump to serve the UV and PPG.

Service Yard

The proposed Service Yard would be located adjacent to the northern end of the PPG, on the west side of Convent Drive (Figure S-1). The Service Yard would be used to store storage tanks for laboratory and clinical gases which are used in CRC operations.

S.4 NO-ACTION ALTERNATIVE

The No-Action Alternative would not implement the Proposed Action. Under the No-Action Alternative, NIH would continue to provide services and patient care, and perform research, in the current surgical, radiological, laboratory, and office spaces in the CC. The current functional inadequacies, inefficiencies, and deficiencies that hinder modern surgical, imaging, and clinical laboratory care would not be improved. Reliability and long-term sustainability of the electrical power feeds for the hospital and biomedical research complex would not be upgraded. Security risk, personal safety risk, and liability risk associated with the existing underground parking garage would not be mitigated.

The No-Action Alternative would not meet the Purpose and Need criteria defined in Section S.2 (Purpose and Need).

S.5 DECISION TO BE MADE

Based on the environmental analysis, public comments on the Draft EIS, and consideration of other factors, the NIH will decide whether to proceed with the Proposed Action, or the No-Action Alternative. The scope of the EIS is confined to issues and potential environmental consequences relevant to the above decisions.

The Council on Environmental Quality (CEQ) regulations implementing the National Environmental Policy Act (NEPA) requires consideration of environmental effects and prescribes mitigation where practical to limit those effects. Reconsideration of previous NIH decisions, or programmatically prescribing mitigation or standards for future NIH activities, is beyond the scope of this document.

The No-Action Alternative would not meet the purpose and need criteria defined earlier. As a result, NIH considers the No-Action Alternative to be less desirable than the Proposed Action.

S.6 SUMMARY OF ENVIRONMENTAL CONSEQUENCES AND MITIGATION MEASURES

The Proposed Action would result in temporary impacts from construction and demolition activities, as well as some continuing impacts due to operation of the new facilities and changes in the operation of existing facilities. The No-Action Alternative would result in no change relative to current impacts of existing operations. The environmental consequences and mitigation measures associated with the Proposed Action and the No-Action Alternative are described in Table S-1 below.

Table S-1. Summary of Environmental Effects and Mitigation Measures

Resource	Proposed Action	No-Action Alternative
Topography, Geology, and Soils		
Topography	Effects: • Moderate localized impacts on topography due to construction activities, including grading at Parking Lot 10E. Mitigation: • No mitigation necessary.	Effects: • No impacts to topography. Mitigation: • No mitigation necessary.
Geology and Soils	Effects: • Moderate soil disturbances due to construction activities. • Potential soil quality impacts during construction due to soil compaction from heavy construction equipment. Mitigation: • NIH would implement SEC measures during earth disturbance to minimize impacts to soil. • NIH would utilize soil borings to investigate soil characteristics prior to construction.	Effects: • No impacts to geology or soils. Mitigation: • No mitigation necessary.
Land Use and Zoning		
Land Use and Zoning	Effects: • No impacts to land use or zoning within the Campus. • Land use would remain consistent with Montgomery County zoning, the M-NCPPC *Bethesda-Chevy Chase Master Plan*, and land use goals and objectives of the *Campus Master Pla*n. Mitigation: • No mitigation necessary.	Effects: • No changes to land use. Mitigation: • No mitigation necessary.
Biological Resources		
Vegetation	Effects: • Minor long term impact on vegetation due to net loss of 2.9 acres of vegetated area. • Minor temporary impact on vegetation due to disturbance of an additional 0.7 acres of currently vegetated area within the Limits of Disturbance (LOD). • Cutting of 140 trees within impacted vegetated project areas. • No impact to champion trees or forest trees. Mitigation: • NIH would transplant affected trees, when feasible and re-plant trees (1:1) when not feasible to transplant. • Following construction, NIH would replant temporarily disturbed vegetated areas, when feasible.	Effects: • No impacts to vegetation or no-mow areas. Mitigation: • No mitigation necessary.

Table S-1. Summary of Environmental Effects and Mitigation Measures

Resource	Proposed Action	No-Action Alternative
Wildlife	Effects: • Minor impacts to wildlife associated with vegetation loss and tree clearing. • Temporary wildlife disturbance due to construction noise emissions. • No impact to rare, threatened, or endangered species, or Forest Interior Dwelling Species. Mitigation: • NIH would comply with the Migratory Bird Treaty Act as it pertains to tree cutting.	Effects: • No impacts to wildlife or habitat. Mitigation: • No mitigation necessary.
Water Resources		
Groundwater	Effects: • Temporary potential for impact to groundwater quality as a result of spills of fuels or hazardous materials during construction. • No impact on groundwater consumption. Mitigation: • Implementation of appropriate pollution prevention measures to avoid spills and exposure of groundwater to contamination.	Effects: • No change to water infrastructure; therefore, no potential impacts to groundwater. Mitigation: • No mitigation necessary.
Surface Water	Effects: • No direct impacts to streams. • No direct blowdown or discharge to streams. • Minor indirect impacts to NIH Stream due to runoff from construction sites. Mitigation: • Implementation of Sediment and Erosion Control measures, stormwater management techniques, and pollution prevention measures to ensure that sediment, petroleum products and other contaminants do not migrate to the stream during construction.	Effects: • No direct or indirect impact on surface waters. Mitigation: • No mitigation necessary.

Table S-1. Summary of Environmental Effects and Mitigation Measures

Resource	Proposed Action	No-Action Alternative
Stormwater	Effects: • Minor temporary impacts to stormwater quantity and quality during construction due to disturbance of up to 8.7 acres during construction. • Minor long-term increase in stormwater quantity relative to baseline conditions due to an increase in impervious surface at the Campus by approximately 125,196 SF (2.9 acres). • Minor, long-term beneficial impact to stormwater quality due to incorporation of bioretention areas, including stormwater planter boxes. Mitigation: • Implementation of stormwater management practices during construction, including the development of a Maryland Department of Environment (MDE)-approved sediment and erosion control plan. • Long-term stormwater management facilities would be designed and installed per an MDE approved stormwater management plan. • Stormwater quality impacts would be mitigated through the use of environmental site design practices to restore the predevelopment hydrology at project sites.	Effects: • No change to impervious or pervious areas or associated impacts to stormwater quality or quantity. Mitigation: • No mitigation necessary.
Wetlands	Effects: • No direct or indirect impact on wetlands. Mitigation: • No mitigation necessary.	Effects: • No change to wetlands. Mitigation: • No mitigation necessary.
Floodplains	Effects: • No impact on 100-year floodplains. Mitigation: • No mitigation necessary.	Effects: • No change to floodplains. Mitigation: • No mitigation necessary.
Visual Impacts		
Construction	Effects: • Minor, temporary impact due to presence of construction equipment, soil disturbance, and tree removal. Mitigation: • No mitigation necessary.	Effects: • No visual impact. Mitigation: • No mitigation necessary.

Table S-1. Summary of Environmental Effects and Mitigation Measures

Resource	Proposed Action	No-Action Alternative
Lighting Impacts	Effects: • Minor temporary increase in light trespass due to use of supplemental lighting during construction activities. • Minor long-term increase in light trespass due to installation of modest area lighting to ensure safety and security and to facilitate maintenance • No off-Campus impact expected. Mitigation: • NIH would ensure construction contractors direct lighting away from the campus boundary whenever feasible. • New lighting systems would be designed in accordance with size and directional requirements of the Campus Master Plan. • Re-planting of trees would be designed to provide buffer between light sources and sensitive receptors (the Convent).	Effects: • No direct impact on lighting. Mitigation: • No mitigation necessary.
Viewscapes	Effects: • Minor impacts to external viewscapes. • Moderate impacts to viewscapes from inside the Campus, and at the Convent, due to presence of large new buildings. Mitigation: • Re-planting of trees would be designed to provide buffer between new buildings and sensitive viewers (the Convent). • Height of new structures would not exceed the Master Plan building height guidance. • External appearance of buildings would blend with the surrounding structures.	Effects: • No direct impact on external viewscapes. Mitigation: • No mitigation necessary.
Transportation and Traffic		
Roads, Transit, and Traffic	Effects: • Minor to moderate temporary impacts on off-campus traffic due to construction vehicles and changes to traffic patterns (which may impact volumes at Campus entrances). • Minor temporary impacts to on-campus vehicle, pedestrian and bicycle routes due to road or sidewalk closures. • Temporary impacts on campus shuttles with routes near construction sites. • Minor temporary impacts to on-campus vehicle, pedestrian and bicycle routes. • No long-term impact on traffic volume to, from, or within the Campus. Mitigation: • Lane closures would be controlled by flaggers, and would be conducted, to the extent possible, during off-peak hours. • The NIH would communicate route closures to employees and establish alternate routes as needed.	Effects: • No impacts on traffic or transportation. Mitigation: • No mitigation necessary.

Table S-1. Summary of Environmental Effects and Mitigation Measures

Resource	Proposed Action	No-Action Alternative
Parking	Effects: • Temporary minor to moderate impact due to construction workers parking on-site, increasing demand for parking spaces. • No long-term impact on the availability of parking spaces. Mitigation: • Some limited, additional parking would be made available for construction vehicles during construction. • The NIH would ensure the contract requires construction workers to park in designated areas within the Campus.	Effects: • No impacts on parking. Mitigation: • No mitigation necessary.
Noise Levels		
Noise	Effects: • Temporary minor noise impacts due to construction activities. • Long-term moderate noise impacts due to presence of additional equipment (pumps, electrical equipment) at the UV. Mitigation: • NIH would limit most construction activity to between 7 AM and 5 PM. • Noise levels from construction activities would not exceed 75 dBA at neighboring properties or 85 dBA if a noise suppression plan is approved by the Montgomery County DEP. • New equipment (e.g., pumps, generators) would be installed inside buildings or sound-attenuating enclosures to mitigate operational noise impacts. • NIH would utilize noise suppression techniques to mitigate noise, if necessary, to meet the Montgomery County nighttime noise ordinance of 55 dBA at the property lines.	Effects: • No impacts on noise levels. Mitigation: • No mitigation necessary.

Table S-1. Summary of Environmental Effects and Mitigation Measures

Resource	Proposed Action	No-Action Alternative
Air Quality		
Ambient Air Quality	Effects: • Temporary minor increase in emissions associated with the use of construction equipment. • Temporary minor impacts on local air quality due to fugitive dust (PM) emissions from construction activities. • No change in air emissions from onsite stationary sources. • Minor offsite impact to offsite stationary emissions due to increased energy demand for new buildings. • No long-term impact on vehicle-related air emissions. • Net change in emissions of nonattainment criteria pollutants and their precursors (NO_x, VOC, $PM_{2.5}$, and SO_2) would be well below Clean Air Act General Conformity Rule *de minimis* thresholds for each applicable calendar year. Mitigation: • Implementation of best management practices (BMPs) to limit fugitive dust impacts from construction, demolition, and renovation activities.	Effects: • No changes in campus, local, or regional air quality compared to the baseline. Mitigation: • No mitigation necessary.
Greenhouse Gas Emissions	Effects: • No increase in Scope 1 GHG emissions. • Long-term, minor increase in offsite Scope 2 emissions due to increased energy demand for new buildings. • Temporary minor increase in Scope 3 GHG emissions associated with construction activities. Mitigation: • No mitigation necessary.	Effects: • No change in GHG emissions. Mitigation: • No mitigation necessary.
Utilities		
Potable Water	Effects: • No construction-related or long-term impacts on potable water quality or availability to off-campus users. • Potential temporary minor impacts on quality or availability of potable water to on-campus users during construction activities. • Minor long-term impacts to other utilities (chilled water and steam) associated with increase in use of these utilities in the new facilities. Mitigation: • When feasible, potable water line modifications would be accomplished via night work in order to minimize the potential impact to nearby buildings. • Precautions would be taken during demolition and construction to ensure that the existing utility lines are not damaged and service impacts are minimized.	Effects: • No change to campus. Mitigation: • No mitigation necessary.

Table S-1. Summary of Environmental Effects and Mitigation Measures

Resource	Proposed Action	No-Action Alternative
Other Campus Utilities	Effects: • Temporary, minor impact on existing components of utility distribution networks within limit of disturbance. • Minor, long-term impact due to increased demand for steam and chilled water. Mitigation: • New utility infrastructure would be located and installed in such a way as to minimize the impact to existing utility networks.	Effects: • No change to Campus infrastructure or displacement of utility distribution networks. • Reliability of electrical service to the CC may be impacted by aged infrastructure in Buildings 59 and 59A. Mitigation: • Individual incidents would be addressed on an ad-hoc basis.
Sustainability		
Sustainability	Effects: • Long-term, minor increase in energy demand. Mitigation: • New buildings would comply with all applicable sustainability requirements. • Additional sustainability-related mitigation identified as part of stormwater and waste.	Effects: • No changes to campus infrastructure or energy use. Mitigation: • No mitigation necessary.
Wastes, Hazards, and Safety		
Non-Hazardous Solid Wastes	Effects: • Minor, temporary impacts to non-hazardous solid waste generation associated with construction activities. • No impact to solid waste generation from operations. Mitigation: • NIH would require in the construction contract that the contractors recycle and reclaim significant portions of waste and demolished materials.	Effects: • No new generation of solid waste. Mitigation: • No mitigation necessary.
Hazardous Solid Wastes	Effects: • Minor, long term generation of waste oil or diesel fuel during operations are expected to be the same as under current conditions. Mitigation: • Wastes would be stored and disposed or recycled in accordance with state and federal regulations.	Effects: • No new generation of hazardous waste. Mitigation: • No mitigation necessary.

Table S-1. Summary of Environmental Effects and Mitigation Measures

Resource	Proposed Action	No-Action Alternative
Safety	Effects: • Long-term, beneficial impact to safety for patients, visitors, and employees who currently use the Building 10 garage. Mitigation: • No mitigation necessary.	Effects: • Potential for long-term, adverse impact to patients, visitors, and employees using Building 10 garage. Mitigation: • Individual safety hazards would be addressed on an ad-hoc basis.
Socioeconomics		
Housing, Economics, Recreation	Effects: • Temporary minor impacts on population and housing in the surrounding area due to construction workers. • No impact to low income or minority populations. • Improved facilities would enhance NIH biomedical research, a key driver of the Montgomery County economy • Moderate impact to on-Campus recreation facilities. • Minor economic benefit to the local economy during construction activities (e.g., meals and incidentals for construction workers). Mitigation: • No mitigation necessary.	Effects: • No effect on the population, housing, or open spaces in the surrounding area. • Long-term reduction in the ability of NIH to conduct biomedical research. Mitigation: • Individual challenges in continuing to provide patient care and conduct biomedical research would be addressed on an ad-hoc basis, but possibly in a different location.

Table S-1. Summary of Environmental Effects and Mitigation Measures

Resource	Proposed Action	No-Action Alternative
Cultural and Historic Resources		
Architectural Resources	Effects: • Minor, temporary impact on adjacent Convent during construction due to fugitive dust, noise, and visual appearance of construction area. • Long-term, direct, impact on garden wall of the Convent. • Long-term, moderate impact on viewshed from the Convent. Mitigation: • Project would restore part of the original wall orientation. • Re-planting of trees would be designed to provide buffer between new buildings and sensitive viewers (the Convent). • Work required on the Convent wall would conform with requirements of the current Secretary of the Interior's Standards for Historic Preservation. • NIH is currently consulting with Maryland (MD) SHPO.	Effects: • No effect on historic or MIHP-listed properties. Mitigation: • No mitigation necessary.
Archeological Resources	Effects: • No earth disturbance within archeologically sensitive areas. • No effect on any archeological sites listed or eligible for listing on the National Register of Historic Places (NRHP). Mitigation: • NIH is currently consulting with MD SHPO and the results of the consultation will be reported in the Final EIS.	Effects: • No effect on archeological properties. Mitigation: • No mitigation necessary.

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

ACRONYMS AND ABBREVIATIONS

˚F	degrees Fahrenheit
μg/m^3	micrograms per cubic meter
ACRF	Ambulatory Care Research Facility
ANSI	American National Standards Institute
ASHRAE	American Society of Heating, Refrigerating and Air Conditioning Engineers
AST	aboveground storage tank
BCC	Birds of Conservation Concern
BMP	best management practices
BRAC	Base Realignment and Closure
CAA	Clean Air Act
CBD	Central Business District
CBP	Chesapeake Bay Program
CC	Clinical Center
CDP	Census-Designated Place
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CFS	cubic feet per second
CH_4	methane
CO	carbon monoxide
CO_2	carbon dioxide
COGEN	cogeneration unit
COMAR	Code of Maryland Regulations
CR	Commercial Residential
CRC	Clinical Research Center
CRT	Commercial Residential Town
CUP	Central Utility Plant
CVIF	Commercial Vehicle Inspection Facility
CWA	Clean Water Act
dBA	A-weighted decibel scale
DDOE	District Department of the Environment
DLM	Department of Laboratory Medicine
DPM	Department of Perioperative Medicine
EIS	Environmental Impact Statement
EISA	Energy Independence and Security Act
EO	Executive Order
ESA	Endangered Species Act
ESD	Environmental Site Design
FY	fiscal year
GHG	greenhouse gases
GIS	geographic information system
GPD	gallons per day
GPH	gallons per hour
GPM	gallons per minute
GSA	General Services Administration
HAP	hazardous air pollutant

ACRONYMS AND ABBREVIATIONS (Continued)

HEPA	High Efficiency Particulate Arresting
HFCs	hydrofluorocarbons (HFCs)
HHS	United States Department of Health and Human Services
HVAC	Heating, ventilation, and air conditioning
ICPRB	Interstate Commission on Potomac River Basin
IDA	International Dark Sky Association
IES	Illuminating Engineering Society
IESNA	Illuminating Engineering Society North America
IPaC	Information for Planning and Consultation
IPCC	Intergovernmental Panel on Climate Change
IR	Interventional Radiology
ISMP	Institutional Stormwater Management Plan
kV	kilovolt
kVA	kilovolt-ampre
kW	kilowatt
L90	90th percentile-exceeded noise level
lbs/SF	pounds per square foot
LEED	Leadership in Energy and Environmental Design
LID	low impact development
LOD	limits of disturbance
MACT	Maximum Achievable Control Technology
MERLIN	Maryland Environmental Resources and Land Information Network
M-NCPPC	Maryland-National Capital Park and Planning Commission
MD	Maryland
MDE	Maryland Department of Environment
MDNR	Maryland Department of Natural Resources
MLP	Multi-Level Parking
MGD	million gallons per day
mg/L	milligrams per liter
MMTCO2e	million metric tons of carbon dioxide equivalent
MOU	memorandum of understanding
MS4	Municipal Separate Storm Sewer System
MSW	municipal solid waste
MVA	Megavolt-amps
MWCOG	Metropolitan Washington Council of Governments
NAAQS	National Ambient Air Quality Standards
NCI	National Cancer Institute
NCPC	National Capital Planning Commission
NCR	National Capital Region
NEPA	National Environmental Policy Act
NESHAP	National Emission Standards for Hazardous Air Pollutants
NHLBI	National Heart, Lung, and Blood Institute
NIH	National Institutes of Health
NIOSH	National Institute for Occupational Safety and Health
NNMC	National Naval Medical Center
N_2O	nitrous oxide

ACRONYMS AND ABBREVIATIONS (Continued)

NO_2	nitrogen dioxide
NOx	oxides of nitrogen
NOI	Notice of Intent
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
NSPS	New Source Performance Standards
NSR	New Source Review
O_3	ozone
OSHA	Occupational Safety and Health Administration
Pb	lead
pCi/L	picocuries per liter of air
PEPCO	Potomac Electric Power Company
PCB	polychlorinated biphenyl
PFCs	perfluorocarbons (PFCs)
PM	particulate matter
$PM_{2.5}$	fine particulate matter
PM_{10}	coarse particulate matter
ppb	parts per billion
PPG	Patient Parking Garage
pph	pounds per hour
ppm	parts per million
PSD	Prevention of Significant Deterioration
psig	pounds per square inch gauge
PTC	permit to construct
RADIS	Radiology and Imaging Sciences
RCRA	Resource Conservation and Recovery Act
SDWA	Safe Drinking Water Act
SF_6	sulfur hexafluoride
SIP	State Implementation Plan
SO_2	sulfur dioxide
SRLM	Surgery, Radiology, and Lab Medicine Building
TAP	toxic air pollutant
TMDL	Total Maximum Daily Load
TMP	Transportation Management Plan
TPY	tons per year
TSCA	Toxic Substances Control Act
U.S.	United States
USACE	United States Army Corps of Engineers
USCB	United States Census Bureau
USEPA	United States Environmental Protection Agency
USGBC	United States Green Building Council
USGS	United States Geological Survey
USFWS	United States Fish and Wildlife Service
UST	underground storage tank
UV	Utility Vault
VOC	volatile organic compound

ACRONYMS AND ABBREVIATIONS (Continued)

WIP	Water Implementation Plans
WMATA	Washington Metropolitan Area Transit Authority
WRNMMC	Walter Reed National Military Medical Center
WSSC	Washington Suburban Sanitary Commission

1.0 Introduction

This Environmental Impact Statement (EIS) has been prepared in accordance with the requirements of the National Environmental Policy Act (NEPA) of 1969, the Council of Environmental Quality (CEQ) regulations for implementing the procedural provisions of NEPA (40 Code of Federal Regulations [CFR] Parts 1500–1508 and 32 CFR Part 775), and the NEPA procedures defined in Parts 30-50 of the United States (U.S.) Department of Health and Human Services (HHS) General Administrative Manual.

1.1 Background

The National Institutes of Health (NIH) Bethesda Campus (hereafter referred to as "Campus") occupies approximately 310 acres of land within the Washington, D.C. metropolitan area in Montgomery County, Maryland (Figure 1-1). The NIH, an Operating Division of the HHS, received the property on which the Campus is located through a series of generous land donations from Luke and Helen Woodward Wilson between 1935 and 1948. The Campus opened the doors of its first four buildings in 1939 and has since grown into a world renowned state-of-the-art biomedical research complex with over 20,000 employees.

The Campus contains over 90 buildings (Figure 1-2). These highly functional facilities enable the NIH to fulfill its mission of seeking fundamental knowledge about the nature and behavior of living systems and applying that knowledge to enhance health, lengthen life, and reduce the burdens of illness and disability. The Campus is home to 27 institutes and centers that support or conduct cutting-edge research on the following five key research themes:

- Applying genomics and other high throughput technologies;
- Translating basic science discoveries into new and better treatments;
- Using science to enable health care reform;
- Focusing on global health; and
- Reinvigorating and empowering the biomedical research community.

Building 10, the NIH Clinical Center (CC), is the world's largest clinical research hospital. The original building in the complex was constructed in 1955, and the complex has been expanded with additions, most recently the Mark O. Hatfield Clinical Research Center (CRC) in 2005. Operations currently housed in the CC, and which are the subject of the purpose and need for the actions evaluated in this EIS, include the Departments of Perioperative Medicine and Interventional Radiology (DPM/IR), Radiology and Imaging Sciences (RADIS), and Laboratory Medicine (DLM) currently located in Wings S&T of the Ambulatory Care Research Facility (ACRF), and the National Cancer Institute's (NCI) research laboratories currently located on floors 1W and 3W of the CRC West Laboratory wing. Other existing ancillary facilities, including an underground patient parking garage and the Building 59/59A switching station, are located nearby and provide infrastructure support to the CC.

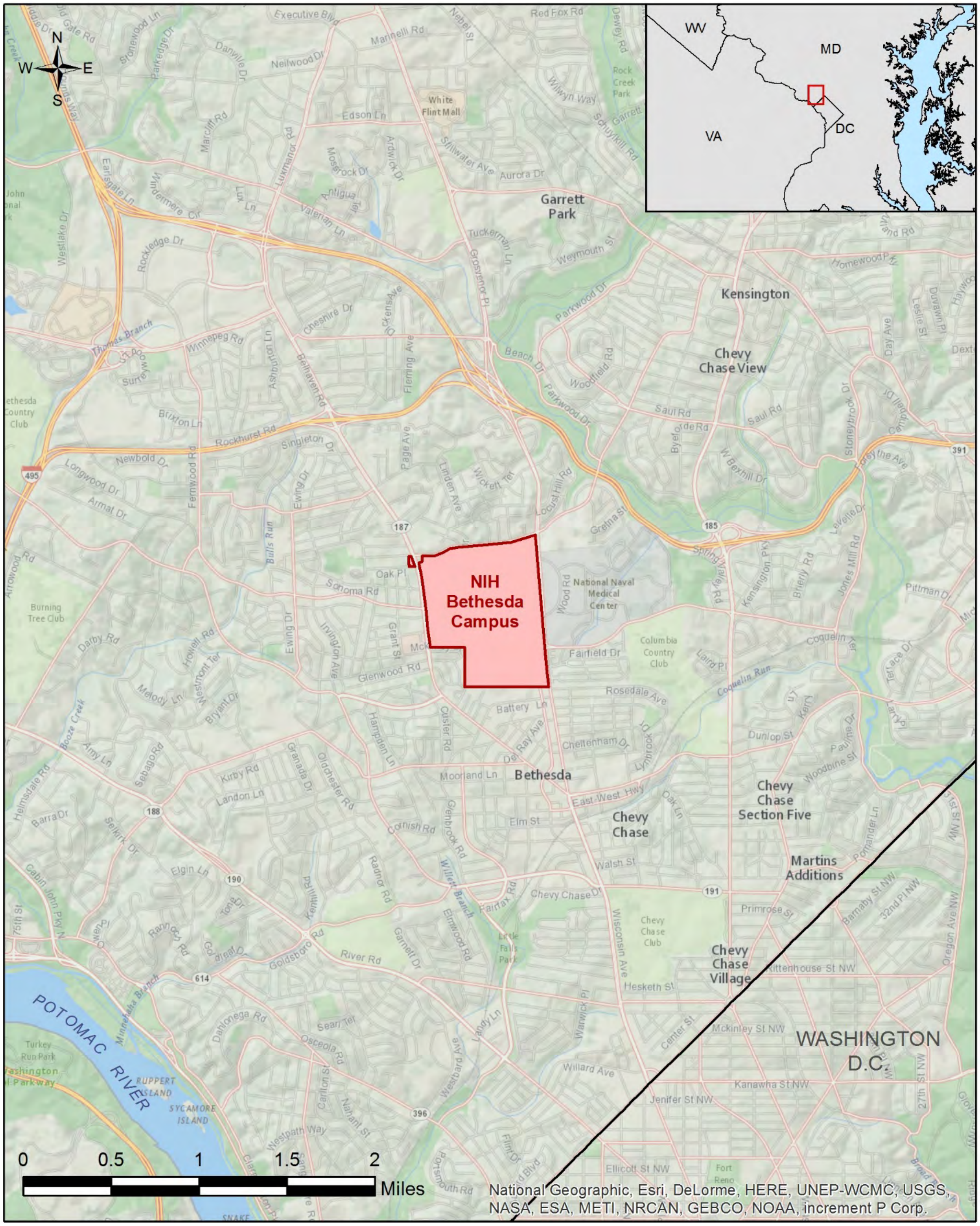
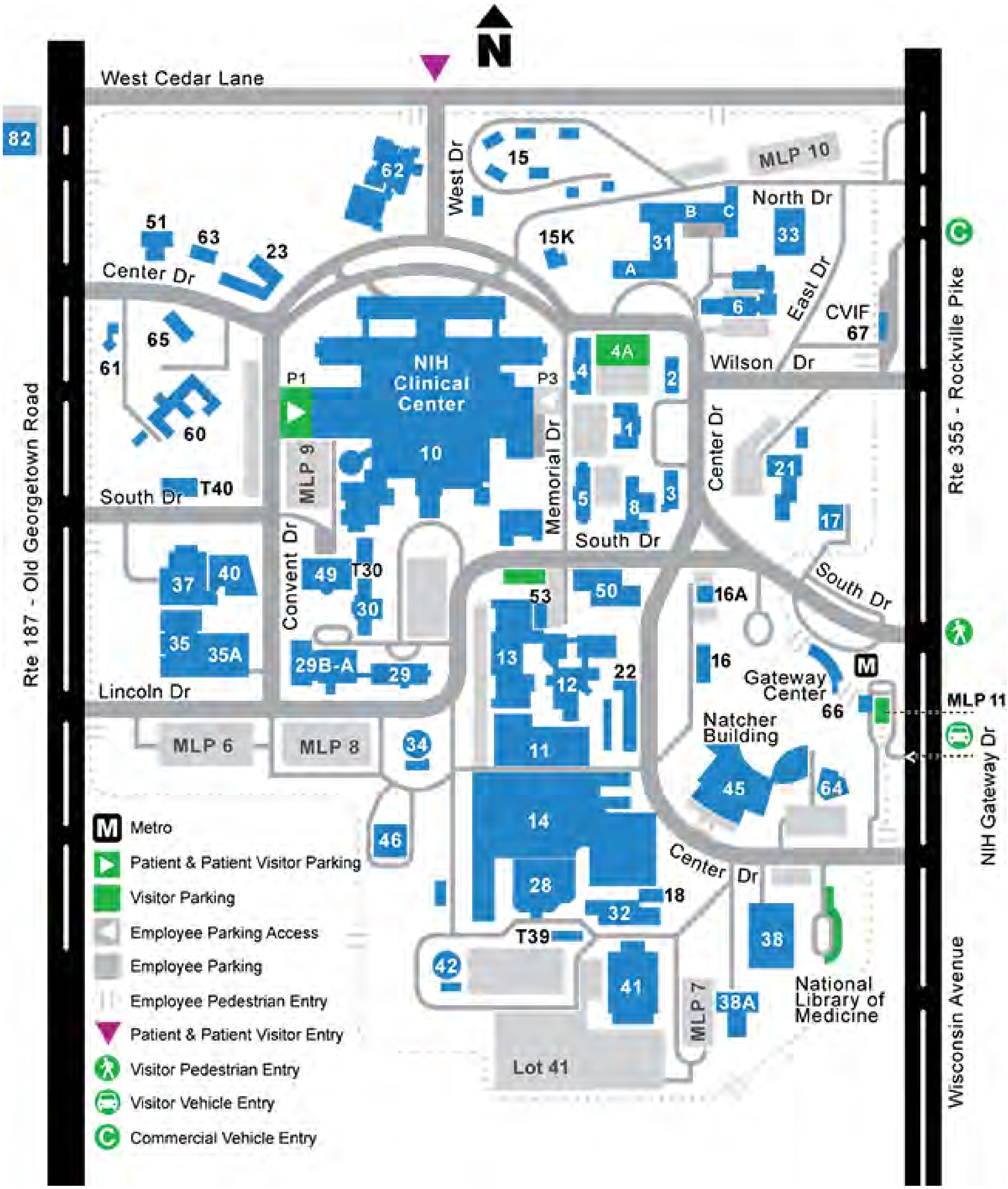


Figure 1-1. Location of the Campus



Source: http://www.ors.od.nih.gov/maps/Pages/NIH-Visitor-Map.aspx.

Figure 1-2. Existing Facilities on the Campus

1.2 Purpose and Need

The overall purpose of the actions analyzed in this EIS is to further the NIH fundamental mission of clinical research by providing facilities that support both NIH and congressional medical research initiatives.

The need for the actions analyzed in this EIS is to maintain and improve performance of this mission by addressing deficiencies in the current facilities. These deficiencies include:

- Spatial deficiencies;
- The inability of the current facilities to house new technologies;
- Patient, visitor, and staff security and safety concerns; and
- The inability of the existing Building 59/59A switching station to meet current and expected future electrical power needs.

In addition to addressing these deficiencies, any potential alternatives that propose construction of new facilities would need to include:

- Infrastructure support, including parking and electrical power, sufficient to support the new facility;
- Continuity of parking, electrical power, and other utilities to existing facilities and operations during construction; and
- Replacement of any existing facilities or operations displaced by the new facilities.

The following subsections describe these factors in further detail.

1.2.1 Spatial Deficiencies

The most recent Building Condition Index lists the ACRF's current condition as "Poor". Some of the major deficiencies include the following:

- Functional space inadequacies/inefficiencies;
- Inefficient routes of circulation;
- Numerous limitations restricting the flexibility/adaptability to address growth and change;
- Deficient and unreliable infrastructure systems (major areas of concern include normal and emergency power, communication systems, heating, cooling and ventilation); and
- Unacceptable vibration levels in some areas of the building due to structural problems (light steel structure).

Spatial deficiencies severely impact the operating rooms, radiology suite and clinical laboratory. Both patients and staff lack sufficient support space as they undergo care and conduct treatment protocols. The distribution systems for electrical, duct work, and piping are degrading and require replacement, but this work cannot be done while the space is occupied. The building's floor-to-floor heights are deficient by today's utility requirements and cannot contain the necessary utility distribution systems. A lack of utility capacity and control results in work environments that suffer from poor temperature and humidity control. These environmental factors can also negatively impact the patient samples that are being processed and tested.

1.2.2 Inability to House New Technologies

Since the ACRF opened more than 34 years ago, biomedical research and its supporting clinical programs have rapidly evolved influencing the criteria for space and infrastructure systems. The rapid evolution of equipment (changing every three to five years) has had a direct impact on both space requirements and utility systems that support them. Hospital surgical suites are typically replaced every 20 years to keep up with the latest technological advancements, operating room equipment and techniques. The existing facility has not kept pace with modern surgical, imaging and clinical laboratory facility requirements, and cannot accommodate evolving requirements.

1.2.3 Security and Safety

Currently, patient, visitor, and staff parking is partially accommodated in an underground parking garage located below the ACRF tower. More specifically, existing parking is located directly below surgery, radiology and laboratory areas of the complex, which makes repairs to the garage expensive, due to patient occupancy on floors above. The current garage has serious structural deficiencies due to corrosion of the concrete and underlying (exposed) rebar, despite on-going maintenance. The concrete and rebar corrosion is from years of salt and chemicals brought into the garage by the vehicle traffic. This condition poses a safety threat to users of the facility, and a liability threat to the government, due to the potential for falling pieces of concrete.

1.2.4 Sufficiency of Building 59/59A Switching Station

The equipment in Buildings 59 and 59A is aging and will soon need replacement due to space constraints, the inability to acquire replacement parts, and failure of the current system to meet requirements of the Life Safety Code (NFPA 101) and Environment of Care standards of the Joint Commission.

1.3 Public Scoping

Scoping is an early and open process for determining the range of significant issues to be analyzed in the EIS. A federal agency begins the scoping period for an EIS by publishing a Notice of Intent (NOI) in the Federal Register to let the public know that it is considering an action and will prepare an EIS. The NOI describes the Proposed Action and may provide background information on issues and potential impacts. During the scoping period, the public can provide comments on the Proposed Action, alternatives, issues, and potential environmental impacts to be analyzed in the EIS. Scoping may involve public meetings and other means to obtain public comments.

The NIH published an NOI for the EIS in the Federal Register on November 9, 2018. The NOI is provided in Appendix A. The public comment period ended on December 29, 2018.

Public Meeting

The NIH used the NOI, newspaper announcements, and flyers displayed at various businesses around Bethesda to inform the public of a public scoping meeting to be held at 6001 Executive Boulevard in Rockville, Maryland on November 28, 2018, at 6:00 p.m. The purpose of the meeting was to solicit input from the general public regarding alternatives to achieve the purpose and need.

The NIH displayed a poster exhibit describing the NEPA process, suggestions for effective commenting, existing conditions at the Campus, and an overview of the proposed alternative. Following the poster session, the NIH provided a brief presentation about the NEPA process and the proposed project and received public comments. The NIH provided a recorder and videographer to document oral comments.

Public Comments

One member of the public and one agency, the U.S. Environmental Protection Agency (USEPA), submitted comments on the Proposed Action, in writing, by the December 29, 2018 deadline. No oral comments were received during the public scoping meeting. The comments were not solution-oriented or relevant to the scope of the project and therefore did not warrant further analysis in the EIS.

1.4 Public Review of Draft EIS

The Draft EIS was published and sent out for public review to all groups, individuals, and locations identified in Chapter 8 (Distribution List). The U.S. Environmental Protection Agency (USEPA) published a Notice of Availability (NOA) of the Draft EIS on April 24, 2020, initiating the Draft EIS comment period. The public comment period expired at midnight on June 8, 2020.

Public Meeting

The NIH used the Bethesda Gazette, Washington Times, and flyers displayed at the Campus and various businesses around Bethesda to inform the public of a public comment meeting to be held online on May 6, 2020, at 6:00 p.m. The NIH presented a slide show describing the NEPA process, the Proposed Action, and the findings of the Draft EIS. The NIH recorded the meeting and made it available online.

Response to Comments

The NIH received written comments from local organizations, federal agencies, and the public during the comment period. All comments received during the public comment period are provided in Appendix D along with the NIH’s responses. These comments resulted in minor modifications to the EIS.

2.0 Alternatives

2.1 Proposed Action

The Proposed Action would re-locate the operations of several departments from their current locations to a newly constructed addition to the CRC, to be known as the SRLM Building. The DPM, IR, RADIS, and DLM departments would be moved from their current locations within Wings S&T of the ACRF. The NCI research laboratories would be moved from their current location on floors 1W and 3W of the West Laboratory Wing of the CC. The SRLM would also house the National Heart, Lung, and Blood Institute (NHLBI) Cardiac Catheterization Laboratory (Cath Lab). The NHLBI Cath Lab is currently located in the S and T Wing of Building 10. To address deficiencies in the parking garage underneath the CC, a new Patient Parking Garage (PPG) would be constructed. To address deficiencies in the current power infrastructure in the Building 59 Switching Station and Building 59A Emergency Generator Station, a new Utility Vault (UV) would be constructed. In addition, a Service Yard would be constructed to house laboratory and clinical gas storage tanks.

The proposed new facilities would be situated on the west side of the CC, as illustrated in Figure 2-1.

2.1.1 Project Elements

Elements that would be implemented as part of the Proposed Action are detailed below.

Surgery, Radiology, and Lab Medicine (SRLM) Building

The proposed SRLM would be an addition connected to the West Laboratory Wing of the CRC, between the CC and Convent Drive. The land slated for the future SRLM building is currently comprised of open space and a small playground. This space also currently includes an outdoor carbon dioxide (CO_2) tank, the Clinical Data Center emergency generator, and an underground electrical ductbank within the footprint of the proposed structure.

The SRLM would be an approximately 527,100 gross square foot (gsf) building, with nine levels above grade, and two levels below grade. In addition to 527,100 gsf of space in the new building, the Proposed Action would include renovation of 102,600 gsf of existing space within the West Laboratory Wing of the CRC. The footprint of the SRLM would occupy 55,500 gsf.

Each floor of the addition would align with floors of the West Laboratory Wing of the existing CRC. The departments relocated to Floors 1, 2, 3, and 4 would each occupy a single floor partially within the new SRLM, and partially within renovated space within the adjacent West Laboratory Wing. The departments relocated to Floors 5, 6, 7, and 8 of the SRLM would occupy only the SRLM, but not adjacent renovated space in the West Laboratory Wing. Floors 2, 4, 6, and 8 would primarily house mechanical infrastructure, and would include limited administrative areas. A more detailed description of the specific function and approximate area of each floor is provided in Table 2-1.

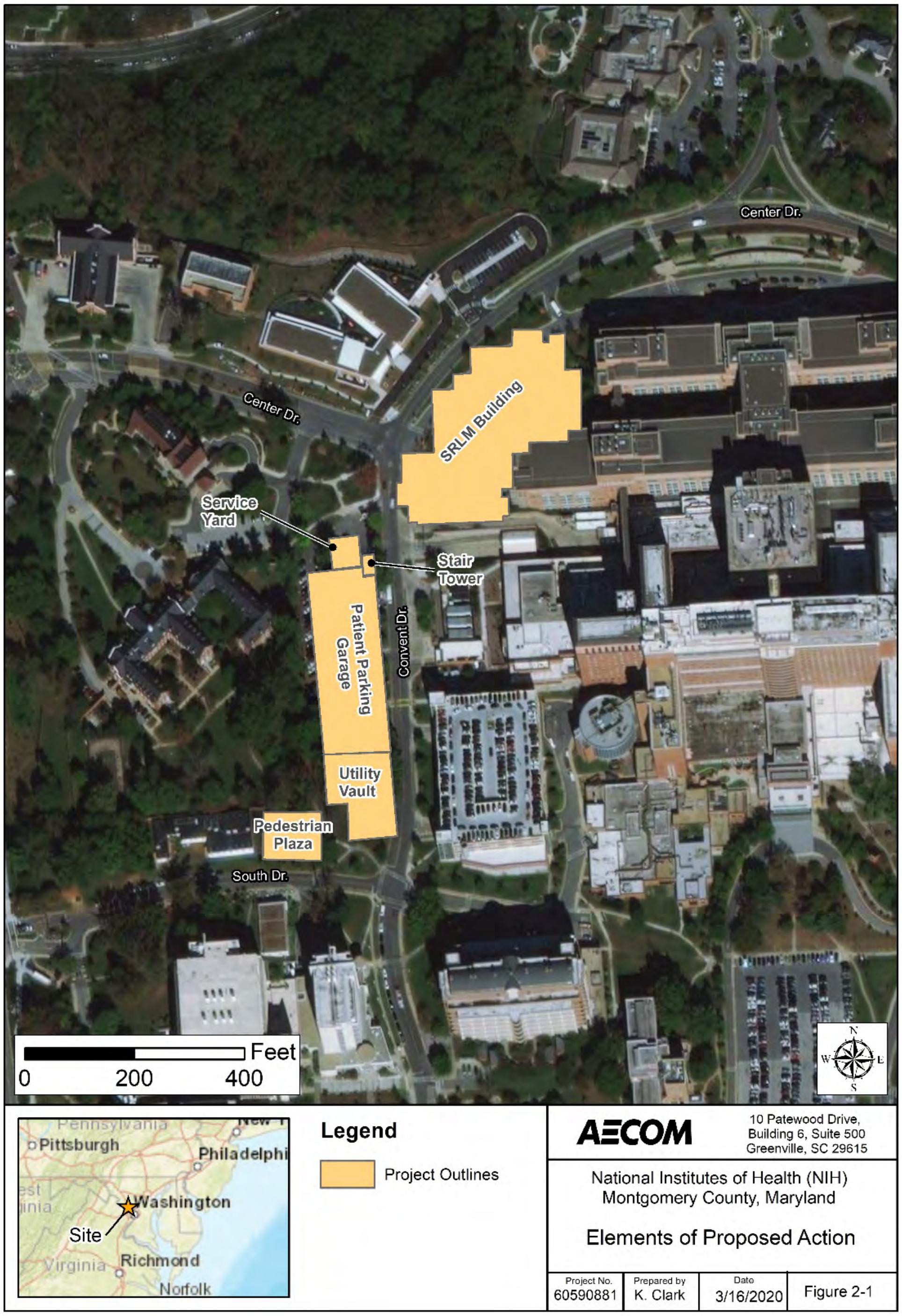


Figure 2-1. Elements of the Proposed Action

Table 2-1. Configuration of Proposed SRLM Building

Floor	Proposed Use	Floor Area in New SRLM Building (gsf)	Floor Area to be Renovated in Adjacent West Laboratory Wing (gsf)	Total Floor Area (gsf)
R	Roof Level (Penthouse)	26,700	0	26,700
8	Mechanical, and NCI offices	54,100	0	54,100
7	NCI Laboratories	54,900	0	54,900
6	Mechanical, and DLM offices	55,300	0	55,300
5	DLM	55,500	0	55,500
4	Mechanical, and DPM offices	55,400	19,700	75,100
3	DPM and IR	55,400	22,800	78,200
2	Mechanical, and DPM, NHLBI, and IR offices	54,500	20,300	74,800
1	RADIS	49,300	24,000	73,300
B1	Mezzanine, Support	7,100	10,000	17,100
B2	Mechanical, and DPM and NHLBI	58,900	5,800	64,700
	Total	527,100	102,600	629,700

Heating, ventilation, and air conditioning (HVAC) equipment for the SRLM would be housed in two mechanical towers, one each on the east and south sides of the SRLM. The location for these systems on the sides of the SRLM, instead of on the roof, was chosen to ensure that any water or other liquid leaks from the HVAC system would not impact critical program areas.

A subsurface pedestrian tunnel would be constructed under Convent Drive linking the SRLM to the PPG. The pedestrian tunnel would connect the new parking garage to the B2 level of Building 10 and to the future SRLM Building across Convent Drive.

Patient Parking Garage

The proposed PPG would be constructed on the opposite (west) side of Convent Drive from the SRLM. The location is currently the valet parking lot for the CC, designated as Lot 10E, as well as open space on the north and south ends of Lot 10E. Lot 10E currently includes space for approximately 100 vehicles.

The PPG would be a multi-level, self-park garage, accommodating approximately 780 cars. The proposed design of the adjacent PPG and UV is a rectangular layout running along a north-south axis, approximately 500 feet long by 120 feet wide (Figure 2-1). The northern portion of the structure would be the parking garage, consisting of six open stories with an exposed top deck. The southern portion of the structure would be the UV, consisting of two stories which vertically align with the first and third stories of the PPG. One vehicular entrance to the PPG would be connected to Center Drive and the Family Lodge driveway. A new pedestrian plaza at the south entrance to the PPG would connect to the sidewalk system and crosswalk across Convent Drive. The CO_2 tank and emergency generator that would be relocated from the site of the future SRLM Building would be sited in an enclosure between the vehicular entrance located on the north of the garage and Convent Drive. A glass tower at the northeast corner of the PPG would contain all primary vertical circulation elements, including stairs and elevators leading down to the new pedestrian tunnel, which would cross beneath Convent Drive. A second vehicular entrance to the PPG would connect to South Drive and enter the parking garage by running along the west side of the UV. The PPG would include an attendant booth for valet parking staff.

The floor-to-ceiling height in the lowest parking level of the PPG would be sufficient to accommodate vans. The footprint of the structure would be approximately 40,000 gsf. The PPG would be six levels high, with an overall area of 250,000 gsf.

There would be no changes to the current parking garage adjacent to the CC, MLP-9. There would also be no structural modifications to the current patient parking area, known as the Building 10 garage. The Building 10 garage would undergo phased closure, eventually be closed to car traffic, and ultimately be converted to other uses (e.g., storage) once the PPG is constructed.

Utility Vault

The proposed UV would be located adjacent to the southern end of the PPG, on the west side of Convent Drive. The location is currently used for surface-level valet lot for patient and visitor parking and open space.

The vault would provide housing space for the (future) electrical switching station and emergency generator station to eventually replace the aging electrical equipment currently serving the hospital and biomedical research complex (CRC, ACRF and Building 10) via Buildings 59 and 59A. The UV would also house the new electrical distribution equipment, a 350-kW emergency generator, and a fire pump to serve the UV and PPG.

The vault area would have a floor-to-ceiling height of 18 to 20 feet and would be partitioned into three or four bays to house the equipment. The UV would be designed to meet progressive collapse requirements, and would also be hardened for blast resistance, per current Federal force protection guidelines. An electrical feeder would be installed, via a new underground ductbank, from the Potomac Electric Power Company's (PEPCO's) on-Campus substation (Building 63) to the UV. This feeder would provide power to the PPG and the SRLM Building. Spare capacity would be built into the ductbank for future feeders for Building 59/59A replacement. An existing underground electrical ductbank, currently within the footprint of the SRLM Building, would be replaced with a new underground ductbank, routed around the construction limits of disturbance (LOD). Other elements also include a new CO_2 storage tank, and a new 7,700 gsf underground fuel vault, under the pedestrian plaza, which would house fuel storage tanks to support six 2,500-kW generators.

The fuel system for the six future generators would be designed to store and distribute Ultra Low Sulfur Diesel (ULSD). The configuration of the tanks in the fuel vault is shown in Figure 2-2, 2-3, and 2-4. Due to the critical nature of the buildings served, 96 hours of fuel storage would be provided per the Joint Commission's Environment of Care Standards for Accreditation (section on Emergency Management EM.02.01.01 EP 3), the hospital's emergency operations plan, and NFPA 110 requirements. Based on the fuel consumption rate of the proposed generators, a total storage volume of 120,000 gallons would be provided in the new fuel tanks. The fully enclosed underground fuel vault would be sized to contain six 20,000 gallon double walled, fire-guard type storage tanks. Although the vault would be underground, the tanks within the vault would be within vented concrete vaults, so would be regulated as above-ground storage tanks (ASTs). The space would be monitored and alarmed for leaks and indoor air vapors, and would be mechanically ventilated and protected by a sprinklered foam fire suppression system. A walkable tunnel would connect the UV to underground fuel vault.

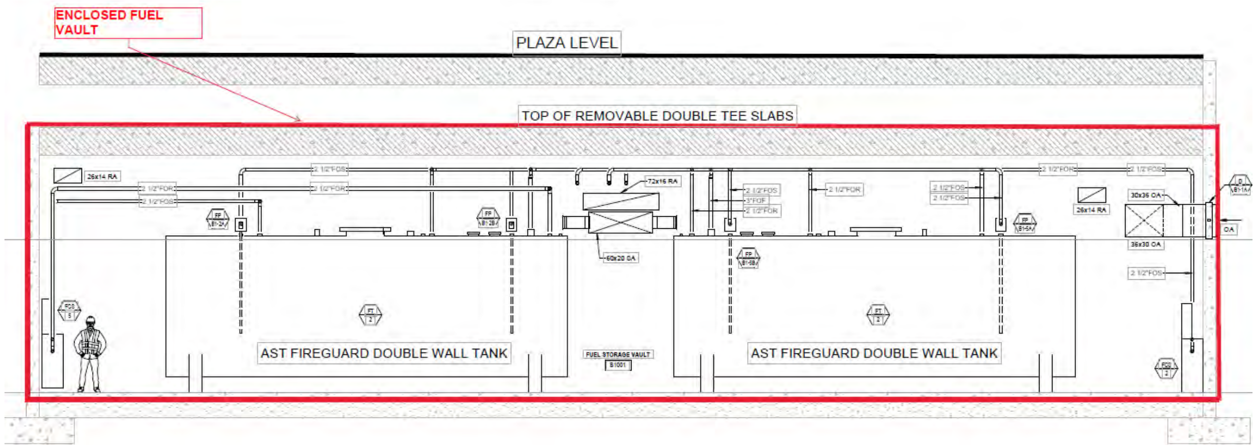


Figure 2-2. Side View of Underground Fuel Vault beneath Plaza

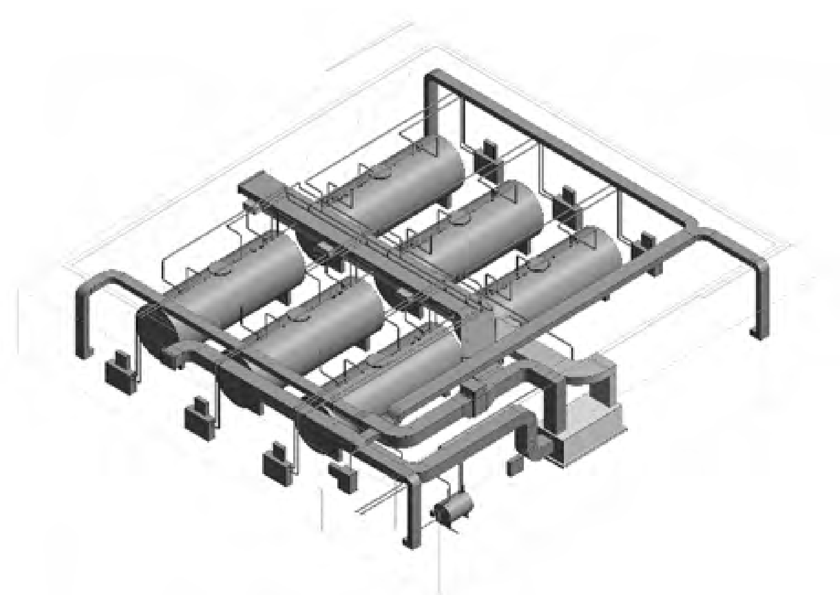


Figure 2-3. Oblique View of Tanks within Underground Fuel Vault

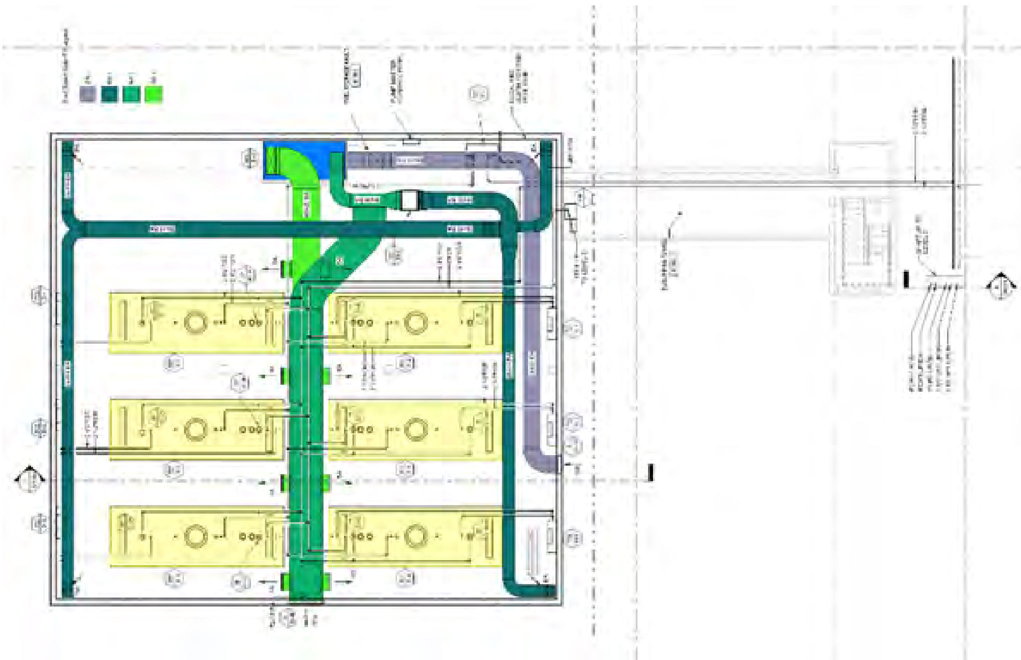


Figure 2-4. Top View of Tanks within Underground Fuel Vault

Service Yard

The proposed Service Yard would be located adjacent to the northern end of the PPG, on the west side of Convent Drive. The location currently provides a surface-level valet parking lot for patients and visitors, as well as open space. The Service Yard would be used to store storage tanks for laboratory and clinical gases which are used in CRC operations.

2.1.2 Construction Activities

The following subsections describe the physical activities that would occur as part of the construction and renovations needed to implement the Proposed Action.

Construction Sequence and Duration

The UV and PPG construction is expected to take 24 months to complete. The SRLM construction would take an additional 5½ years. To minimize impacts to ongoing operations and to ensure the availability of space to support construction, the following sequence would be followed:

- The UV and PPG would be constructed, using the currently open space on the east side of Convent Drive near MLP-9 for staging of construction equipment;
- The SRLM Building would be constructed in two phases, with Phase 1 consisting of construction of enabling projects (relocation of underground electrical feeder, relocation of data center generator and CO_2 tank) occurring in parallel to construction of the UV and PPG, and Phase 2 consisting of construction of the building following completion of the UV and PPG;
- Upon completion of the SRLM, the laboratories of the NCI would be moved from West Laboratory Wing Floors 1W through 4W to the seventh floor of the SRLM;
- Once Floors 1W through 4W are vacated, they would be renovated to accommodate the operations currently housed in Wings S&T of the ACRF;

- Upon completion of the renovation of Floors 1W through 4W, the operations of the DPM/IR, RADIS, and DLM would be moved from Wings S&T of the ACRF to the SRLM and/or adjacent renovated Floors 1W through 4W; and
- Once construction of the SRLM and renovations of Floors 1W through 4W are completed and the PPG is no longer needed as space for staging of construction equipment, patient and staff parking currently in the Building 10 underground parking garage would be moved to the new PPG, in phases.

The LOD associated with construction are shown in Figure 2-5.

Following completion of the construction, renovations, and re-locations, the vacated space in Wings S&T of the ACRF would be made available for other functions and/or demolished, as needed. The Building 10 garage would be closed to car traffic in phases, and converted to other uses, such as storage. Electrical functions in Buildings 59 and 59A would continue until they are eventually completely replaced by new equipment in the UV, at which time Buildings 59 and 59A would be demolished.

Site Access and Traffic

Site access for construction of the project would use the South Drive entrance located off Old Georgetown Road. During construction of the UV and PPG, temporary valet parking would be located at the future location of the SRLM Building. Construction staging for the UV and PPG would be to the south and west of MLP-9. Once construction of the UV and PPG are completed, equipment and vehicles for the construction of the SRLM Building would be staged at the PPG. The NIH would include language in the construction contract that requires the contractor to ensure employees and subcontractors park in designated areas within the Campus.

Utilities to Support Construction

The only utilities expected to be required to support construction would be electrical power, and water for dust control. A small generator would be used to serve the garage until the new generators in the UV become operational.

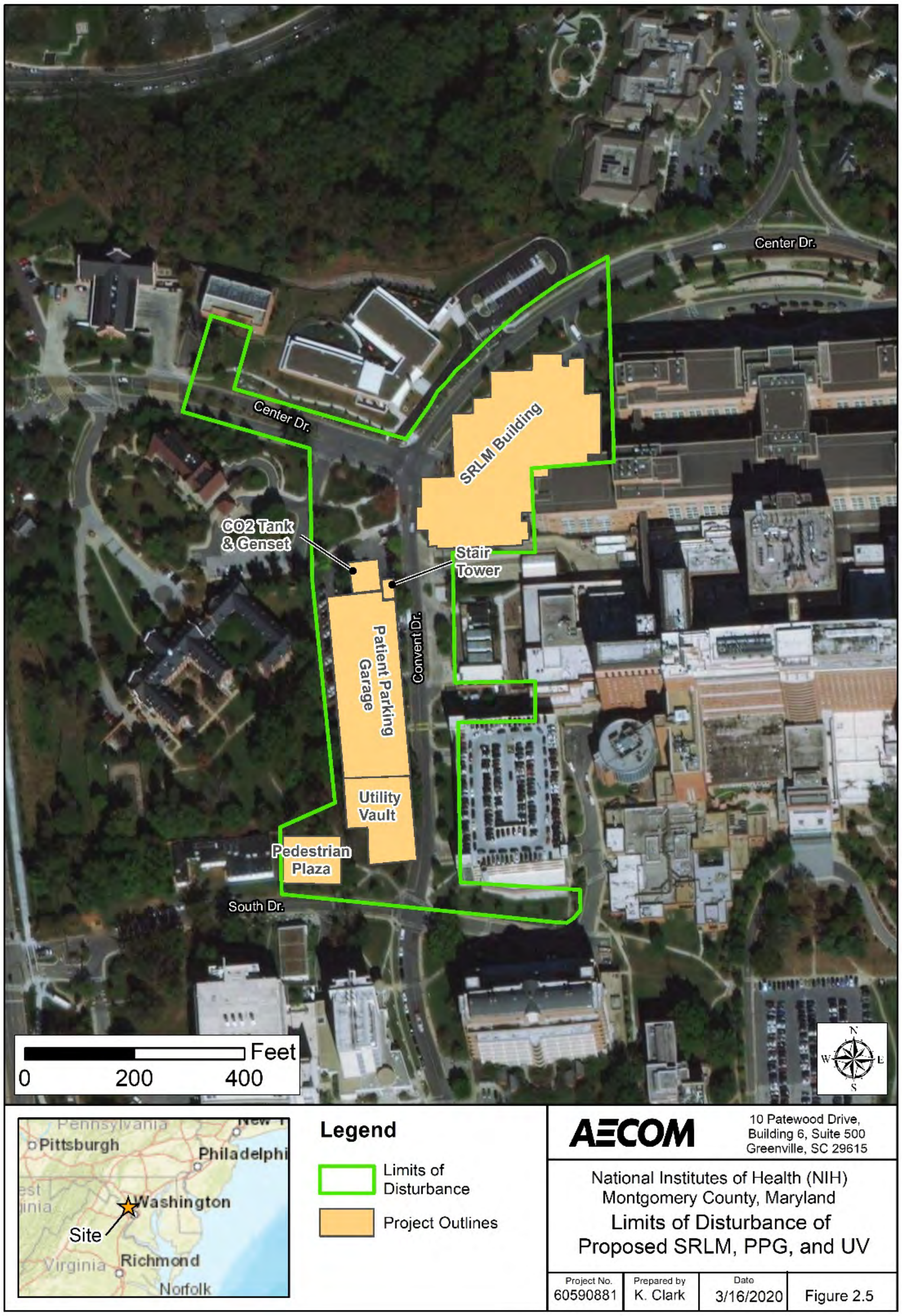


Figure 2-5. Limits of Disturbance of Proposed SRLM, PPG, and UV

Construction Waste Generation and Management

Construction would result in the generation of solid wastes, including construction debris, excavated soil and asphalt, and waste oils and fuels. As part of construction contracts, NIH would require the contractors to recycle and reclaim significant portions of waste and demolished materials, reducing the waste stream from construction activities. Any excavated soil not able to be reused onsite would be transported offsite to another NIH location that would be able to accommodate the spoils, or the NIH would make arrangements with a third party to accept their construction spoils. Personnel would exercise caution in the handling, storage and disposal of any waste oil and/or fuel in order to prevent release to the environment. Wastes would be stored and either disposed or recycled in accordance with state and federal regulations.

2.1.3 Operational Activities

The Proposed Action does not include any proposed change in operations for any of the departments affected. The departments would be re-located and consolidated, making their operations more effective and efficient. However, there would be no associated change in the numbers of employees or patients, and therefore no change in traffic levels or need for parking. There would be an increase in the demand for chilled water and steam, supplied through underground distribution systems, to support operations. This increase would be supplied by existing capacity in the current systems, without a need for expansion of those systems. The type and amounts of waste to be generated, and the management practices and regulatory requirements for those wastes, would be the same as the current operations. Once construction of the UV is complete, the new generators in the UV would replace the current generators in Building 59A, so there would be no increase in air emissions or the need for modification of the current facility air permits associated with operations.

The only modifications associated with the Proposed Action that would potentially affect the environment on the NIH Campus would be the presence of new structures. The construction and building aesthetics would be designed to blend with the surrounding structures and CC. The garage would be an open structure for natural ventilation, and the façade would blend with the surrounding buildings, including the adjacent historic Convent. All structures would be constructed to a height that does not exceed the Master Plan building height guidance and would be consistent with Master Plan guidance for minimizing the visual impact of new construction.

2.2 No-Action Alternative

The No-Action Alternative would not implement the Proposed Action. Under the No-Action Alternative, NIH would continue to provide services and patient care, and perform research, in the current surgical, radiological, laboratory, and office spaces in the CC. The current functional inadequacies, inefficiencies, and deficiencies that hinder modern surgical, imaging, and clinical laboratory care would not be improved. Reliability and long-term sustainability of the electrical power feeds for the hospital and biomedical research complex would not be upgraded. Security risk, personal safety risk, and liability risk associated with the existing underground parking garage would not be mitigated.

The potential environmental impacts and consequences of the No-Action Alternative are discussed in Section 4 (Environmental Consequences) and summarized in Table S-1. The No-Action Alternative would not meet the purpose and need defined in Section 1.2 (Purpose and Need). As a result, the No-Action Alternative is considered less desirable than the Proposed Action.

2.3 Selection of the Proposed Action as the Preferred Alternative

The Proposed Action would meet the purpose and need described in Section 1.2 (Purpose and Need) in the following ways:

- The spatial deficiencies would be addressed by moving the current operations to surgical, radiological, laboratory, and office spaces that consolidate and organize activities in an efficient manner;
- The SRLM Building would be designed with the flexibility to address future growth and change, including floor-to-ceiling heights and other features capable of accommodating equipment associated with newer technologies;
- The SRLM Building would incorporate upgraded, up-to-date infrastructure systems which would be more reliable, and would ensure the ability to control temperature and humidity;
- The SRLM Building would address unacceptable vibration levels by using more robust construction materials and methods; and
- The SRLM Building would be constructed to meet with progressive collapse requirements and blast criteria.

Security and safety issues associated with the current Building 10 parking garage would be addressed by eliminating public and staff parking in the garage, and by providing a similar amount of parking in a garage(s) that would not be within the same building as staff, patients, and visitors. The deficiencies in the current electrical infrastructure, including the ability to upgrade the equipment, would be addressed by installing new equipment within a space which provides better protection, and provides space for future upgrades.

The NIH does not prefer the No-Action Alternative because it does not meet the Purpose and Need.

2.4 Alternatives Considered but Not Carried Forward

The NIH considered re-location of existing operations to spaces that are currently vacant, followed by renovation of the existing facilities in place to meet the criteria identified in Section 1.2 (Purpose and Need), but rejected them from further consideration, as discussed below.

- The currently available vacant spaces are not sufficient to support current operations;
- Re-location to other spaces, even temporarily, would diminish the ability to serve patients even more than the current situation, and would exacerbate the inefficient routes of circulation;
- Renovation of the ACRF would not resolve deficient issues related to the floor-to-ceiling height for the necessary utility systems, or the vibration associated with the light steel structure;
- The security issues associated with the location of parking in the Building 10 garage underneath the CC cannot be resolved through renovation; and
- The required electrical security and infrastructure cannot be achieved through renovation of the current Buildings 59 and 59A, due to their limited size and construction type.

3.0 Affected Environment

3.1 Topography, Geology, and Soils

3.1.1 Topography

Background

Topography indicates the relative position and elevation of natural and man-made features within an area. Changes to the topography of an area can affect surface and subsurface water pathways and quantities result in increased sedimentation, impact stormwater runoff, and ultimately affect water quality in nearby waterways and wetlands. Topography can also influence viewscape, landscape, noise levels, and land use.

Region

The Campus is located on the eastern side of the Piedmont physiographic province, which extends from New York to Georgia and traverses a 30- to 45-mile wide swath through Maryland. The Piedmont physiographic province is generally characterized by rolling hills and low valleys with abundant streams, wetlands, and groundwater. The Piedmont lies between the Atlantic Coastal Plain and the Blue Ridge Province. The Atlantic Coastal Plain begins approximately five miles to the southeast of the Campus within Washington D.C., and the Blue Ridge Province begins at Catoctin Mountain about 30 miles to the northwest of the Campus.

Campus

A topographic map of the Campus is shown in Figure 3.1-1. The Campus is situated on the undulating topography of the uppermost stream valleys of two small independent tributaries of Rock Creek, which flow from the southwest to the northeast across the Campus. In general, the Campus is sloped from southwest to northeast, with the highest elevation of approximately 384 feet above mean sea level located on the south side of South Drive on the ridgeline, and the lowest elevation of 232 feet above mean sea level at the northeast corner of the property where a drainage culvert, located just south of Cedar Lane, crosses under Maryland (MD) Route 355. Slopes throughout the Campus are mostly 15 percent or less. Areas with steep slopes (i.e., those greater than 15 percent slope) are indicated in Figure 3.1-1.

Site of the Evaluated Alternative

As shown on Figure 3.1-1, neither the locations of the proposed SRLM Building or the PPG and UV lie within areas of high slopes greater than 15 percent.

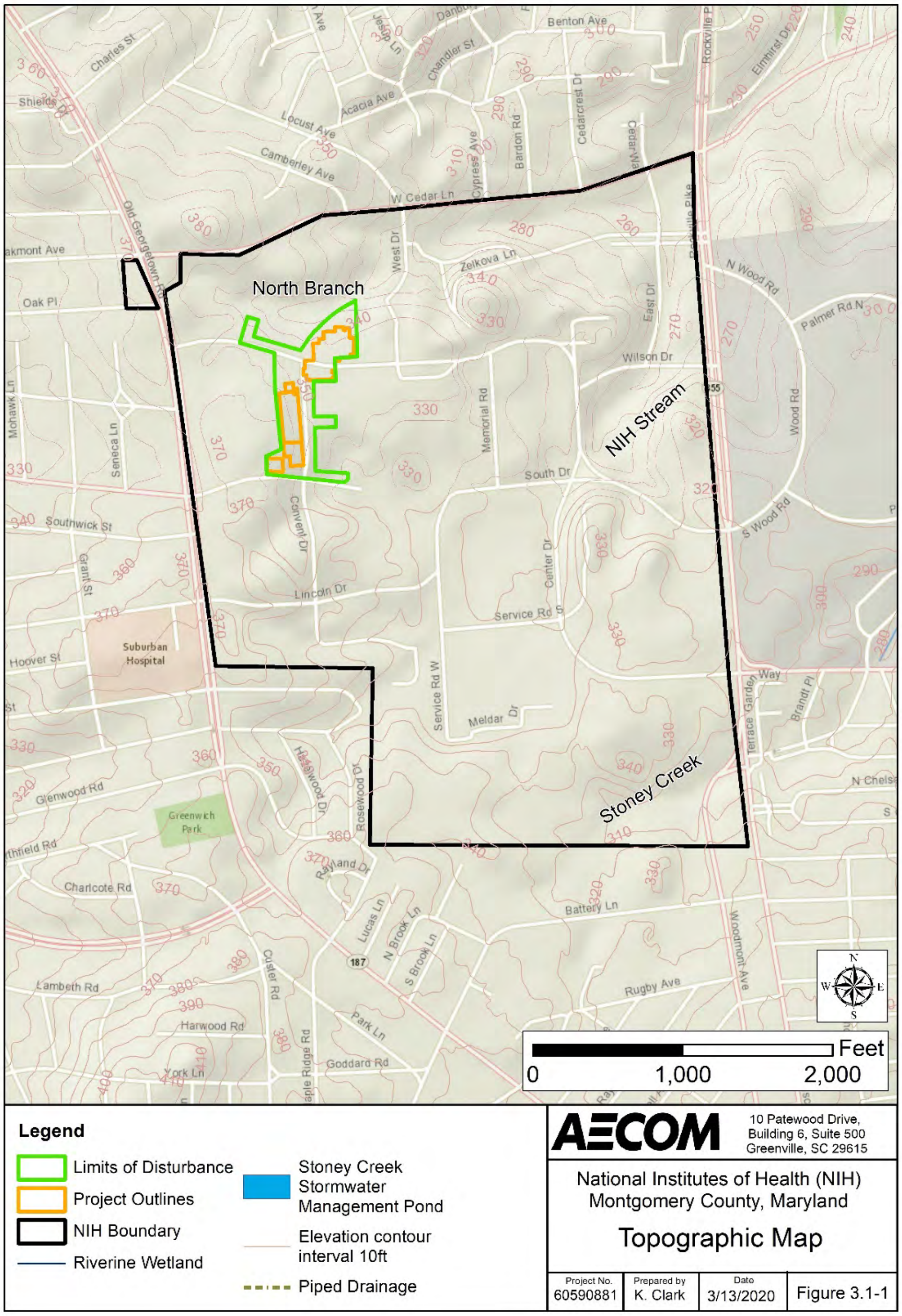


Figure 3.1-1. Topographic Map of the NIH Campus

3.1.2 Geology and Soils

Background

The geology of an area encompasses the rocks and sediments present. Geologic materials provide the parent material for overlying soils through weathering, and through the supply of minerals and nutrients. Soils are important because of the significant functions they perform, including the following:

- Sustaining biological activity, diversity, and productivity;
- Regulating and partitioning water and solute flow (e.g., sediment);
- Filtering, buffering, degrading, immobilizing, and detoxifying organic and inorganic materials;
- Storing and cycling nutrients and other elements; and
- Supporting socioeconomic activity (e.g., agriculture).

The physical characteristics of soils and underlying bedrock can affect the suitability of the site for development, depending on their ability to support building foundations. They can also dictate the types of precautionary measures that should be implemented to minimize impacts to human health and the environment during earth disturbance. Various physical characteristics of soils make specific soil types more susceptible to high water or wind erosion rates, and therefore require the establishment of mitigation and precautionary measures. Physical alteration of these characteristics through vegetation removal and/or earth-moving activities can lead to increased potential for wind erosion, resulting in the release of particulate matter as fugitive dust, which can adversely impact air quality. Such alteration can also result in increased potential for stormwater erosion, and subsequent contamination of water bodies.

The chemical composition of soils and underlying bedrock can also affect the potential for elevated concentrations of radon gas in onsite buildings. Radon is a naturally occurring radioactive and carcinogenic gas, which results from the breakdown of uranium in rock, soil, and water. Actual concentrations of radon can be determined only through on-site testing in a structure. After development of a new structure, renovation of existing structures, or ventilation system changes or upgrades, radon testing should be performed to determine if human health threats are present. Radon levels in existing buildings may also change as air pressures within the buildings are altered due to adjustments or renovations to the foundations or air handling systems.

Campus

Bedrock under the Campus is composed of the Lower Pelitic Schist of the Sykesville Formation, a member of the Glenarm Series of formations. It is composed of interwoven beds of medium to coarse-grained pelitic (originally depositional mud) schist and fine to medium-grained psammatic (originally sand) beds with the latter more predominant near the top of formation. The Lower Pelitic Schist of the Sykesville Formation is estimated to be late Precambrian in age. It has been intensely folded, dislocated, and metamorphosed. The formation is approximately 5,500 feet thick. Bedrock at the Campus is generally 55 to 65 feet below the surface, but may be only half this depth in the northeast portion of the Campus where the NIH Stream has eroded the surface soils.

The bedrock is overlain by about 15 to 40 feet of weathered residual crystalline rock material (saprolite) from the base formation. Three distinct saprolites are found under the Campus: Saprolite 5B, a predominantly well-drained micaceous schist; Saprolite 5D, a predominantly well drained, silty, bouldery gneiss; and Saprolite 5F, a predominantly poorly drained mafic rock with intermixed clays.

The saprolite at the Campus is overlain by surface soil, the most predominant of which is the “Glenelg” series, which is formed in-situ. A map of the onsite soils is shown in Figure 3.1-2. Based on the National Cooperative Soil Survey for Montgomery County, Maryland, seven native surface soil series have been identified for the Campus. The soils are primarily classified as silt loams and urban land with slopes

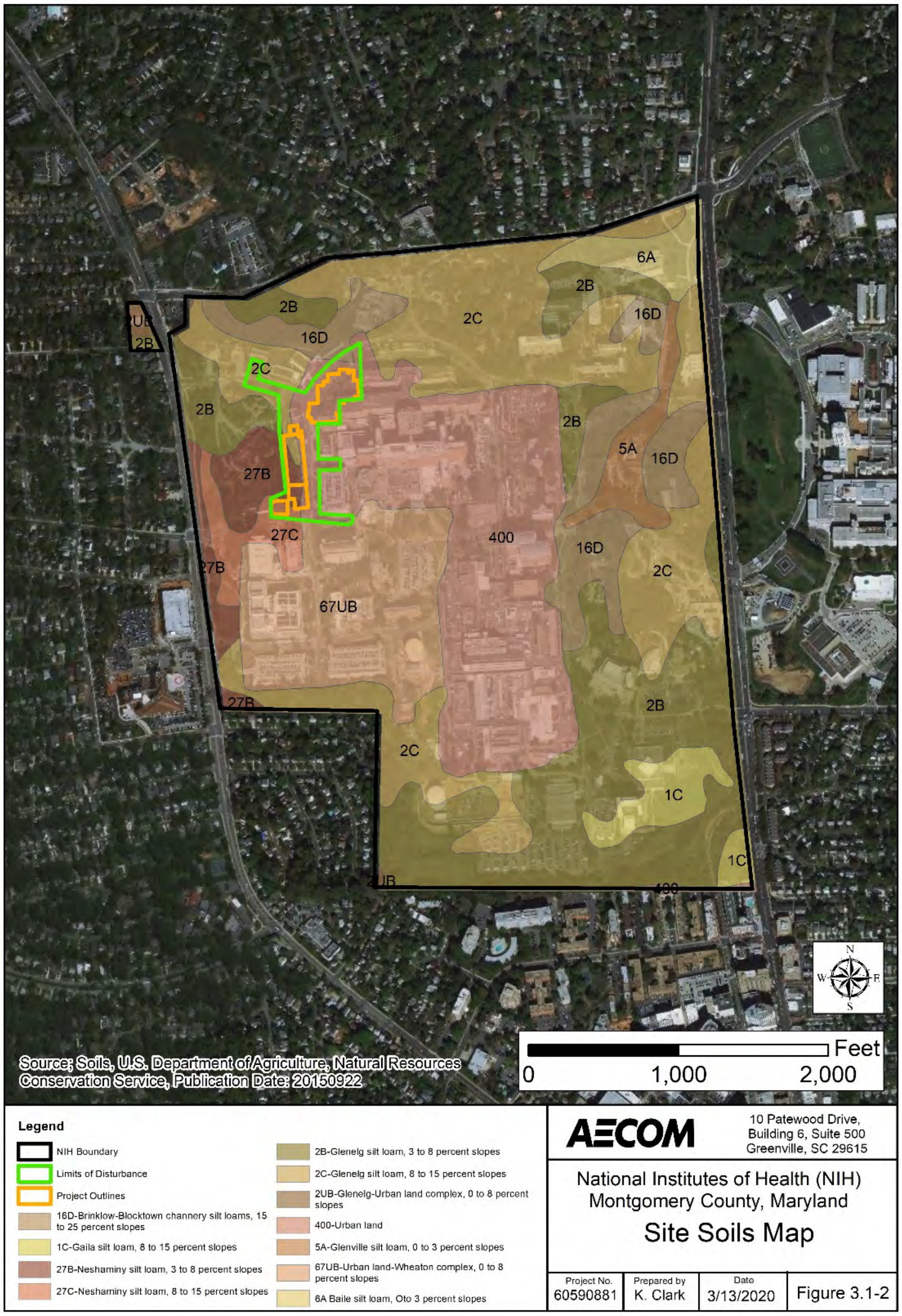


Figure 3.1-2. Soils on the Campus

ranging from 0 to 15 percent. The majority of the soils found at the Campus are well-drained upland soils. Because of the relatively good fertility, gently sloping nature, and deep character of these soils, they are well suited to suburban development. The central portion of the Campus has been disturbed by construction of facilities and, therefore, surface soils can be a mixture of native, borrow, and fill materials. Due to the development of the Campus, the depth of soils has been altered and information regarding fill materials is not available.

Though Campus soil types are classified as exhibiting comparatively low erodability, erosion control measures are necessary when slopes exceed about five percent, and exposure during construction should be minimized. Cut slopes tend to be stable, and steep slopes can be maintained. Surface and subsurface soils within the Campus are reported to have bearing strengths ranging from 4,000 to 8,000 pounds per square foot (lbs/SF) near the surface to 9,000 lbs/SF at greater depths (NIH, 2014a).

The Campus is located within an area defined by the U.S. Environmental Protection Agency (USEPA) as Zone 1 for radon (USEPA, 2019a). Zone 1 areas have the highest potential for indoor radon and are predicted to have an average indoor radon screening level greater than 4 picocuries per liter of air (pCi/L). In these regions, radon gas tends to accumulate in below grade areas of buildings, where the air circulation is restricted.

Site of the Evaluated Alternative

No site-specific soil or geotechnical data are available for the proposed sites of the SRLM Building, PPG, or UV. As shown in Figure 3.1-2, the proposed locations are classified as Urban Land, meaning that the original soil has been disturbed by past construction and backfilling.

3.2 Land Use and Zoning

Background

Land use planning helps determine the best use for each parcel of land in an area. Zoning regulations or other means can then be used to control how the land is used. Zoning designates various parcels of land for certain uses. Land use planning may take into account geological, ecological, economic, health, and sociological factors. Proper land use planning can favorably impact development and sustainability costs, traffic congestion and commute times, air pollution, energy consumption, preservation of open space and habitat, equitable distribution of economic resources, and the sense of community. Community sustainability requires proper land use planning to create and maintain livable environments.

A number of local government entities operate in the region providing planning and development guidance, promoting economic development, administering transportation and infrastructure development, and facilitating intergovernmental cooperation. These include the following:

- The Metropolitan Washington Council of Governments (MWCOG) is an independent, nonprofit association that helps address and solve regional issues, such as those pertaining to the environment, affordable housing, and transportation, through the development of policy and programs. MWCOG comprises 22 units of local government (including Montgomery County), members of the Maryland and Virginia legislatures, and members of the U.S. Congress (MWCOG, 2010).
- The National Capital Planning Commission (NCPC) serves as the central planning agency for the federal government in the National Capital Region (NCR), which includes Washington and parts of Maryland, Virginia, and West Virginia. NCPC focuses on preserving the region's natural and historic features by developing and updating the *Comprehensive Plan for the National Capital Region* and creating, reviewing, and providing advice on long-range plans, planning policies, and

projects that impact the Capital and surrounding areas. NCPC also coordinates the planning efforts of federal agencies within the NCR and provides recommendations for federal public works through the Federal Capital Improvements Program (NCPC, 2019).

- Maryland-National Capital Park and Planning Commission (M-NCPPC) acquires, develops, maintains, and administers a regional system of parks within Montgomery and Prince George's Counties and provides land use planning for the physical development of the two counties. Within the M-NCPPC, there is a five-member Montgomery County Planning Board, which is responsible for setting land use and protecting parkland resources throughout the county (M-NCPPC, 2019a).

Montgomery County is divided into 37 Community-Based Planning Areas. Each planning area has developed a master plan that sets forth guidelines for development and growth in ways that protect existing features, including existing land uses, community facilities, the transportation network, and environmental and historic resources (NIH, 2014a). The Campus is located within Montgomery Planning Area 35, Bethesda-Chevy Chase. The Bethesda-Chevy Chase Master Plan was approved and adopted in April 1990. The Plan is designed to achieve seven goals within the Planning Area: Perpetuate and enhance high quality of life, achieve a balanced level of future employment development, provide for a balanced housing supply, protect high quality residential communities, achieve a significant shift of new travel from auto to transit and other mobility alternatives, protect natural resources and environmental qualities, and contribute to a strong sense of community. The key land use policy of the Plan is a reconfirmation of the existing residential character and zoning of the Planning Area. With that goal in mind, the Plan recommended a moderate level of development in Planning Area 35 (M-NCPPC, 2019b).

The Campus Master Plan was designed to function as a framework for the strategic development of the Campus while retaining and building on the value of existing resources. The purpose of the Campus Master Plan is to define the long-term development goals of the Campus, in support of the NIH mission – Science in pursuit of knowledge to improve human health. The Campus Master Plan prioritizes planned construction or renovation of obsolete facilities to address existing shortcomings and the changing needs of the Campus (NIH, 2014a).

Region

In 2007, the Montgomery County Council directed the Planning Department to undertake a comprehensive zoning ordinance rewrite. Montgomery County aimed to simplify the number of zones, eliminate redundancy, and clarify development standards. A new zoning code and zoning map were adopted by County Council in the spring of 2014 and became effective on October 30, 2014 (M-NCPPC, 2014).

Most of the Bethesda-Chevy Chase area (approximately 64 percent) is characterized by single-family detached homes on relatively small lots (one-quarter acre or less). Figure 3.2-1 exhibits the zoning in the vicinity of the Campus. The zoning of the NIH Campus is R-60 (Residential Detached) (M-NCPPC, 2019c). There are seven principally single-family neighborhoods surrounding the Campus (zoned R-60). Only one neighborhood, Glenwood, adjoins the Campus. The other neighborhoods are detached from the Campus by roadways. The Campus borders the Bethesda Central Business District (CBD) to the south. The Bethesda Downtown Sector Plan was approved and adopted in 2017 by the Montgomery County Council. Updated zoning of Commercial Residential (CR) and Commercial Residential Town (CRT) applies here to allow for higher density. A new overlay zone (Bethesda Overlay Zone) was created (M-NCPPC, 2017).

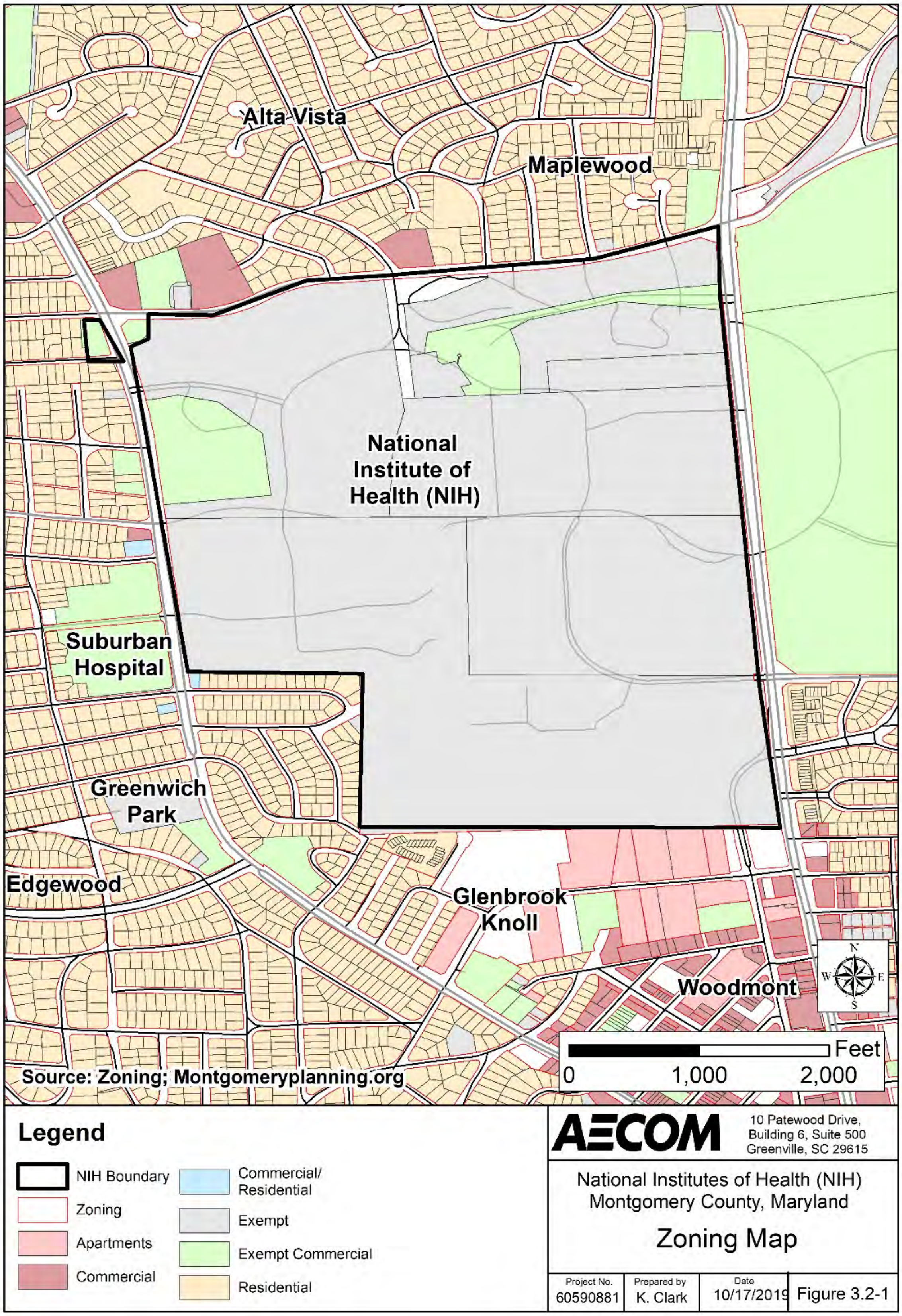


Figure 3.2-1. Zoning in Area Surrounding Campus

Directly west of the Campus is the community-based nonprofit Suburban Hospital (zoned R-60). Suburban Hospital was established in 1943 and serves the surrounding area and Montgomery County. Directly east of the Campus is Naval Support Activity Bethesda, where Walter Reed National Military Medical Center (WRNMMC) and the Uniformed Services University of the Health Sciences are located. They are also zoned R-60.

Campus

The Campus, owing to its federal ownership, is generally exempt from local regulations and plans. The federal government, however, has instituted the “Good Neighbor Program” through the General Services Administration (GSA) to ensure quality work environments for the employees of the Federal Government by helping to revitalize the nation’s communities. To comply with this GSA initiative, the NIH should consider local plans and requirements to ensure that future development at the Campus is not in conflict with recent regional planning initiatives. In keeping with the GSA initiative, the NIH coordinates project review with NCPC on all planned development projects (GSA, 2019).

The Campus is classified as institutional land use, primarily supporting research and administrative functions. There are also some limited areas where the predominant land use is residential (e.g., housing near North Gate) (NIH, 2015).

The distribution of land cover types on the Campus is shown in Figure 3.2-2. As shown in Figure 3.2-2, the Campus is not divided into regions of specific land use. However, an analysis of building function provides some indication of trends across the Campus (Figure 3.2-3). Three primary categories of land cover account for approximately 98 percent of the Campus: open space (58 percent or 179 acres), roads and vehicle parking (26 percent or 82 acres), and buildings (14 percent or 44 acres) (NIH, 2013).

Site of the Evaluated Alternative

As noted above, the Campus is not broken into zones or areas of designated land use. Rather, the entire Campus is predominantly utilized for research and administrative functions. The locations of the proposed SRLM Building, PPG, and UV are currently open areas (including a playground) and a parking lot.

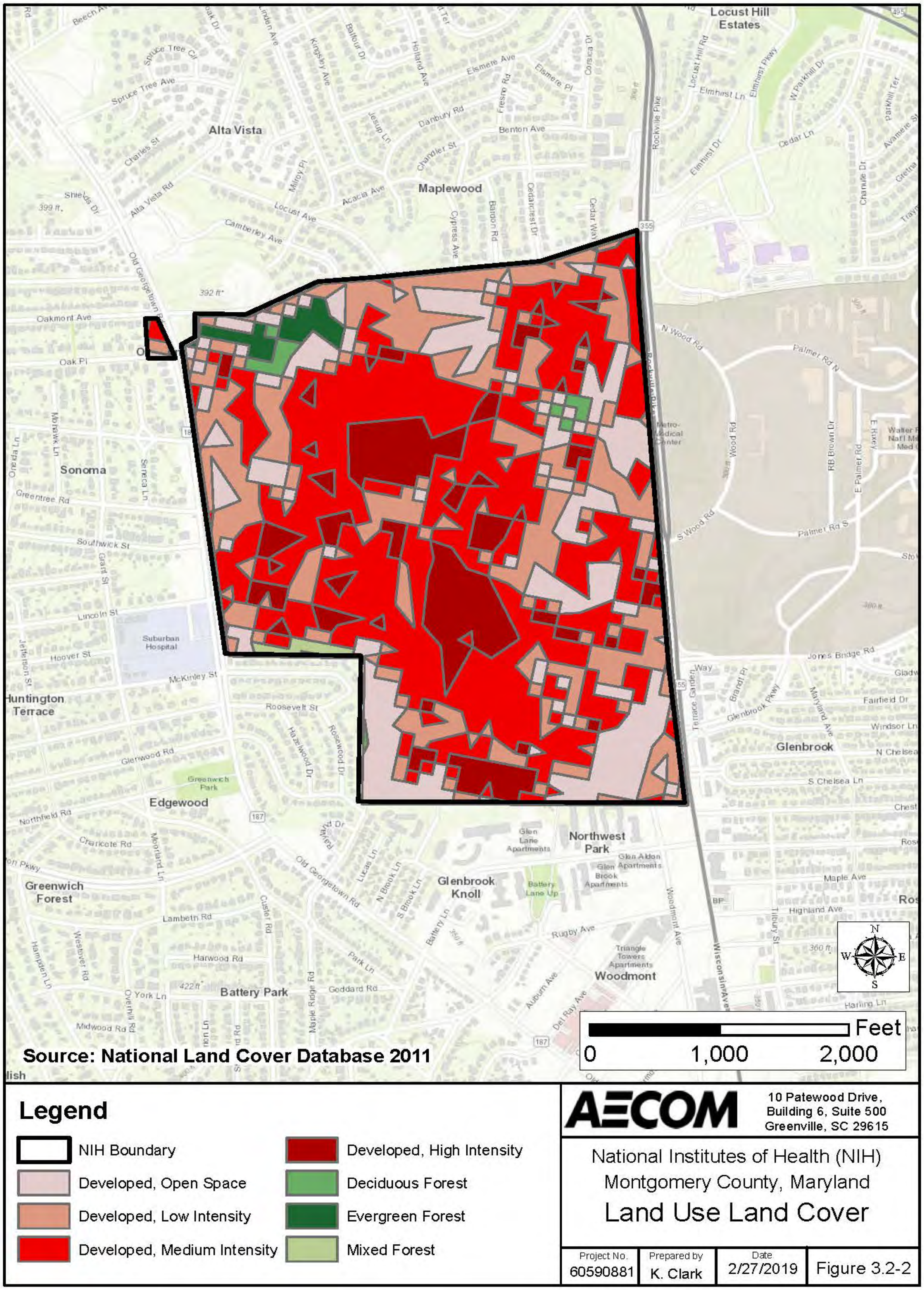
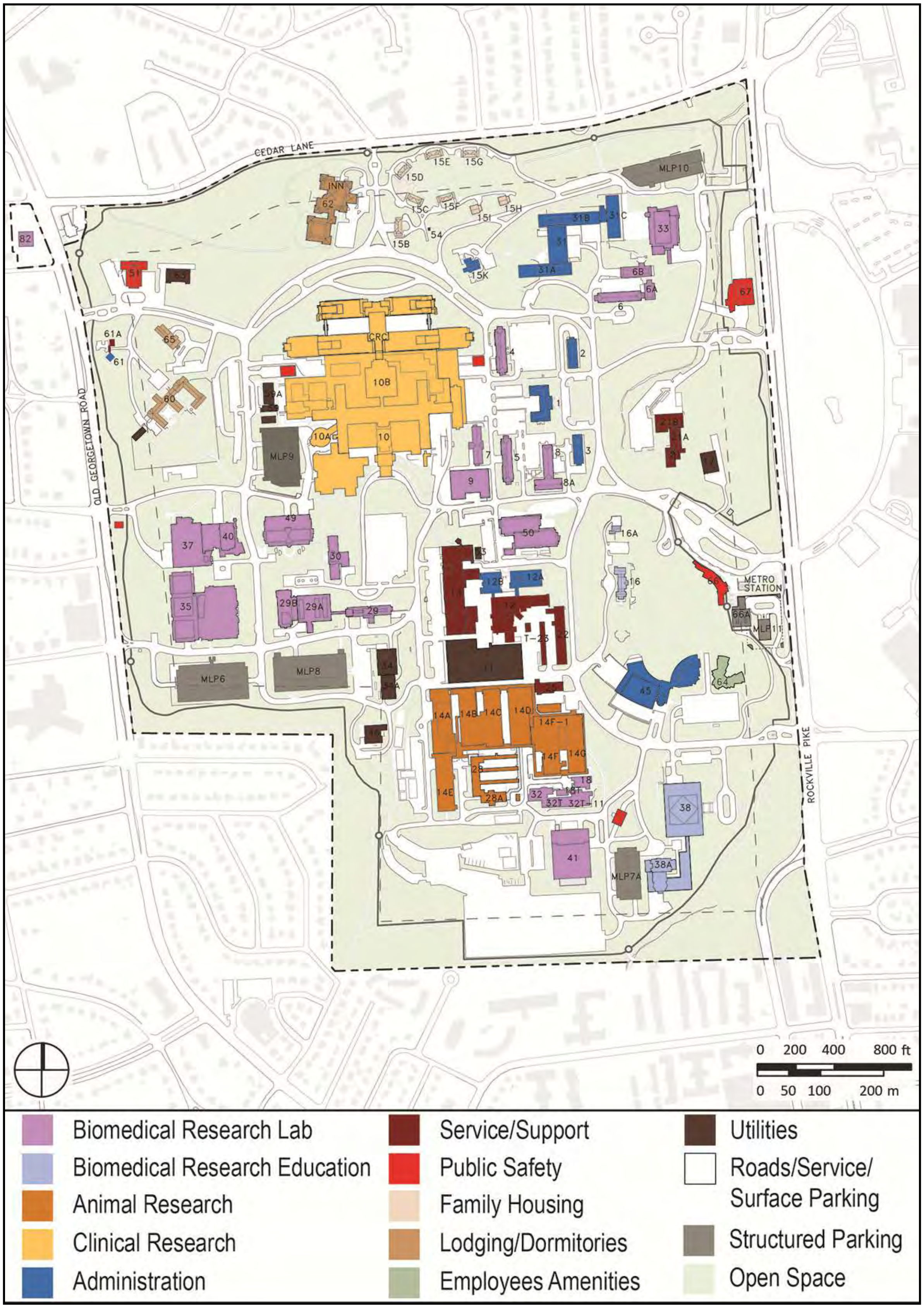


Figure 3.2-2. Land Use at the Campus



Source: (NIH, 2013).

Figure 3.2-3. Building Functions within the Campus

3.3 Biological Resources

3.3.1 Vegetation

Background

Vegetation performs the following important functions:

- Slows the flow of stormwater runoff, allowing water to soak into the ground to replenish aquifers;
- Helps maintain the water quality of nearby waterways by filtering runoff and removing harmful sediment and pollutants;
- Prevents erosion by reducing the impact of rain on soil and by holding soil in position with roots;
- Shades paved surfaces, reducing heat island effect and stormwater runoff temperatures that affect aquatic habitats; and
- Provides habitat for a variety of organisms.

The federal government is charged with protecting and enhancing vegetation and habitat on its properties. In the *Comprehensive Plan for the National Capital* (NCPC, 2016), the NCPC has identified 12 policies associated with the protection of vegetation. A summary of these policies is:

- Preserve existing vegetation;
- When tree removal is necessary, trees should be replaced to prevent a net loss of trees;
- Enhance the environmental quality of the National Capital Region by replacing existing trees where they have died or have been removed due to development;
- Incorporate new trees and vegetation into plans and projects;
- Conserve plant communities native to the site's ecoregion;
- Maintain and preserve woodlands adjacent to waterways, especially to aid in control of erosion, sediment, and thermal pollution;
- Encourage the use of native plant species;
- Protect and preserve all vegetation designated as special status plants;
- Use trees and other vegetation to offset emissions of greenhouse gases;
- Support sustainable practices, to include use of sustainable soil amendments, reduced irrigation runoff, reduced greenhouse gas emissions, use of Integrated Pest Management practices, introduction of plants that support pollinators, and selection of vegetation in the appropriate plant hardiness zone; and
- Use of grass species as lawn only in recreational areas.

The Maryland Forest Conservation Act of 1991 along with the Montgomery County Forest Conservation Law (Chapter 22A) established a program for conserving forest and tree resources. Effective July 1, 1992, all applications for subdivision, grading permits, or sediment control permits on tracts of land 40,000 SF or larger, must be accompanied by a Natural Resources Inventory/Forest Stand Delineation (a detailed summary of existing man-made and natural conditions of a site), and a Forest Conservation Plan or a Tree Save Plan. Exemptions include governmental projects reviewed for forest conservation purposes by the State Department of Natural Resources under the Code of Maryland Regulations (COMAR).

Region

The Campus is located within the city of Bethesda, an urban area consisting of commercial and residential development. The only large tracts within this region that remain natural are parklands used for active recreation or as stream valley parks. Refer to Section 3.12.1 (Social Resources and Sensitive Populations) for discussion of shared and open spaces in the vicinity of the Campus.

Campus

The Campus contains mature trees, broad lawns and extensive areas of ornamental gardens and courts, with shrubs, ground covers and flowers that provide a visually appealing setting.

As required by the Maryland Forest Conservation Act of 1991, NIH maintains a Campus-wide *Forest Conservation Plan*, which includes a Campus-wide tree inventory. The *Urban Forest Conservation Plan* is updated, as needed, to incorporate changes to the *Campus Master Plan*. Updates are submitted to the MDNR for review and approval. The Campus currently contains approximately 4.2 acres (NIH, 2014a) that meet the MDNR criteria for forests (i.e., 100 trees or more per acre), due in large part to the establishment of no-mow zones over ten years ago along Campus streams and selected perimeter buffer areas. The forested area, designated as “Cedar Lane Woods,” is located in the northwest corner of the Campus, between the Children’s Inn and the NIH Fire Station.

The Campus also includes no-mow areas that filter and absorb stormwater runoff, provide wildlife habitat, and decrease Campus maintenance costs. These areas become naturalized forested areas as natural plant succession occurs and smaller trees and other understory materials grow up. Currently, there are over 17 acres of no-mow areas within the Campus. These areas represent about 5.8 percent of the 209 acres of open space within the Campus.

In addition to the dense forested area and no-mow areas described above, trees grow sporadically throughout the Campus. The NIH planted a majority of the existing Campus trees. They include both exotic and native species. The trees that predate NIH-occupancy are primarily tulip poplars, very large oaks, and maples. These trees are scattered throughout the Campus. The vast majority of the largest trees are located away from developed areas in the perimeter buffer, particularly in the northern half of the Campus, or along the stream valleys.

Champion trees are defined as those that have the highest formulaic sum total of tree bole or trunk circumference in inches, height and crown or spread in feet (i.e., larger, older trees). The Campus contains six Montgomery County champion trees, two of which are also State champion trees. The locations of the champion trees on the Campus are shown in Figure 3.3-1.

The NIH carries out a continuing program for tree inspection and landscape maintenance. Examples of these activities include installation of drip irrigation systems in selected shrub beds and pumping of groundwater that seeps into excavations of ongoing Campus construction projects for use for grounds irrigation. The NIH also conducts an extensive annual Campus-wide tree inventory to identify all trees with trunks with a diameter at breast height of 2 inches or greater. The current number of trees of this size on the Campus is approximately 7,077. In order to maintain 15 percent tree canopy cover on a Campus-wide basis, the NIH implemented a no-net tree loss policy in 1996. This policy requires the replacement of all trees lost due to construction and natural causes. Approximately 325 trees were lost to old age, storm damage, and safety concerns during 2016 and 2017. Between spring 2017 and summer 2018, more than 200 new trees had been planted, and the replacement program continues.

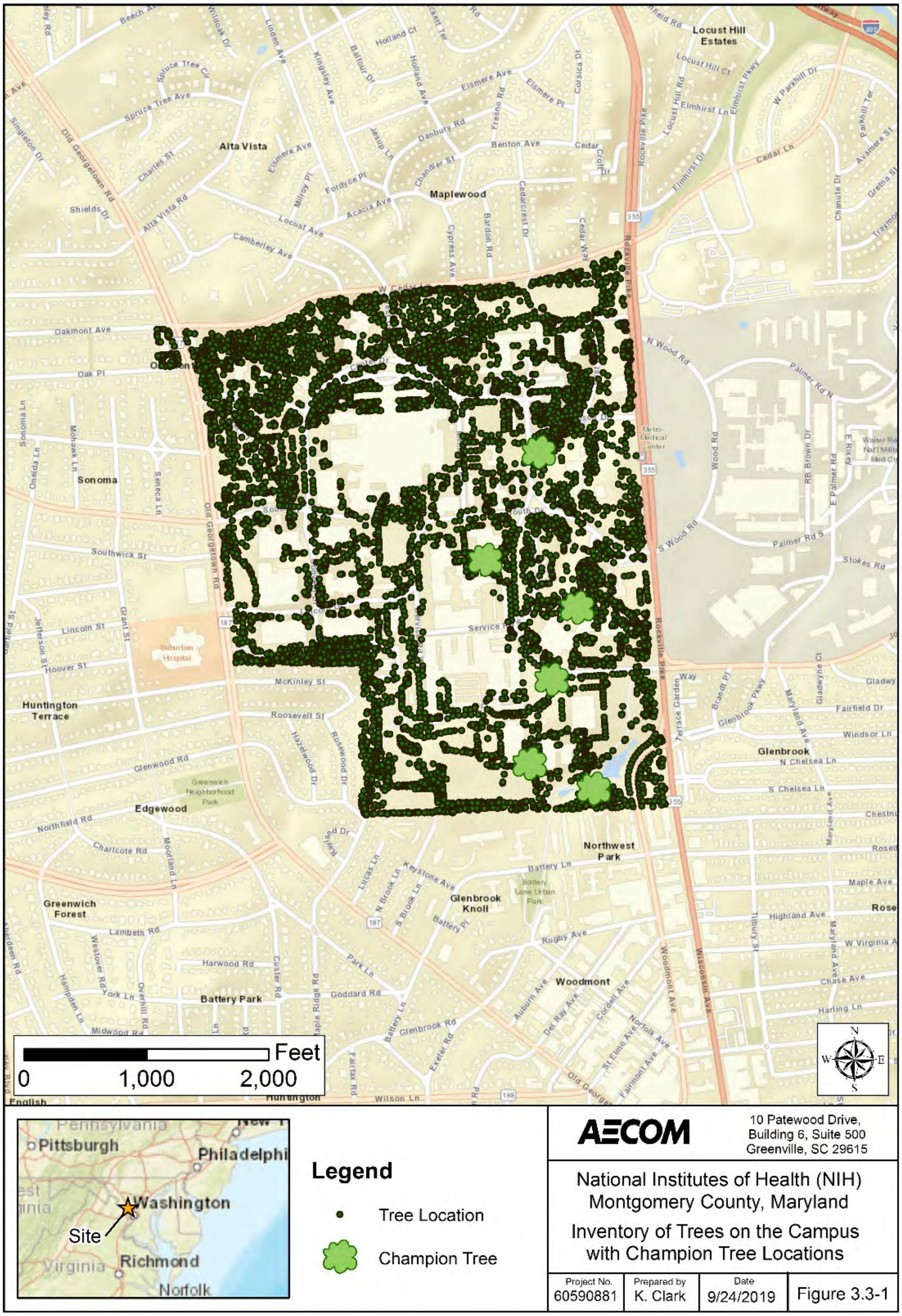


Figure 3.3-1. Inventory of Trees on the Campus with Champion Tree Locations

Site of the Evaluated Alternative

The proposed construction sites are currently occupied by a mixture of impervious asphalt and vegetation. The vegetated areas include turf areas, landscape plantings and landscape trees. No champion trees are located in the vicinity of any sites of the evaluated alternatives. The closest champion tree to the proposed construction area is located to the east between Memorial Drive and Center Drive.

SRLM Building

The site for the proposed SRLM Building is a playground and vacant lawn space. As shown in Figure 3.3-2, the area contains turf grass and mature landscape trees, and trees also are present within the median of Center Drive. The Replacement Tree Plan identifies approximately 25 trees in the area of the SRLM Building and north of Center Drive that would be removed during construction.

Figure 3.3-2. Example of Existing Vegetation in the SRLM Project Area

Patient Parking Garage and Utility Vault

The site for the proposed PPG and UV currently consists of an impervious parking lot, with mature landscape trees in the open spaces between paved parking spaces. Mature trees to the west of the existing parking area provide a screen between the parking area and the historic Convent to the west. The Replacement Tree Plan identifies approximately 35 trees in the area of the PPG and UV that would be removed during construction, and 14 trees to be planted as part of the landscape planting plan. In addition, the Plan identified approximately 66 trees in the Convent area that would be removed and replaced.

3.3.2 Wildlife

Background

A diversity of wildlife species is necessary to maintain a functioning habitat or ecosystem. The species within a particular ecosystem may interact or compete with one another for food, shelter, and overall sustenance. Therefore, the loss of a particular species may negatively affect an ecosystem. The Endangered Species Act (ESA) was enacted in 1973 to protect species in danger of extinction. This act requires federal agencies to ensure that their actions will not jeopardize the continued existence of any threatened or endangered species or result in the destruction or adverse modification of the critical habitat associated with these species.

The Fish and Wildlife Conservation Act was enacted in 1980 to authorize financial and technical assistance to the States for the development, revision, and implementation of conservation plans and programs for nongame fish and wildlife. The 1998 amendment to the Fish and Wildlife Conservation Act mandated that the United States Fish and Wildlife Service (USFWS) “identify species, subspecies, and populations of all migratory nongame birds that, without additional conservation actions, are likely to become candidates for listing under the ESA.” In response to this mandate, USFWS published the 2008 *Birds of Conservation Concern* report, which includes listings of bird species of conservation concern throughout the Nation, including some that are not otherwise protected under the Migratory Bird Treaty Act of 1918 (USFWS, 2019a).

Region

The Campus is located in Bethesda, Maryland, an urban setting of moderate to high intensity development with relatively little wildlife habitat value. Bethesda is located within the larger Potomac River Basin; however, most of which consists forested and agricultural land (Interstate Commission on Potomac River Basin [ICPRB], 2018).

Campus

The Campus provides habitat for a variety of animal species. The Eastern gray squirrel and other rodents find ideal conditions among the many oak, walnut, and dogwood trees at the Campus, primarily in the buffer area. Avian species also have suitable habitat. A variety of transient and nesting birds are present on the Campus, including those common to a suburban environment in the mid-Atlantic area, as well as migratory birds. The NIH has installed eighty-seven bird boxes around the Campus to encourage nesting. The above ground portion of the NIH Stream running through the Campus provides habitat for aquatic species and is used by birds and terrestrial species. In order to protect non-tidal warm water aquatic life, in-stream work on the Campus is prohibited from March 1 through June 15 (COMAR 26.08.02.11).

The forested area designated as “Cedar Lane Woods,” located in the northwest corner of the Campus, provides valuable wildlife habitat. However, this forested area is not of sufficient size to support Forest Interior Dwelling Species, which are species whose life cycles require forest interior habitat (i.e., habitat that is more than 300 feet from the forest edge) (MDNR, 2019a). Mowed and developed areas of the Campus provide little protective cover at ground level and no substantial natural food resources.

The Campus provides habitat for a population of white-tailed deer. Based on expert evaluation, the Campus has the ability to sustain a herd of only 26 deer, but by 2014, the population had reached 45 deer. In order to effectively and humanely manage the deer population on the Campus, the NIH initiated a four-year program in December 2014 in which trained, doctoral deer population control experts, in coordination with NIH veterinary staff, spay adult female deer in accordance with all local, state, and federal requirements. By the end of 2016, the program had reduced the population to 29 deer (NIH, 2017).

As part of the Master Plan EIS, the NIH consulted with MDNR regarding the potential presence of critical habitats or rare, threatened, or endangered species. MDNR found there were no federal or state records for critical habitats or rare, threatened, or endangered species within the Campus (NIH, 2014a).

As part of prior EISs, the NIH has submitted requests to USFWS and MDNR to confirm there are no federal or state records for critical habitats or rare, threatened, or endangered species within the Campus. The preliminary search using the USFWS Information for Planning and Consultation (IPaC) mapping tool indicated there are no records of rare, threatened, or endangered species on the Campus (USFWS, 2019b). The USFWS preliminary response provided a list of migratory Birds of Conservation Concern (BCC) which may be present at the Campus. The preliminary search using the DNR's Maryland Environmental Resources and Land Information Network (MERLIN) did not identify any Sensitive Species Project Review Areas or Natural Heritage Areas on or near the Campus (MDNR, 2019b).

Site of the Evaluated Alternative

The proposed construction sites are currently occupied by a mixture of impervious asphalt and vegetation. The vegetated areas include turf areas, landscape plantings and landscape trees. Neither of the proposed construction sites provide valuable wildlife habitat.

3.4 Water Resources

3.4.1 Groundwater

Background

Groundwater is water found beneath the water table in soils and geological formations. In areas of consolidated bedrock, weathering results in a surficial layer of soil, composed of organic remains, clay, and rock particles. The soil lies above saprolite, which is the soft, weathered, and porous upper layer of bedrock. Bedrock is the deepest strata, consisting of solid rock (New Georgia Encyclopedia, 2017). Groundwater is generally found in weathered pore spaces in soils and saprolite, and in fractures in consolidated bedrock.

An aquifer is a geological formation, group of formations, or portion of a formation capable of yielding significant quantities of groundwater to wells or springs. Groundwater is the most prevalent source of available freshwater that supports potable, agricultural, and industrial uses, especially in areas that lack access to surface water resources (United States Geological Survey [USGS], 2019a). Groundwater quality is impacted by interactions with soil, sediments, rocks, surface waters, and the atmosphere. Groundwater quality may also be significantly affected by agricultural, industrial, urban, and other human actions (USGS, 2019b).

Region

Montgomery County, Maryland, is underlain by consolidated igneous and metamorphic bedrock. As a result, groundwater is generally found only in small quantities, in fractured bedrock and clayey saprolite (Richardson, 1977). In populated areas, municipal water supplies are provided only by surface water sources because groundwater well yields are low. Individual residences in rural areas are supplied with groundwater from wells. Because water supplies to residents and businesses in the surrounding area of Bethesda are provided by the Washington Suburban Sanitary Commission (WSSC), it is not expected that there are any groundwater production wells within the general area of the Campus.

Campus

Bedrock under the Campus is generally 55 to 65 feet below the ground surface, and it is overlain by about 15 to 40 feet of saprolite subsurface material. In general, groundwater in the saprolite aquifer may be encountered from 10 to 50 feet beneath the natural ground surface, but most frequently occurs 20 to 30 feet below the surface. The saprolite acts as one uniform groundwater storage reservoir. While the aquifer lies deep below the surface, perched water in the soils may be encountered at shallow depths from 1.3 to greater than 6 feet below the surface (NIH, 2014a). The saprolites collectively act as one uniform groundwater storage reservoir. The water table in the saprolites does not reportedly respond to precipitation events, and wells or excavations encountering the stored groundwater do not produce much drawdown. Transmissivity of groundwater ranges from 0.0001 to 10 gallons/sf/day with the values increasing with depth.

Surface topography is typically an indicator of groundwater flow, with groundwater flowing from higher to lower elevations. Based on the topography of the Campus, groundwater is generally expected to flow to the east and northeast, towards Rock Creek (NIH, 2014a).

There are no groundwater wells at the Campus.

3.4.2 Surface Water

Background

Surface waters include oceans, lakes, rivers, streams, and estuaries. These resources supply water for domestic use, recreation, transportation, crop irrigation, and power generation. Natural conditions (e.g., interactions with soil, sediments, rocks, groundwater, and the atmosphere) and human activities can impact the quality of surface water by affecting its chemical, physical, and biological characteristics. Human actions that may affect surface water quality include agricultural, industrial, and urban activities.

Federal surface water regulations, including the Clean Water Act (CWA), Safe Drinking Water Act (SDWA), and the Rivers and Harbors Act, focus on rights to water usage and the protection of water quality. The CWA protects surface water quality, and Section 402 of the CWA establishes the National Pollutant Discharge Elimination System (NPDES) permit program, giving USEPA the authority to limit the discharge of pollutants into navigable waters of the U.S. The SDWA authorizes USEPA to set national health-based standards for drinking water to protect against both naturally occurring and man-made contaminants. The Rivers and Harbors Act prohibits the discharge of refuse or fill material into the navigable waters of the U.S., or any tributary thereof, without a permit from the United States Army Corps of Engineers (USACE). Construction activities within navigable waterways also require a permit from USACE.

Region

Development of the Washington D.C. region continues to influence the water quality of the Chesapeake Bay, the largest estuary in the U.S. The primary sources of degradation to the Bay include agricultural practices, wastewater discharge, erosion and runoff exacerbated by construction practices, and air pollution. Improving the water quality of the Bay remains an important goal in local, regional and national governments. Policies are in place to help establish Low Impact Development (LID) practices aimed at reducing negative impacts of development on water quality. LID practices include providing buffers along wetlands and streams to remove nutrients and sediment before they enter the water system, reducing fertilizer use, and land preservation (Chesapeake Bay Program [CBP], 2009).

The CBP is a multi-governmental, interstate partnership that includes the states of Virginia, Pennsylvania, and Maryland; Washington D.C.; the Chesapeake Bay Commission, a tri-state legislative body; the

USEPA (representing the federal government); and participating advisory groups. The Chesapeake Agreements resulting from this partnership set stringent nutrient removal goals, with particular regard to nitrogen and phosphorus loading, to ensure the Bay's restoration and protection for the present and near future.

In April 2003, USEPA developed water quality criteria for dissolved oxygen, water clarity, and Chlorophyll A for the Chesapeake Bay and its tidal tributaries. These criteria define the target levels for water quality parameters that, if met, would be expected to render a body of water suitable for its designated use (e.g., contact recreational use such as swimming). The six states within the Bay watershed, along with Washington D.C., agreed to fulfill the requirement to achieve compliance via the Total Maximum Daily Load (TMDL) process by 2010 (Tango and Batiuk, 2013).

On December 29, 2010, the USEPA established the Chesapeake Bay TMDL. Despite extensive restoration efforts during the prior 25 years, the new TMDL was prompted by insufficient progress and continued poor water quality in the Chesapeake Bay and its tidal tributaries. The new TMDL was required under the CWA and additionally responded to consent decrees in Virginia and Washington D.C. from the late 1990s. It was also intended to meet the requirements of Executive Order (EO) 13508. The Chesapeake Bay TMDL is the largest ever developed by the USEPA, encompassing a 64,000-square-mile watershed. It identifies the necessary pollution reductions from major sources of nitrogen, phosphorus and sediment across the Bay jurisdictions and sets pollution limits necessary to meet water quality standards. The Bay jurisdictions include Delaware, Maryland, New York, Pennsylvania, Virginia, West Virginia and the District of Columbia (USEPA, 2019b).

Specifically, the TMDL set Bay watershed limits of 185.9 million pounds of nitrogen, 12.5 million pounds of phosphorus and 6.45 billion pounds of sediment per year. This equates to a 25 percent reduction in nitrogen, 24 percent reduction in phosphorus and 20 percent reduction in sediment. The pollution limits were further divided by jurisdiction and major river basins based on state-of-the-art modeling tools, extensive monitoring data, peer-reviewed science and close interaction with jurisdiction partners. The TMDL is designed to ensure that all pollution control measures needed to fully restore the Bay and its tidal rivers are in place by 2025 (USEPA, 2019b).

The Bay TMDL is a combination of 92 smaller TMDLs for individual Chesapeake Bay tidal segments. It includes pollution limits sufficient to meet state water quality standards for dissolved oxygen, water clarity, underwater Bay grasses, and Chlorophyll a, an indicator of algae levels. The TMDL also calls for practices to be in place by 2017 to meet 60 percent of the overall nitrogen, phosphorus and sediment reductions. In 2012, the jurisdictions submitted Phase II Watershed Implementation Plans (WIPs) designed to strengthen the initial cleanup strategies and reflect the involvement of local partners. They also submitted sets of two-year milestones in 2012 and 2014 outlining near-term restoration commitments. Phase III WIPs in 2017 were to be designed to provide additional detail of restoration actions beyond 2017 and to ensure that the 2025 goals are met (USEPA, 2019b).

The Potomac River is a major river flowing through the metropolitan area of Washington. It is a designated American Heritage River and a drinking water source. The Community Action Plan for the Potomac River, designated under the American Heritage Rivers Initiative, has the following three goals: continued improvement of water quality, promotion of the region's historical heritage and recreational opportunities, and public involvement at the local levels. The CBP discussed above provides protection for the Chesapeake Bay watershed, which encompasses the Potomac River that supplies water for more than 80 percent of the four million residents of the Washington area (American Rivers, 2019).

Tier II waters are defined by MDE as high quality, waters that have an existing water quality that is significantly better than the minimum requirements, as specified in the water quality standards. No Tier II waters (high quality waters) are present near the Campus (MDE, 2016).

Rock Creek and its tributaries (including the streams on the Campus) are classified as Use I streams. MDE defines Use I streams as being for water contact recreation and protection of non-tidal warm water aquatic life. In order to protect selected wildlife resources during sensitive life stages, in-stream work may not be conducted from March 1 through June 15 (COMAR 26.08.02.11; MDE, 2019a).

MDE identified the waters of the Rock Creek watershed on the State's 2008 Integrated Report as impaired by phosphorus, sediment, and bacteria. MDE, together with USEPA, have established TMDLs for phosphorus, sediment, and bacteria. The TMDL of sediment in the Rock Creek Watershed was approved by the USEPA on September 29, 2011, the TMDL of Sediment of Phosphorus in the Rock Creek Watershed, Montgomery County, Maryland was approved by the USEPA on September 26, 2013, and the TMDL of bacteria was approved by the USEPA in 2007 (MDE, 2011a and 2013).

Campus

As illustrated in Figure 3.4-1, three drainages are found on the Campus. These are North Branch, the NIH Stream, and Stoney Creek, respectively. These names are used locally by the NIH. USGS maps illustrate all three water courses as intermittent, unnamed streams. These streams are tributaries of Rock Creek, which flows east of the Campus, on the opposite side of Wisconsin Avenue. Runoff from Rock Creek flows south through Washington D.C., and enters the Potomac River, a tributary of the Chesapeake Bay, in Georgetown (Montgomery County Department of Environmental Protection, 2012). A small portion of the western edge of the Campus drains westerly towards Old Georgetown Road and the Cabin John Creek watershed, which also enters the Potomac River.

The primary function of these water courses is to facilitate stormwater drainage (NIH, 2014a). As shown on Figure 3.4-1, the majority of these drainages on the Campus flow through subsurface pipes. A detailed description of each stream is provided below.

<u>NIH Stream</u>

The NIH Stream enters the southeast corner of the Campus via a buried 42-inch diameter pipe. It remains underground for a distance of approximately 2,350 feet at a depth of eight to twenty feet below the surface. The pipe diameter periodically increases to accommodate additional flow from connecting stormwater branch lines. These branch lines convey stormwater from most of the southwest quadrant of the Campus. The buried pipe passes underneath Buildings 12B and 13. Connections carrying chilled water system blowdown effluent join the stream as it passes Building 11 (NIH, 2014a).

The transition from buried pipe to aboveground stream occurs at a 96-inch diameter outfall northeast of the Center Drive/South Drive intersection, where it immediately passes through two oil and grease separators. The stream continues to flow in a northeast direction for about 2,000 feet to the northeast corner of the Campus. Once exposed, the stream follows a riffle and pool pattern, ranging from two to twelve feet in width, with average widths of approximately four feet. Sixteen stormwater culverts empty into the stream in its exposed section. After leaving the Campus, the stream ultimately flows into Rock Creek, approximately one mile northeast of the Campus. The NIH Stream is not gauged and there is no available information about flow rates. It is unknown how much of the flow can be attributed to groundwater or stormwater infiltration versus flow from the headwater spring. Additionally, the Metro tunnel under Wisconsin Avenue is subject to heavy groundwater infiltration. Water is pumped continuously to the surface and deposited to the NIH Stream on the east side of Wisconsin Avenue (NIH, 2014a).

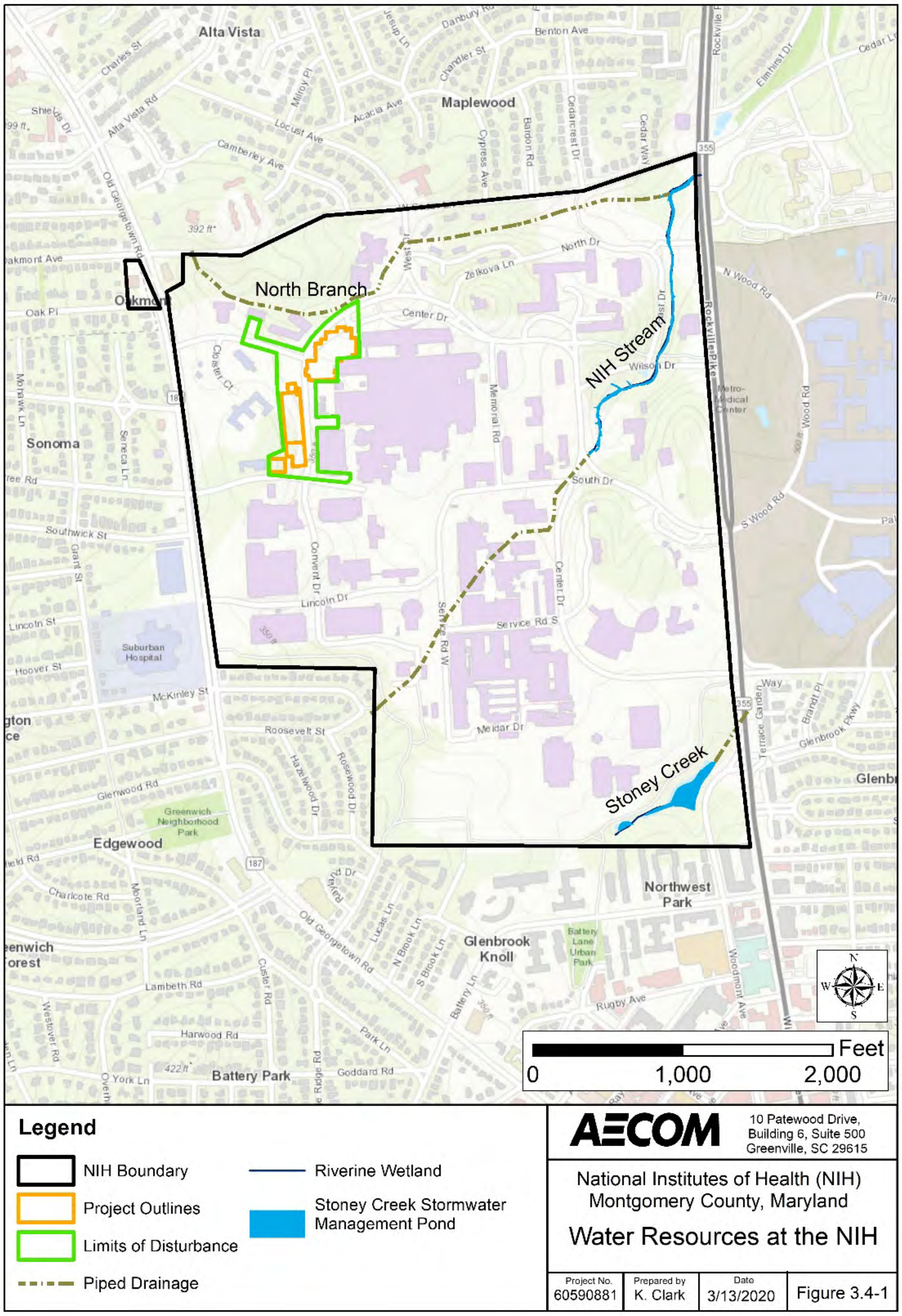


Figure 3.4-1. Surface Waters at the Campus

North Branch

The North Branch is a normally dry tributary of the NIH Stream. The North Branch runs along the northern boundary of the Campus and joins the NIH Stream in the northeast corner of the Campus. On the Campus, it is channelized in a concrete ditch for two-thirds of its length. The remaining third of its length passes under an existing parking area to an underground stormwater management facility. The underground detention facility serves the entire North Branch and is designed to provide adequate storage to meet 3.14 acre-feet of detention storage volume (NIH, 2014a).

Stoney Creek

Two branches of Stoney Creek join prior to entering the Campus. The stream falls approximately nine feet as it traverses 1,040 feet across the southeast corner of the Campus to Woodmont Avenue. It exits the Campus in twin 66-inch culverts under Woodmont Avenue and joins Rock Creek approximately 0.3 miles downstream from the Campus (NIH, 2014a).

As with the other two surface water courses on the Campus, Stoney Creek has become primarily a stormwater conveyance. The stream follows a riffle and pool sequence, with depths ranging from one to approximately 15 inches. Stream widths vary from six inches to six feet with an average width of approximately three feet. Sources and volume of natural flow in Stoney Creek are unknown. Much of the flow during dry weather may be attributable to man-made sources in the Bethesda Central Business District (CBD). The dry weather flow is generally less than one cubic foot per second (CFS). Studies completed for the Stoney Creek Stormwater Management Pond at the southeast corner of the Campus indicated that the 1, 2, 10, and 100-year storm flows at the Woodmont Avenue culvert were 197, 325, 698, and 1,133 CFS, respectively (NIH, 2014a).

Surface Water Discharge Permits

The NIH currently holds stormwater discharge permits at both the State (permit number 016-DP-2520) and Federal NPDES (permit MD0025496) level. The permits were issued on April 1, 2018 and expire March 31, 2023. The permits authorize the discharge of non-contact cooling water, discharge associated with maintenance of water distribution systems, and stormwater defined as the exit from an oil\grease trap. This also includes discharge of chilled water system blowdown from Buildings 11 and 34 into NIH streams. The current permit allows an average release of 450,000 gallons per day (GPD) provided that total residual chlorine does not exceed 0.1 milligrams per liter (mg/L) and the temperature of the NIH Stream does not exceed 90 degrees Fahrenheit (˚F) at the point where it emerges to the northeast of the Center/South Drive intersection. By permit, the NIH is allowed to release up to 300,000 GPD of chilled water blowdown effluent to the NIH Stream. Releases vary with production, which in turn vary with ambient air temperature. Under peak production conditions when the temperature exceeds 90°F, the estimated blowdown release is 0.39 CFS (10,503 gallons per hour [GPH]). During the winter, the average estimated release is approximately 0.09 CFS (NIH, 2014a).

Site of the Evaluated Alternative

As shown in Figure 3.4-1, none of the on-Campus streams flow through the area of proposed construction for the SRLM Building, PPG, or UV.

Figure 3.4-2 shows the specific drainage areas for each of the on-Campus streams. This figure shows that most of the area of proposed construction for the SRLM Building, PPG, and UV is situated within the drainage area for North Branch. A small portion of the southern end of the PPG and UV lies within the drainage area for the NIH Stream. None of the proposed facilities lies within the drainage area for Stoney Creek.

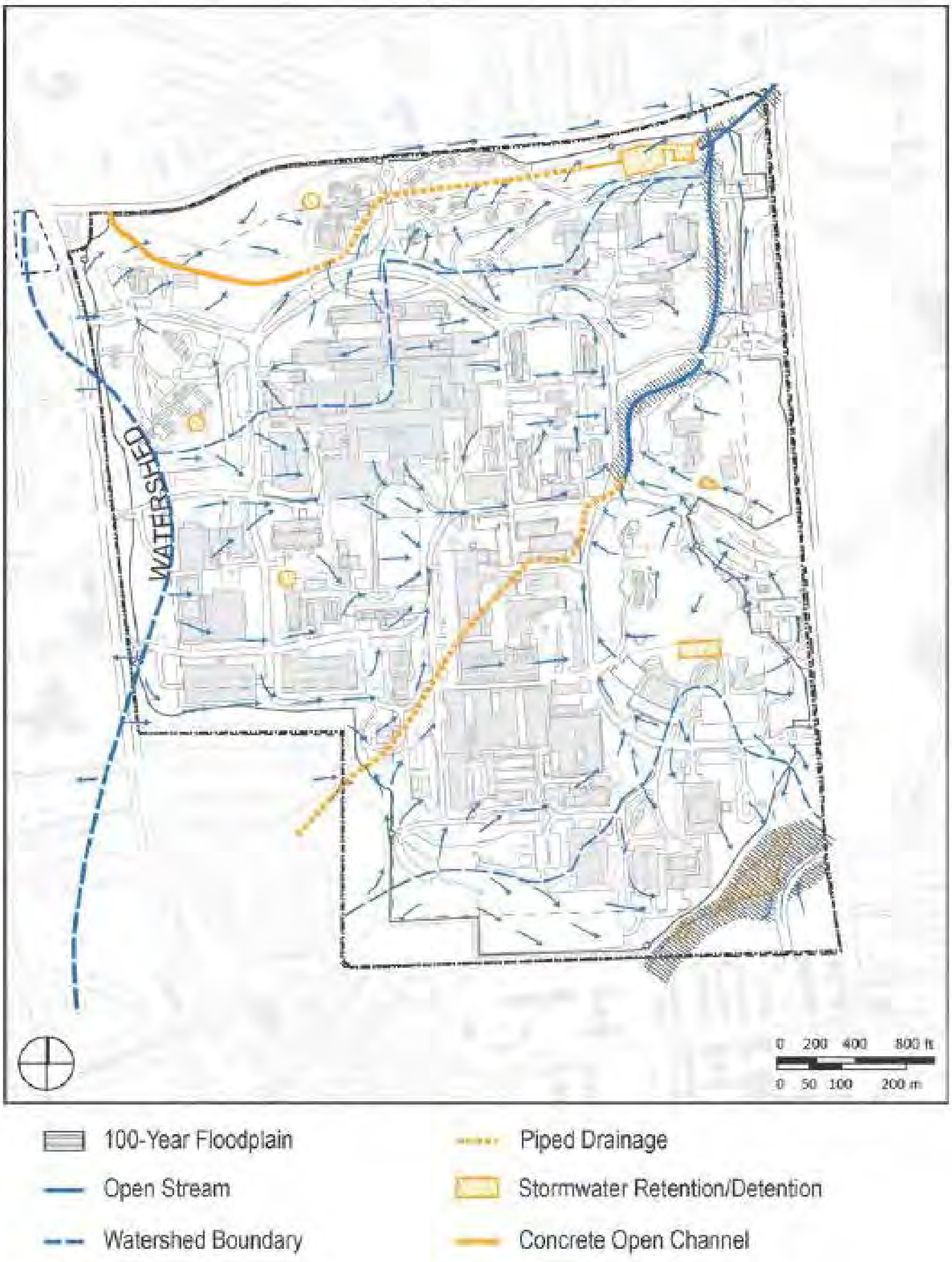


Figure 3.4-2. Stormwater System, Drainage Sheds, and Floodplains on the Campus

3.4.3 Stormwater

Background

Stormwater is precipitation that falls on the ground surface. Precipitation may infiltrate into the ground, evaporate into the atmosphere, transpire from plants into the atmosphere, or collect as runoff and flow along the ground surface. Development and redevelopment may increase impervious surfaces, which increases the amount of runoff by disrupting the natural hydrologic cycle and preventing runoff from infiltrating, evaporating, and transpiring. This disruption of the hydrologic cycle has highly detrimental effects on the environment and surface waters. Runoff can pick up chemicals, dirt, bacteria, and other pollutants, and subsequently flow into storm sewer systems, rivers, lakes, wetlands, and coastal waters, resulting in water pollution and degradation of the natural environment. Excessive runoff can lead to downstream flooding, stream bank erosion, habitat destruction, decreased groundwater recharge, and infrastructure damage.

The NIH is required to comply with state and federal stormwater management requirements for land-disturbing projects. Stormwater must be managed during construction to prevent the erosion of earth and the transport of sediment during land-disturbing activities.

<u>State Requirements</u>

The regulations governing Maryland's erosion and sediment control requirements are outlined in COMAR 26.17.01. The MDE established criteria for effective erosion and sediment control in the 2011 *Maryland Standards and Specifications for Soil Erosion and Sediment Control* (MDE, 2011b). The regulation includes a planning and design section, and seven sections of erosion and sediment control practices. Planning is an important element for site design measures, especially for meeting the "Environmental Site Design to the maximum extent practicable" requirement.

All construction activity in Maryland disturbing one or more acres must be covered under the MDE 2014 *General Permit for Stormwater Associated with Construction Activity* (MDE, 2014). The process by which a General Permit is obtained is as follows:

1 Prior to submitting a Notice of Intent (NOI) to the MDE, the person(s) responsible for the project must submit a final erosion and sediment control plan to the appropriate approval authority (such as the appropriate Soil Conservation District).

2 The NOI must be submitted to the MDE.

3 Once MDE reviews and accepts an NOI, a 14-day public notification period begins.

4 MDE reviews all NOIs and check that all required documents have been uploaded prior to issuing permit coverage. MDE may seek clarification of information in an NOI after submission (MDE, 2014).

5 If MDE has received all required documentation by the end of the public notification period, MDE issues coverage under the 2014 General Permit, unless a citizen has requested that MDE require the project to obtain an individual permit. In that circumstance, MDE contacts the applicant and the requester, reviews the request, and makes a determination on whether to require an individual permit. Note that the NOI submitter must provide documentation of approval of the erosion and sediment control plan by the appropriate approval authority before MDE issues coverage under the General Permit (MDE, 2014).

Stormwater must also be managed after construction activities have ceased. Maryland's Stormwater Management Act of 2007 requires the post-construction management of stormwater through

Environmental Site Design to the maximum extent practicable to reduce stream channel erosion, pollution, siltation, sedimentation, and local flooding, and to use appropriate structural best management practices (BMPs) only when necessary.

The Stormwater Management Act of 2007 defines Environmental Site Design as "…using small-scale stormwater management practices, nonstructural techniques, and better site planning to mimic natural hydrologic runoff characteristics and minimize the impact of land development on water resources." Environmental Site Design must be used to the maximum extent practicable to treat the runoff generated from one inch of rainfall. The regulations governing Maryland's stormwater management program are outlined in COMAR 26.17.02 (MDE, 2009).

The 2000 Maryland Stormwater Design Manual was developed by MDE and outlines the provisions of the Stormwater Management Act and compliance mechanisms. MDE developed the *Environmental Site Design (ESD) Process and Computations* in July 2010 (MDE, 2010) and the *Maryland Stormwater Management and Erosion and Sediment Control Guidelines for State and Federal Projects* in February 2015 (MDE, 2015), which provide further guidance on technical procedures and calculations needed to design sites that incorporate ESD to the maximum extent practicable.

<u>Federal Requirements</u>

The NIH must comply with Section 438 of Energy Independence and Security Act (EISA) 2007. Under EISA 2007, federal agencies must "use site planning, design, construction, and maintenance strategies for the property to maintain or restore, to the maximum extent technically feasible, the predevelopment hydrology of the property with regard to the temperature, rate, volume, and duration of flow" for any project with a footprint greater than 5,000 SF. Guidance on how to meet EISA 2007 is provided in the Technical Guidance on Implementing the Storm water Runoff Requirements for Federal Projects under Section 438 of the Energy Independence and Security Act (USEPA, 2009).

The HHS Sustainable Buildings Plan dated April 30, 2011 requires compliance with Section 438 of EISA 2007 and USEPA's technical guidance.

EO 13508 directs federal facilities to lead the effort to restore and protect the Chesapeake Bay by strengthening stormwater management practices on Federal lands within the Chesapeake Bay watershed and developing guidelines for stormwater BMPs.

Campus and Region

As discussed in Section 3.4.2 and shown in Figure 3.4-2, the three surface water streams on the NIH Campus function as part of the stormwater management system. The NIH is in the process of developing and implementing an Institutional Stormwater Management Plan (ISMP) for the entire Campus. The purpose of the ISMP is to develop a stormwater management system on a Campus-wide basis, rather than for each individual building, although individual projects are still required to meet stormwater management requirements at the site level. Under the ISMP, the baseline impervious area of the Campus is 129.2 acres, or 41.8 percent of the total Campus acreage.

As of 2014, the ISMP involved the construction and/or improvement of stormwater management structures and facilities to manage Campus-wide stormwater. At Stoney Creek in the southern part of the Campus, the County was granted an easement to construct the County Stormwater Management Facility, or South Pond, which manages stormwater from the southern part of the Campus (NIH, 2014a).

In the central area of the Campus, NIH had restored portions of the NIH Stream to its natural condition, including bank stabilization, use of rocks and riprap to create pools, and planting of native species within the stream and along the banks. Velocity attenuators were installed on storm drains, and six stormwater runoff quality treatment or storage facilities were constructed throughout the Campus (NIH, 2014a).

In the northern portion of the Campus, a stormwater management facility was constructed to serve the North Branch drainage. As shown in Figure 3.4-2, North Branch enters the northwestern corner of the Campus in a concrete open channel. This channel flows east, and then enters a buried pipe drainage North of Building 10. The flow emerges into another open channel in the northeastern corner of the Campus and enters a stormwater management system in the parking lot north of Building 31. Stormwater within the system is released to the NIH Stream, which then exits the northeastern corner of the Campus.

The NIH has coverage under a general NPDES Phase II Municipal Separate Storm Sewer System (MS4) permit from MDE that allows stormwater to be discharged from the Campus from these systems. Permit coverage at the Campus began October 31, 2018 and expires October 30, 2023.

Site of the Evaluated Alternative

As shown in Figure 3.4-2, stormwater from most of the area of proposed construction for the SRLM Building, PPG, and UV would flow overland north to the concrete open channel that is part of the North Branch. This stormwater would eventually enter the NIH Stream, and exit the Campus in the northeastern corner. A small portion of the southern end of the PPG and UV lies within the drainage area for the NIH Stream. Stormwater in this area would flow overland to storm drains and enter the NIH Stream. None of the proposed facilities lies within the drainage area for Stoney Creek.

3.4.4 Wetlands

Background

According to Section 404 of the CWA, “wetlands are areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.” USACE provides criteria to identify wetlands and distinguish them from adjacent upland areas; these criteria consist of the presence of hydrophytic vegetation, hydric soils, and wetland hydrology (NIH, 2014a).

Wetlands provide important ecological services including the following:

- Filtering nutrients, sediment, and pollutants from surface and groundwater;
- Absorbing excess floodwater and rainwater;
- Protecting shorelines from erosion; and
- Providing habitat for numerous plants and animals.

Wetlands are federally protected by Section 404 of the CWA, EO 11990 (Wetland Protection), Rivers and Harbors Act, and applicable state regulations and permit programs such as the Maryland Non-Tidal Protection Act, Maryland Tidal Wetlands Act, and the Waterway and 100-Year Floodplain Construction Regulations. Section 404 of the CWA prohibits the discharge of dredged or fill material into wetlands or other waters of the U.S. if a practicable alternative exists that is less damaging to the aquatic environment or if the nation’s water would be significantly degraded by such discharge.

A permit review process administered by the USACE controls regulated activities. Developers must avoid direct impacts to wetlands to the maximum extent possible. EO 11990, implemented in 1977, protects wetlands and their associated ecosystem services. This EO directs each federal agency to avoid undertaking or providing assistance for new construction located in wetlands unless the head of the agency finds that 1) there is no practicable alternative to such construction, and 2) the agency will take all practicable measures to minimize impacts to the wetlands.

To afford additional protection to jurisdictional wetlands (as defined under the CWA), MDE requires maintaining wetland buffers. COMAR 26.23 and COMAR 26.24 established regulations for activities that may disturb or occur within a non-tidal or tidal wetland or surrounding buffer. According to COMAR 26.23.01, the buffer extends 25 feet around the outer edge of a non-tidal wetland. There is an expanded, 100-foot buffer around wetlands of special State concern and wetlands with adjacent areas containing steep slopes or highly erodible soils. MDE requires the action proponent to obtain a Non-tidal Wetlands and Waterways Permit for any activity that alters a non-tidal wetland or its buffer.

Campus

National Wetland Inventory maps do not indicate the presence of any wetlands on the Campus (USFWS, 2019c).

The MDNR on-line mapping system indicates that potential riverine wetlands are located along the stream valley channels of the NIH Stream and Stoney Creek (MDNR, 2019b). A wetland delineation of the Campus was conducted as part of a 1993 investigation of the NIH Stream and Stoney Creek, and no wetlands were identified (NIH, 2014a).

Site of the Evaluated Alternative

Based on review of available data (1993 Campus wetland delineations, MERLIN data, and USFWS online mapper), no known wetlands are located within the site of the proposed SRLM Building, PPG, or UV. A wetland delineation was not conducted as part of this analysis.

3.4.5 Floodplains

Background

A floodplain is the area along or adjacent to a stream or a body of water that is capable of storing or conveying floodwaters. Floodplains perform important natural functions, including moderating peak flows, maintaining water quality, recharging groundwater, and preventing erosion. In addition, floodplains provide wildlife habitat, recreational opportunities, and aesthetic benefits. The 100-year floodplain is an area that is subject to a 1 percent or greater chance of flooding in any given year.

To protect floodplains and minimize future flood damage, EO 11988 (as amended by EO 12148) restricts development within the 100-year floodplain. Under EO 11988, all federal agencies must 1) determine if any of their actions would occur within a floodplain, 2) evaluate the potential effects of these actions, and 3) analyze alternatives to these actions.

MDE requires a Wetlands and Waterways Permit for any construction in a 100-year floodplain.

Campus

Flood Insurance Rate Maps 24031C0365D and 24031C0455D, which depict the Campus, do not illustrate any floodplains within the main portion of the Campus, there is a floodplain in the southeast corner of the Campus. No facilities are located in that area. Similarly, the MDNR on-line mapping system does not indicate the presence of any floodplains throughout most of the Campus (MDNR, 2019b).

Floodplain analysis was performed as part of the Campus Master Plan EIS in 2014 (NIH, 2014a). That analysis identified the lateral extent, flow rate, and elevation of 100-year flood flows along the NIH Stream and Stoney Creek.

The 100-year floodplain of the NIH Stream is shown in Figure 3.4-2. Near the outfall of the storm drain system, the 100-year floodplain is constrained by the curb on the west side of the Building 21 parking lot. Further downstream, the flood flows are confined to narrow limits by the topography. The clearance of the Wilson and North Drive bridges and three pedestrian bridges is high enough to maintain access to those bridges.

As shown in Figure 3.4-2, Stoney Creek enters the southern boundary of the Campus, flows through a stormwater management pond (the South Pond), and then exits the Campus through a culvert beneath Wisconsin Avenue on the southeastern corner of the Campus. The floodplain of Stoney Creek within, and downstream of, the South Pond is shown in Figure 3.4-2. During a 100-year flood, shallow water covers a large area of flat lawn at the outlet of the stormwater management pond, and then would flow to a depth of several feet across Woodmont and Wisconsin Avenues (NIH, 2014a).

Local (i.e., Montgomery County) permitting is likely required for any construction in 100-year floodplains.

Site of the Evaluated Alternative

Based on review of available data (flood insurance rate maps and the Campus Master Plan EIS), no known floodplains are located within the proposed site of the SRLM Building, PG, or UV.

3.5 Visual Resources

Visual aspects relevant to the Campus include lighting and viewscapes. These aspects are considered from the viewpoints of both external and internal observers. The surrounding community is the primary external observer. Internal observers include NIH staff and visitors. Interior visual aspects are important to the NIH goal of providing a world-class facility capable of attracting internationally recognized researchers.

3.5.1 Lighting

Background

Exterior lighting of parking lots, roads, buildings, and pathways is often used to enhance the safety and security of persons and property. Exterior lighting may also be used to emphasize features of architectural and historic significance, or to enhance the enjoyment of outdoor areas. Excessive and inappropriate exterior lighting, however, can generate light pollution. The International Dark Sky Association (IDA) identifies four main elements of light pollution (IDA, 2014):

- Urban Sky Glow: the brightening of night sky over inhabited areas, reducing the visibility of stars;
- Light Trespass: light falling where it is not intended, wanted, or needed, such as light from a streetlight entering a residential window;
- Glare: excessive brightness that can cause visual discomfort and decreased visibility; and
- Clutter: bright, confusing, and excessive groupings of light sources. Clutter contributes to urban sky glow, light trespass, and glare.

In addition to visual intrusion, light pollution associated with over-illumination or inefficient fixtures can contribute to excess energy consumption.

Standards and guidelines for designing effective and appropriate exterior lighting systems include the following:

- The IDA and Illuminating Engineering Society (IES) *Model Lighting Ordinance and User's Guide* (2011) provides recommendations for improving the night sky conditions. The document identifies five lighting zones characterized by development and natural conditions and provides lighting standards appropriate to each zone;

- The IES *Lighting Handbook* (2011) provides safety and security lighting level recommendations for various uses, including guard booths, walkways, parking lots, and streets;
- The United States Green Building Council (USGBC), Leadership in Energy and Environmental Design (LEED) *Reference Guide for Green Building Design and Construction* (2009) provides exterior lighting recommendations for improving both energy efficiency and night sky conditions; and
- The NIH Design Requirements Manual for Biomedical Laboratories and Animal Research Facilities provides guidance for landscape lighting design considerations and exterior lighting design.

Campus

The Campus Master Plan (NIH, 2013) outlines additional guidance for new or replacement lighting, including streets and pedestrian walkways. Figure 3.5-1 illustrates the lighting concept plan from the Campus Master Plan. Key recommendations from this guidance include:

- Lighting should be less intense on secondary streets and walkways;
- Full-cutoff light fixtures, which allow no light to be emitted above a designated horizontal plane, should be used wherever possible;
- Lighting should be less intense at the periphery of the Campus than at the core; and
- Light levels must meet but not exceed American National Standards Institute (ANSI)/American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE)/Illuminating Engineering Society North America (IESNA) standards.

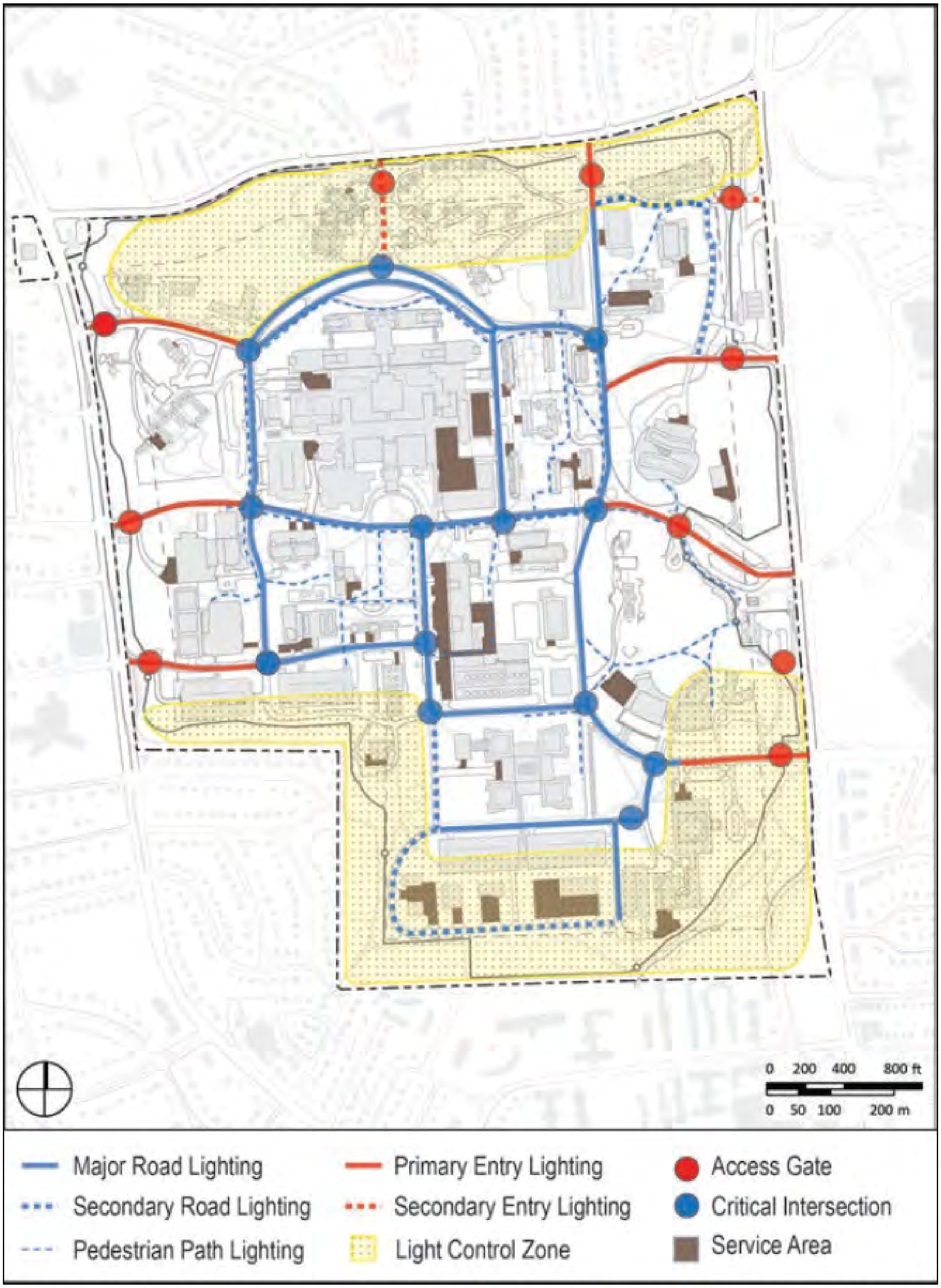
The Campus Master Plan also identified light control zones at the north and south ends of the Campus. In these areas, special attention should be given to avoid spillover lighting into adjacent neighborhoods. Increased landscape screening and special architectural light screens should be considered where necessary. Refer to the Campus Master Plan for additional criteria for lighting design.

Single family residential neighborhoods, such as those to the north and west of the Campus, are classified by the IDA/IES Model Lighting Ordinance as Lighting Zone LZ-1: Low Ambient Lighting (IES, 2011). Multi-family residential neighborhoods, such as the apartment buildings to the south of the Campus are classified as LZ-2: Moderate Ambient Lighting. These residential areas are subject to more stringent lighting guidance than commercial or industrial areas.

Existing light sources at the Campus include streetlights, sidewalk illumination, building interior lighting, and security lighting at entrances to the Campus. Numerous overhead streetlights are installed at the Campus along streets and parking lots for safety and security purposes. The types of streetlights vary due to age or location. Newer streetlights feature fully shielded fixtures with flat, horizontally oriented lenses. These fixtures direct light toward the street and greatly reduce potential light trespass from Campus lighting.

Streetlights that are older or located in areas requiring brighter lighting (e.g., near entrances, along the Bethesda Trolley Trail) direct light both downward and horizontally.

Building interior lighting varies in intensity from building to building. Screening is installed on sides of parking garages that are visible to adjacent neighborhoods. This screening mitigates building interior lighting as well as vehicle headlights.



Source: (NIH, 2013) Note: This figure depicts proposed development as described in the Campus Master Plan.

Figure 3.5-1. Lighting guidance from the Campus Master Plan

NIH has previously received light pollution complaints from adjacent residential neighborhoods. In response to complaints specific to parking garages MLP-6 and MLP-8, NIH installed louvers to reduce the impacts of vehicle headlights and garage interior lighting.

Site of the Evaluated Alternative

Existing lighting in the area of the proposed SRLM Building, PPG, and UV includes street lights along Convent and Center Drives, and building interior lighting at the CC and the MLP-9 parking garage. Existing vegetation and the Convent garden wall screen nearby residential areas and the Convent itself from excessive lighting.

3.5.2 Viewscapes

Background

Viewscapes are views of the Campus from key external or internal vantage points. Viewscapes are affected by physical characteristics including:

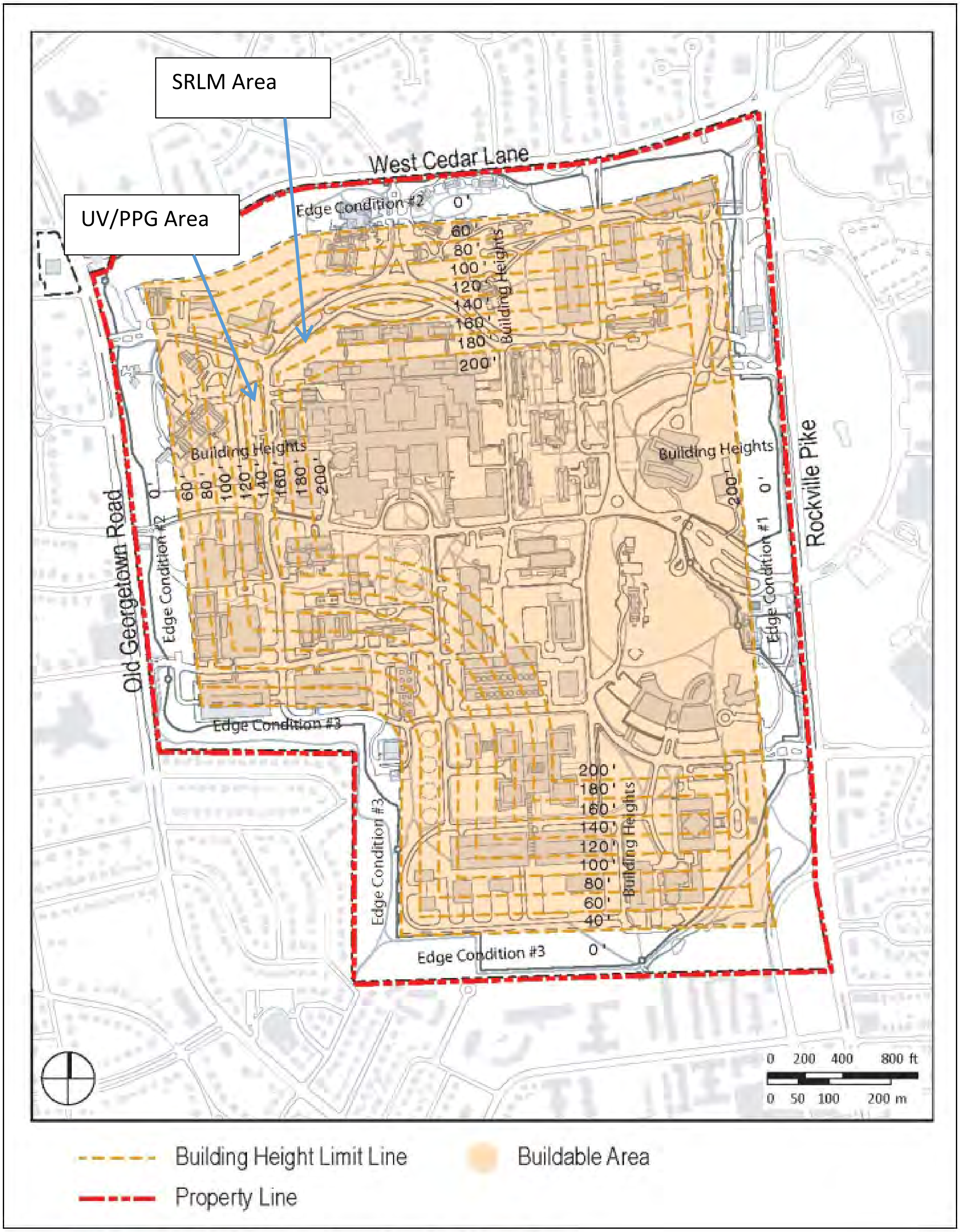
- Vegetation, which may conceal or complement views;
- Building characteristics, including height and architectural features; and
- Topography.

Development projects have the potential to modify viewscapes by changing one or more of these physical characteristics.

Campus

The visual impact of the Campus is important to the adjacent communities, and to occupants of vehicles travelling by on Old Georgetown Road and Rockville Pike. The NIH monitors and maintains the character of views into the Campus from the surrounding streets and community areas. In order to present a pleasing viewscape to external neighborhoods, the NIH has designated a 250 foot deep buffer zone around the Campus perimeter. Vegetative growth is promoted within the buffer where feasible and appropriate and as a result, visibility into the Campus from the outside has gradually decreased over time. NIH policy prevents new buildings and parking areas in the buffer, which includes about 82 acres, or more than one-fourth of the Campus. The Campus Master Plan proposes gradual removal of surface parking lots that were constructed prior to the establishment of the current buffer. The Campus Master Plan also proposes augmentation of the understory and tree cover along the entire south side of the Campus from the Lincoln Drive entrance around to Stoney Creek at the southeast corner.

The Campus Master Plan requires lower building profiles relative to the community by siting future structures into hillsides to manage views and impacts and by setting Campus-wide building height restrictions. The height guidance, illustrated in Figure 3.5-2, is designed to maintain the visual dominance of the CC as the highest, largest, and most prominent building within the Campus. Relative to the perimeter, taller structures are permitted in the center of the Campus and the area near the Metro station on the east side of the Campus. This approach reduces visual impacts to adjacent residential neighborhoods by allowing both building mass and employees to be concentrated at the designated campus front door, which faces the Walter Reed National Military Medical Center (WRNMMC) to the east and is away from residential neighborhoods. Figure 3.5-3 depicts the existing prominent views and features from the Campus Master Plan. As illustrated, most views of the Campus from external viewpoints are blocked by vegetation in the buffer areas. Internal views are dominated by the CC, the largest and most central structure at the Campus.



Source: NIH Bethesda 2013 Campus Comprehensive Master Plan.

Figure 3.5-2. Recommended maximum building heights from the Master Plan

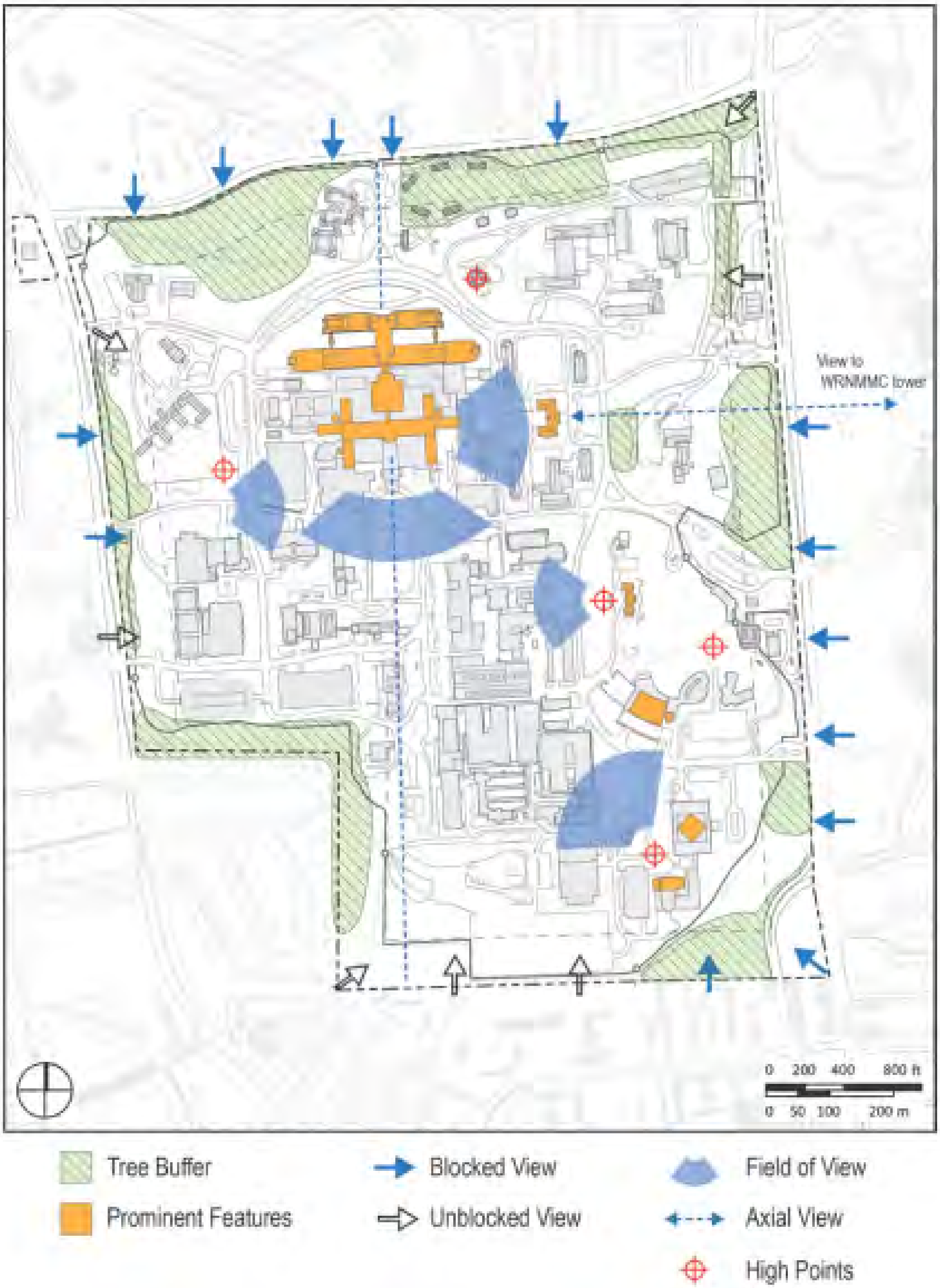


Figure 3.5-3. Existing views and prominent features from the Master Plan

Figure 3.5-4 depicts the proposed new SRLM and PPG/UV development and existing Campus buildings in the vicinity. The figure further illustrates the concept of having smaller buildings at the edges of the Campus and taller structures in the center. This concept minimizes visual disturbances to residential areas, and in combination with vegetative screening from the buffer areas, would allow the Campus to present a smaller visual footprint from the outside.

Site of the Evaluated Alternative

Under the Proposed Action, the SRLM would be constructed as an addition to the CRC and the PPG and UV would be constructed across Convent Drive from the CC. As shown in Figure 3.5-3, off-Campus views of the area are currently blocked by vegetation in the buffer area. On-Campus views are dominated by the existing CC.

Photograph 3.5-1 shows a view of the existing surface parking lot where the PPG and UV would be built. Photograph 3.5-1a is the view along Convent Drive looking north. Photograph 3.5-1b is shows the upper and lower levels of Lot 10E. The Convent brick garden wall is visible on the left side of the frame in both photographs. Photograph 3.5-2a shows existing undeveloped area and Photograph 3.5-2b playground at the proposed SRLM project site. Photograph 3.5-3 shows the view from the proposed SRLM location looking west toward the Convent.

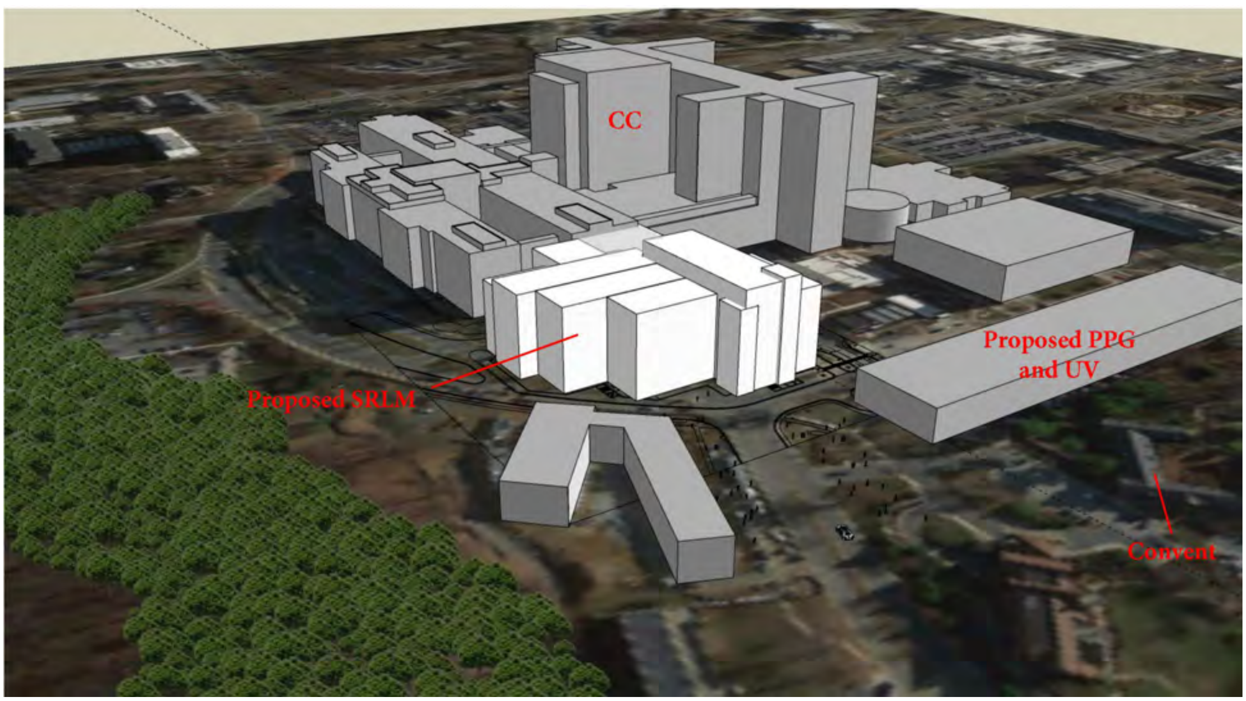


Figure 3.5-4. Vertical cross sections of existing and proposed Campus buildings

Photographs 3.5-1a and b. The existing surface parking lots at Lot 10E

Photographs 3.5-2a and b. The proposed SRLM project site

Photograph 3.5-3. The view from the SRLM site toward the Convent (front entrance of the Convent visible through the trees left of the center of the image)

3.6 Transportation and Traffic

Background

Transportation systems include the vehicles and infrastructure necessary to convey passengers and goods from one location to another. This section focuses on traffic congestion on local roads and highways, which can affect the quality of life of employees and neighboring residents.

Transportation vehicles, including airplanes, cars, trucks, and boats, also emit a variety of air pollutants, and traffic congestion and queuing on roads and highways can cause increased pollution from cars and trucks. Section 4.8 discusses the air quality impacts associated with mobile vehicle use.

Region

The major ground transportation artery for the Washington region is the Capital Beltway (Interstate 495, or I-495). This Interstate Highway carries the bulk of the traffic passing through the Washington Region (NIH, 2014a). The Dwight D. Eisenhower Memorial Highway (I-270), also known as the Washington National Pike, is a 35-mile auxiliary interstate highway connecting Frederick, Maryland to the Beltway. The interchange of I-495 and I-270 is located approximately one mile north of the NIH Campus.

Regional rail service includes Amtrak, the Maryland Regional Commuter Train Service, Virginia Railway Express, and the Metrorail. Metrorail is a rapid transit system, administered by the Washington Metropolitan Area Transit Authority (WMATA), serving Washington and the surrounding suburbs. It is the third busiest rapid transit system in the country (Greater Greater Washington, 2018). The Metrorail Red Line, operating between Washington and Montgomery County, has 27 stations (WMATA, 2019).

Major regional airports include Washington Dulles International Airport (IAD), Baltimore Washington International Airport (BWI), and the Ronald Reagan National Airport (DCA).

Figure 3.6-1 shows the local road network. The Campus is located about one mile south/southeast of the Capital Beltway (I-495) and I-270 spur, which forms the major corridors for east-west and north-south regional traffic movements. The Campus boundaries are Old Georgetown Road (MD Route 187) to the west, Rockville Pike (MD Route 355) to the east and West Cedar Lane to the north. Three major arterial roads provide access to the Campus.

- Rockville Pike forms the eastern border of the Campus. There are six vehicle entrances to the Campus from this major artery: one for visitors, one for commercial vehicles which must be inspected, and four employee entrances.
- Connecticut Avenue (MD Route 185), an 8.30-mile state highway, is a major route for north-south commuting and connects the Washington area with residential suburbs. Depending on their origin, vehicles commuting via Connecticut Avenue approach the Campus either via Jones Bridge Road or West Cedar Lane, both of which lead to Rockville Pike.
- Old Georgetown Road (MD Route 187) is a state highway that makes up most of the western border of the Campus. The highway runs between Bethesda and Rockville (NIH, 2013).

A traffic safety assessment conducted in 2013 compared the overall traffic safety for the Campus with other similar locations in the state, using traffic data from 2008 through 2010 provided by the Maryland State Highway Administration (NIH, 2013). That assessment concluded that average accident rates in the area surrounding the Campus are lower than statewide rates. This includes the sections of Rockville Pike, Old Georgetown Road, and West Cedar Lane that border the Campus (NIH, 2014a).

Campus

Figure 3.6-2 shows the vehicle and pedestrian entrances to the Campus. The Campus currently has nine vehicular access points for employees, visitors, and deliveries. Employee access points are situated at:

- West Cedar Lane and Locust Avenue/West Drive (North Gate)
- Rockville Pike and Wilson Lane
- Rockville Pike and South Drive
- Rockville Pike and Jones Bridge Road/Center Drive
- Old Georgetown Road and Lincoln Drive
- Old Georgetown Road and Greentree Road/South Drive
- Old Georgetown Road and Center Drive

A 2011 traffic generation report indicated that 53 percent of the total vehicles entering the Campus during the morning peak-hour in October 2011 occurred on Rockville Pike, 45 percent on Old Georgetown Road, and 2 percent on West Cedar Lane (NIH, 2013). The NIH Transportation Management Plan (TMP) is a memorandum of understanding (MOU) among the NIH, the National Capital Planning Commission (NCPC), and Maryland-National Capital Park and Planning Commission (M-NCPPC) implemented on October 4, 1991. The TMP's objective is to reduce the rate of vehicular trip generation per employee so that employment growth does not result in increased vehicular traffic during peak hours. The TMP encourages public transportation, and multiple-occupant vehicles, such as carpools, vanpools, shuttles, and high occupancy vehicles (NIH, 2013).

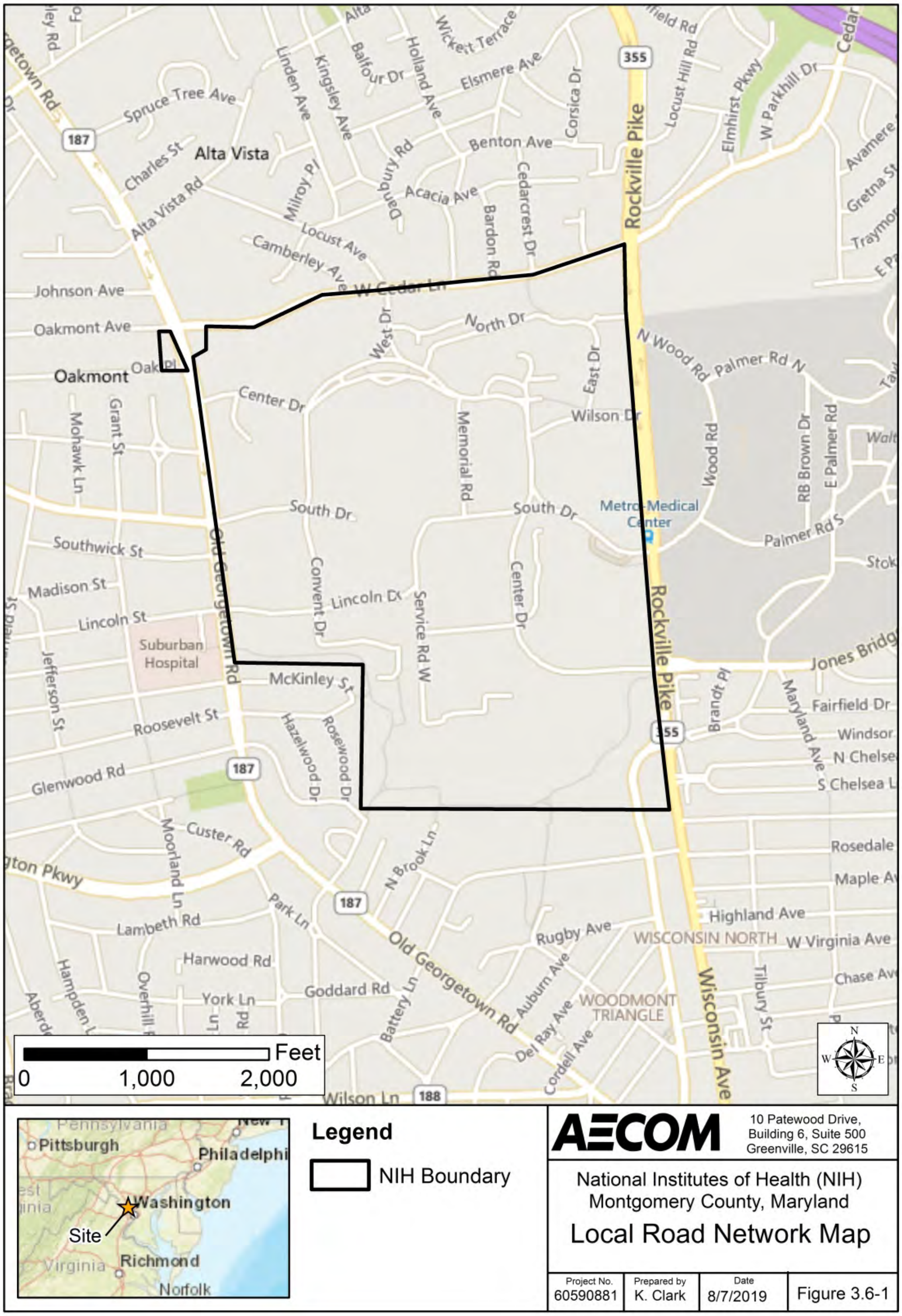


Figure 3.6-1. Local Roads in the Vicinity of Campus

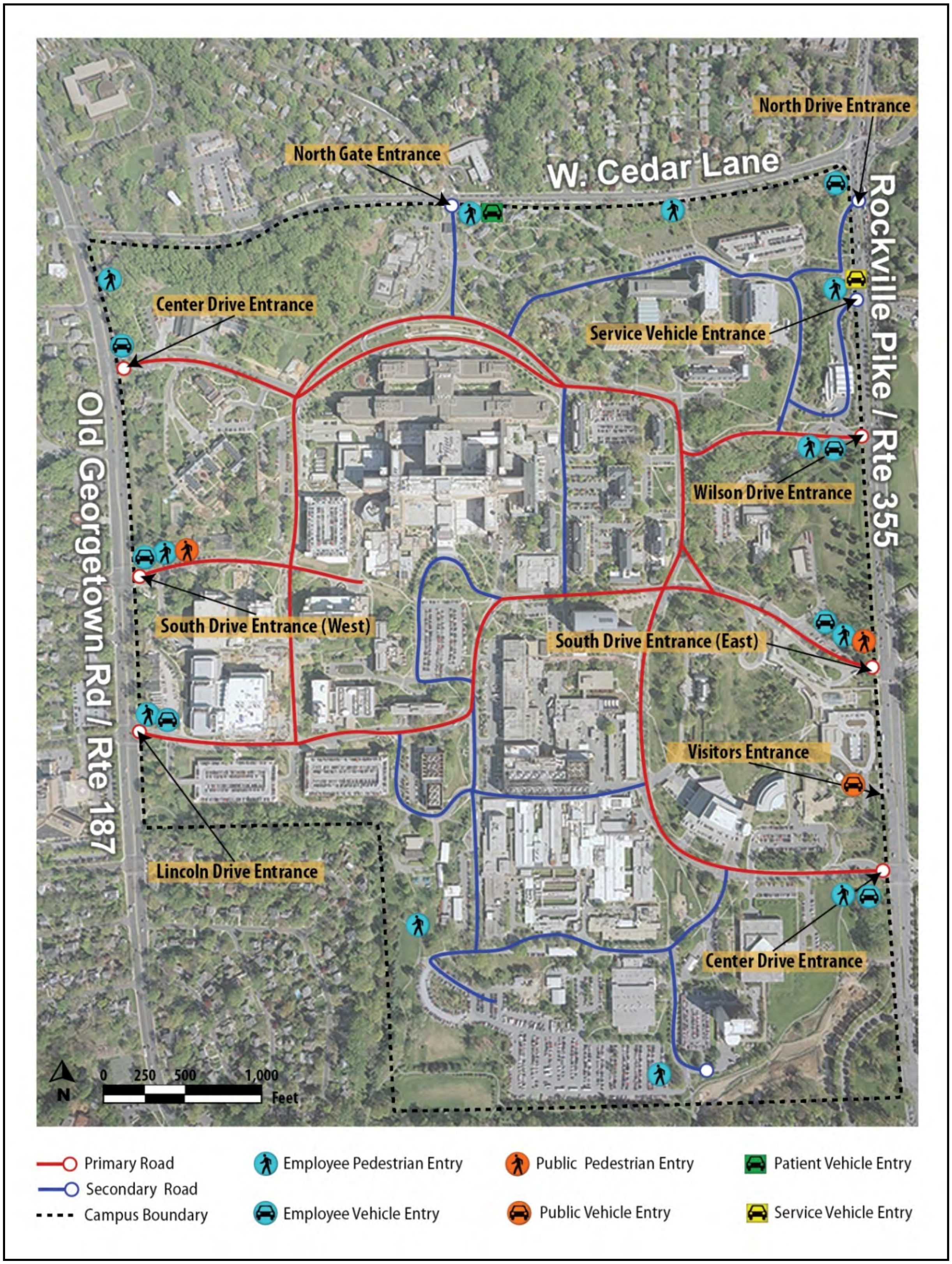


Figure 3.6-2. Campus Entrances

Visitors who arrive to the Campus by vehicle park on the Campus or in a designated parking garage at the NIH Gateway Visitor's Center (Building 66), which is located on Rockville Pike at the Medical Center Metro Station. If visitors park in the garage, they must be cleared at the Visitor's Center and proceed to their destination on foot or by shuttle bus. If visitors park on the Campus, they must have their vehicles inspected at the Commercial Vehicle Inspection Facility (CVIF) (Building 67) and then drive to their destination. All commercial and delivery vehicles enter and must be inspected and cleared at the CVIF. Only patients and their families coming to the CC typically use the vehicular North Gate Entrance. There is no vehicular access from the south campus boundary (NIH, 2014a).

Most roadways on the Campus have one travel lane in each direction, with the exceptions of Center Drive and South Drive. Center Drive is the major internal road, and runs from the northwest to the southeast corners of the Campus. Primary roads within the Campus are Wilson Drive, South Drive to Convent Drive, Convent Drive, and Lincoln Drive to West Service Road to South Drive. Secondary roads include Memorial Drive, West Service Road from Lincoln Drive to South Service Road, and South Road. Peak-hour traffic flows at the Campus occur from 8:00 to 9:00 in the morning and from 4:45 to 5:45 in the evening (NIH, 2013).

Parking within the Campus includes several large surface lots, seven MLP garages, and limited on-street parking. Less than half of the parking consists of surface lots. The 1991 TMP MOU established that the Campus would not exceed a parking supply ratio of 0.50 spaces per employee. The NIH conducted a parking occupancy study in 2014 that verified that the actual parking ratio at that time (0.44) was lower than the established limit of 0.50 spaces per employee (NIH, 2014a). Additional parking for the projected future growth of an estimated 3,000 Bethesda Campus-based employees is being planned for at a ratio of 0.33 spaces per employee (NIH, 2013).

Access to the Campus is also provided through public transportation. Figure 3.6-3 shows the local public transit system routes, including MetroRail, MetroBus, and Ride-On. The Medical Center station, on the east side of the Campus near the Gateway Visitor's Center, is the closest Metrorail stop to the Campus. Local bus services are operated by WMATA (i.e., Metrobus), and the Montgomery County Department of Public Works (i.e., Ride-On). The Campus is served by five Metrobus routes and five Ride-On Routes (NIH, 2014a).

The NIH has the highest number of employees who bicycle to work of any employer in the National Capital Region. Medical Center Station provides 88 bike racks and 38 bike lockers. These bike facilities are fully utilized during the weekdays. Primary Campus bicycle access points are: Old Georgetown Road at Cedar Lane; Rockville Pike at Cedar Lane; Jones Bridge Road at Rockville Pike; along the south Campus boundary at Woodmont Avenue, the Spring House building, N. Brook Lane, Maple Ridge Road, and Roosevelt Street; and Greentree Road at Old Georgetown Road (NIH, 2013).

Multiple pedestrian entrances are also available to employees. Pedestrian paths are parallel to most roadways on the Campus. Almost all pathways have been upgraded to be a minimum of five feet wide and are paved. Busy pedestrian areas include routes between transit nodes, parking areas and significant buildings. Pedestrians utilize similar access points to those used by bicyclists.

Site of the Evaluated Alternative

The roadway and parking areas in the vicinity of the proposed SRLM Building, PPG, and UV are shown in Figure 3.6-4. As shown in Figure 3.6-4, the eastbound and westbound lanes of Center Drive on the north side of Building 10 are currently divided by a median. The proposed SRLM Building would occupy a portion of the eastbound lane, requiring re-configuration of the roadway and establishment of a revised traffic pattern. This re-configuration is discussed in more detail in Section 4.6.1 (Roads, Transit, and Traffic).

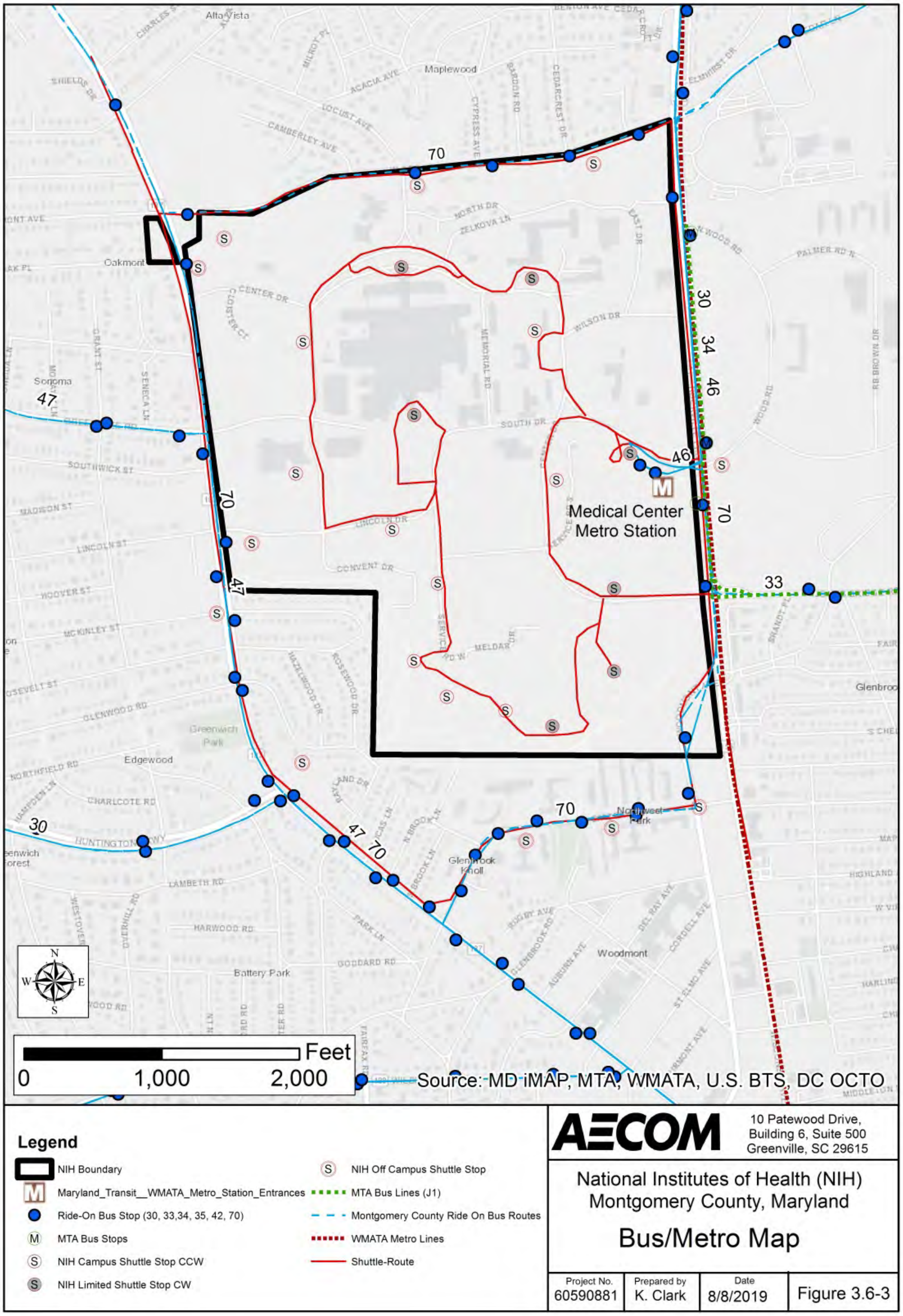


Figure 3.6-3. Area Public Transportation Routes and Stops

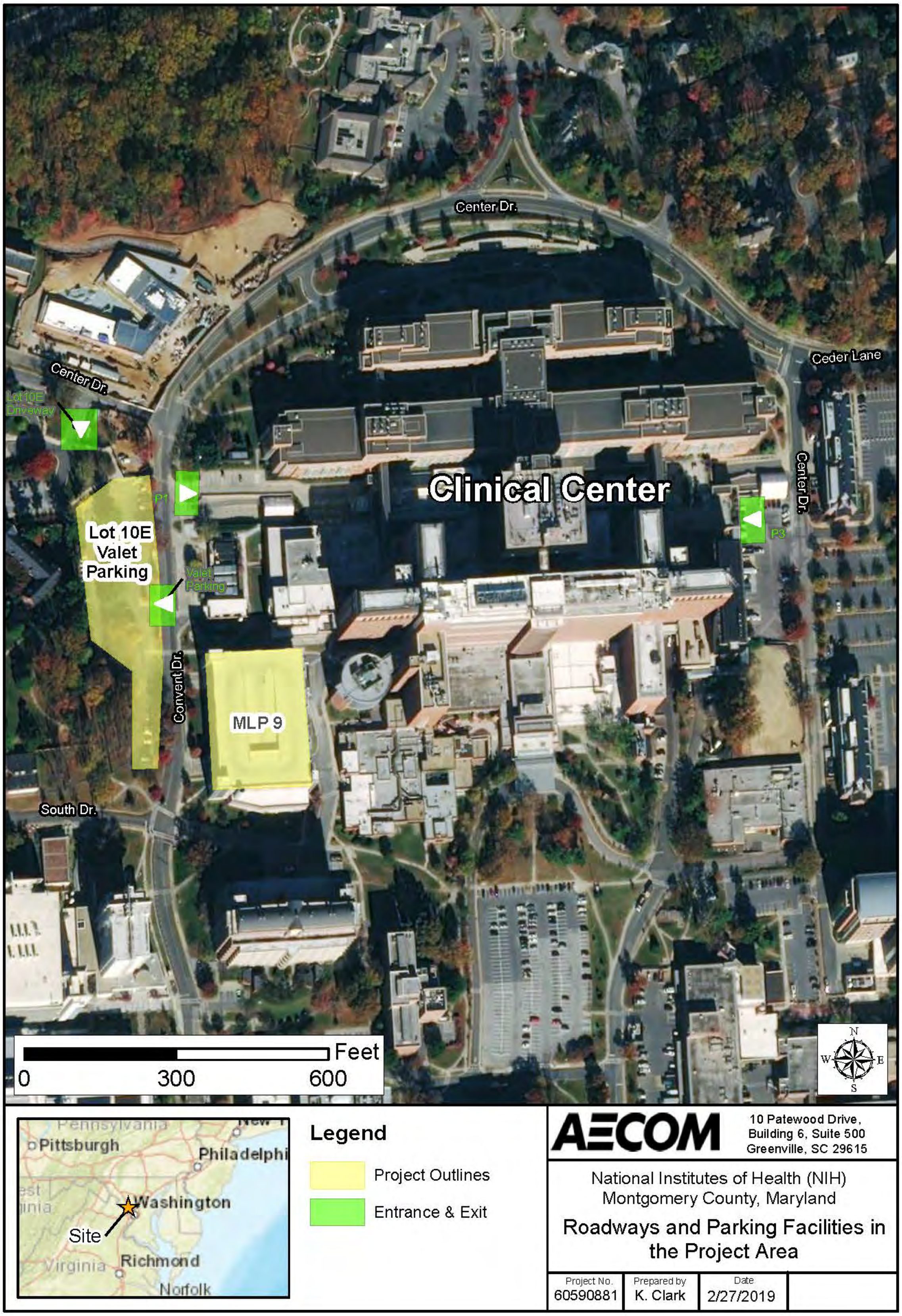


Figure 3.6-4. Roadways and Parking Facilities in Project Area

The location of the proposed PPG is currently the footprint of parking lot 10E. Lot 10E serves as the valet lot for the CC, and currently contains about 100 spaces (Sabra, Wang & Associates, 2018). As part of the renovation of Building 10, the Building 10 garage, which contains approximately 700 parking spaces, would be converted to other uses. The loss of parking spaces in these areas would be compensated for by the approximately 780 parking spaces that would be available in the new PPG.

The Center Drive Entrance, off of Old Georgetown Road, is the closest vehicular entrance to the location of the proposed facilities. As discussed above, the three entrances from Old Georgetown Road together comprise 45 percent of vehicular trips entering the Campus during the morning peak-hour. The location of the proposed facilities is close to primary and secondary roads. Center Drive passes directly north of the location of the proposed facilities, and Convent Drive runs north to south along the west side.

A study of traffic levels was conducted in 2017 for four intersections along Convent Drive between the CC and MLP-9 on the east and parking lot 10E on the west. The purpose of the study was to evaluate the traffic impacts associated with various options for entrances to the PPG. The analysis concluded that traffic currently operates at a Level of Service (LOS) of A or B at each intersection, at all times (Sabra, Wang & Associates, 2018).

The Center Drive and North Gate Entrances are the closest pedestrian entrances to the location of the proposed facilities. These entrances can be used by both bicycles and pedestrians.

The NIH shuttle bus routes pass by the location of the proposed facilities, along Center Drive and Convent Drive. There is a shuttle bus stop to the west of the location of the proposed facilities on Convent Drive and a limited shuttle stop on Center Drive to the east of the location of the proposed facilities.

3.7 Noise

Background

High noise levels that occur over a long duration can impact the health of exposed populations and be a nuisance to the surrounding community. The A-weighted decibel scale (dBA) is a logarithmic scale generally used to measure noise levels because it can account for the sensitivity of the human ear across the frequency spectrum. Table 3.7-1 compares decibel noise levels, common noise sources, and the relative perception of the noise levels.

Table 3.7-1. Perception of Noise

Noise Level (dBA)	Common Noise Source	Subjective Evaluation
140	Jet engine	
130	Physical pain threshold	
120	Hard rock band (indoors)	
100	Car horn (at 10 feet)	Loud
50-70	Typical conversation speech	Moderate
50	Average office environment	
20	Whispering in an indoor location	Very Faint

Sources: Montgomery County DEP, 2019; NIH, 2015

Ambient noise levels are typically evaluated using the 90th percentile-exceeded noise level, L_{90}, which indicates the single noise level that is exceeded during 90 percent of a measurement period. The L_{90} noise level typically does not include the influence of discrete noises of short duration, such as car horns.

The Occupational Safety and Health Administration (OSHA) regulates workplace noise with standards for two different types of noise: constant and impulse. The OSHA limit for constant noise is 90 dBA for eight hours; however, the National Institute for Occupational Safety and Health (NIOSH) recommends a constant noise limit of 85 dBA for eight hours to minimize occupational noise induced hearing loss. The OSHA maximum sound level for impulse noise is 140 dBA. In areas where workplace noise exceeds these sound levels, employers must provide workers with personal protective equipment to reduce noise exposure (OSHA, 2019).

State and local government agencies regulate noise within the community. Noise standards set by the state under COMAR 26.02.03 limit the 24-hour average sound levels for residential, commercial, and industrial zones to 55, 64, and 70 dBA, respectively. The Montgomery County Noise Control Ordinance (Chapter 31B of the County Code) established maximum allowable noise levels in the county (Montgomery County DEP, 2019). The Montgomery County noise exposure limits for residential and non-residential properties are summarized in Table 3.7-2.

In addition, noise levels from construction activities must not exceed 75 dBA at the source between 7 a.m. and 5 p.m., with higher allowances if the Montgomery County Department of Environmental Protection has approved a noise suppression plan (Montgomery County DEP, 2019).

Table 3.7-2. Montgomery County Maximum Allowable Noise

Levels for Receiving Noise Areas	Weekdays Daytime 7:00 am – 9:00 pm	Weekdays Nighttime 9:00 pm – 7:00 am
Residential	65 dBA	55 dBA
Non-Residential	67 dBA	62 dBA

Source: Montgomery County DEP, 2019.

Region

Traffic on Rockville Pike and Old Georgetown Road is the major source of noise in the region immediately surrounding the Campus. Traffic noise dominates noise levels for about 500 feet at either side of these roadways. At the building line adjacent to these roads, noise levels are generally between 68 to 71 dBA. For comparison, noise levels under similar conditions on Jones Bridge Road and West Cedar Lane were 66 and 64 dBA, respectively. Noise levels generally remain constant throughout weekdays, between 6:00 am and 9:00 pm (NIH, 2014a).

Campus

Typical daytime noise levels throughout the core area of the Campus range from 55 to 60 dBA. Nighttime noise levels range from 45 to 55 dBA (Colin, Gordon, & Associates, 2007). In the immediate area around the CC, nighttime levels are about 5 dBA higher. During early morning hours (1:00 am to 4:00 am), noise levels are 45-50 dBA along the northern perimeter of the Campus in areas past the reach of traffic noise from Rockville Pike and Old Georgetown Road (NIH, 2014a).

Within the central area of the Campus, overall noise levels are affected by a number of external sources. Exterior traffic noises dominate noise levels from the Campus border to approximately 500 feet into the interior of the Campus. The Campus is bordered by major roads on three sides: Old Georgetown Road to the east, West Cedar Lane to the north and Rockville Pike to the west. Traffic on the Campus, in comparison, is relatively light, especially during the middle of the day, and moves at a low speed (NIH, 2014a).

NIH has conducted several noise studies, including a study in the winter of 2013. This study confirmed that significant sources of noise on the Campus include building exhaust stacks, air handling units, mechanical rooms, and Central Utility Plant (CUP) chillers and cooling towers. The study monitored noise levels at six locations at or near the Campus boundary. The CUP was the highest source of noise for two of the locations; for the other four locations, other noise sources were more significant. The two locations at which the CUP was the major source of noise were located at the south end of the Campus (Colin, Gordon, & Associates, 2014).

Noise levels generated by the CUP are seasonally dependent. Throughout most of the year, excluding summer months, noise produced by the plant combines with the ambient noise environment and the CUP is not a primary contributor to noise levels. During summer months, when temperatures surpass 90˚F, the number of units in service increases, thereby increasing noise generation of the plant. In general, noise levels from chiller and cooling towers are the highest during daytime hours, when space cooling loads are the highest. During daytime hours, the noise level from the plant is the same as all other noise sources combined. During nighttime hours, while the plant produces less noise, the overall noise environment is also decreased, which makes the noise from the plant the dominant noise source (NIH, 2014a).

NIH conducted a noise study in 2013, which determined that existing ambient nighttime noise levels at the Campus boundary range from 46 to 54 dBA. These noise levels are consistent with similar measurements made during earlier Campus noise studies. No readings exceeded the Montgomery County nighttime residential noise metric of 55 dBA. This study also observed that outdoor noise environments are often impacted by multiple sources such that removing a few major sources may not have a dramatic impact on community noise levels (Colin, Gordon, & Associates, 2014).

Background noise that contributes to the ambient noise environment includes noise not directly generated from a specific source. Background noise generators on the Campus include daytime Campus traffic, electrical and mechanical equipment, the transformer noise from the cogeneration (COGEN)/Boiler 6 facility in Building 46, the NIH child care center, birds, insects, aircraft, rescue vehicle sirens, residential air conditioners, barking dogs, lawn mowers and leaf blowers, and human activities including pedestrians (Colin, Gordon, & Associates, 2007).

Site of the Evaluated Alternative

Under the Proposed Action, the SRLM, PPG, and UV would be constructed at the intersection of Convent and Central Drives. Existing noise sources, such as the chillers at the CUP and traffic on adjacent roadways would continue to generate noise that would be audible at the site.

The 2013 noise study described the major noise contributors in the Building 10 area as the Building 62 Cooling Tower, the Building 10 mushroom fans, and the Building 10 Main Stack. During the 2013 study, noise monitoring unit M1 was located just north of Building 10 (Colin, Gordon, & Associates, 2014).

According to the Master Plan (NIH, 2014a), new NIH facilities should be designed to abate or mitigate excessive noise and vibration impacts to nearby NIH facilities and the neighborhoods surrounding the Campus. The potential impacts and necessary abatement must be evaluated on a case-by-case basis. In the study conducted in 2007 (Colin, Gordon, & Associates, 2007), a model predicted that a reduction in noise on Campus could be obtained by putting silencers on the exhaust stacks of Buildings 10, 28, 35, and 41. The difference in noise ranged from 1 to 6 dBA less than without the exhaust silencers.

Regardless of silencer placement, maximum building operational noise levels should meet the Maryland or Montgomery County noise criteria. If necessary, mitigation can be achieved through physical shielding, equipment noise silencers, or project design configuration and layout (NIH, 2014a).

3.8 Air Quality

Air quality refers to the degree of pollution in the air, often assessed by measuring concentrations of pollutants and comparing them to health-based limits set by the USEPA. Airborne pollutants originate from a variety of sources including anthropogenic (man-made) or natural (e.g., forest fires). Releases of pollutants can cause a change in air quality that can harm human health, property, and the natural environment. Examples of anthropogenic pollution sources include mobile sources such as cars or construction equipment and stationary sources such as electric generation units. Most anthropogenic airborne emissions arise from fossil fuel combustion. Emissions from fossil fuel combustion also contain Greenhouse Gases (GHGs) which are likely contributors to observed global climate change (Intergovernmental Panel on Climate Change [IPCC], 2014).

3.8.1 Ambient Air Quality

Background

<u>Federal Regulations</u>

Federal regulations govern air quality for the larger region surrounding Montgomery County, Maryland. The Clean Air Act (CAA) designated USEPA the authority to set National Ambient Air Quality Standards (NAAQS) to limit the concentration of pollutants considered harmful to public health and the environment (40 Code of Federal Regulations [CFR] Part 50). The NAAQS regulate six specific pollutants, commonly referred to as “criteria pollutants” that include ozone (O_3), particulate matter (PM), carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), and lead (Pb) (USEPA, 2019c). The NAAQS limit PM levels according to particle size, with separate standards for coarse (PM_{10}) and fine ($PM_{2.5}$) particulate matter. Table 3.8-1 shows the current NAAQS concentration limits (USEPA, 2019d).

Table 3.8-1. National Ambient Air Quality Standards

Criteria Pollutant	Averaging Time	Level [a]
Ozone (O_3)	8-hour	70 ppb [b]
Particulate Matter ($PM_{2.5}$)	24-hour	35.0 μg/m^3
	Annual Mean	12.0 μg/m^3
Particulate Matter (PM_{10})	24-hour	150 μg/m^3
Carbon Monoxide (CO)	1-hour	35.0 ppm
	8-hour	9.0 ppm
Lead (Pb)	3-month	0.15 μg/m^3
Nitrogen Dioxide (NO_2)	1-hour	100 ppb
	Annual Mean	53 ppb
Sulfur Dioxide (SO_2)	1-hour	75 ppb
	3-hour	0.5 ppm

Table 3.8-1. National Ambient Air Quality Standards

Criteria Pollutant	Averaging Time	Level [a]

Notes:

[a] All of the standards are primary standards, which provide public health protection, except for the 3-hour SO^2 limit, which is a secondary standard and provides public welfare protection. Units of measure are parts per million (ppm) by volume, parts per billion (ppb) by volume, and micrograms per cubic meter of air (μg/m^3).

[b] Final rule signed October 1, 2015, and effective December 28, 2015. The previous (2008) O_3 standards additionally remain in effect in some areas. Revocation of the previous (2008) O_3 standards and transitioning to the current (2015) standards will be addressed in the implementation rule for the current standards.

Source: USEPA, 2019d

If a region's air pollutant concentrations are not in violation of the NAAQS, USEPA designates the area to be in *attainment.* For areas USEPA designates as *nonattainment*, there are several categories, from *marginal* to *severe,* that USEPA could assign depending on the severity of the exceedance. A *nonattainment* designation requires that a region submit a State Implementation Plan (SIP) that addresses how the NAAQS will be met in a future year. USEPA later determines whether the region has met the SIP goals, and if so, USEPA changes the designation from nonattainment area to *maintenance area*. Part of Montgomery County, including the NIH Campus, is a CO maintenance area (USEPA, 2018a).

The CAA requires that the USEPA regularly review the NAAQS in the context of the latest science and health studies to determine whether the NAAQS still adequately protect human health and the environment. As such, USEPA has lowered the NAAQS periodically since the program's inception. Designations from previous NAAQS levels still apply until the nonattainment area successfully demonstrates attainment and USEPA agrees to re-designate the area. For this reason, while Montgomery County and the Metro Area are in attainment of the current 2012 $PM_{2.5}$ NAAQS, the county is designated as a "maintenance area" for the previous 1997 $PM_{2.5}$ NAAQS exceedance. The USEPA also designated Montgomery County and the Metro Area as a "marginal" nonattainment area for the 2015 and 2008 ozone standards (USEPA, 2019e; 2019f). As shown below in Table 3.8-2. Montgomery County and the Metro Area are attainment areas for SO_2, NO_2, and lead. The County and the Metro Area are in Attainment (Maintenance area) for CO (40 CFR 81.321).

<u>General Conformity</u>

The CAA General Conformity Rule requires that federal actions taking place in nonattainment areas must conform to the region's SIP for reducing airborne concentrations of the nonattainment pollutant(s). The Campus is monitored by the USEPA both as part of Montgomery County and as part of the Washington DC Metro Area. Because the Campus is located in an ozone and $PM_{2.5}$ nonattainment area and a CO maintenance area, this EIS includes a review of the emissions that would be expected from the construction and operational activities under the Proposed Action to determine whether they would exceed de minimis levels and trigger a SIP conformity determination. De minimis levels are emission rates which may not be exceeded by federal actions taking place in nonattainment and maintenance areas. Federal actions in nonattainment areas for $PM_{2.5}$ must also consider the de minimis levels for $PM_{2.5}$ precursors, including oxides of nitrogen (NOx) and SO_2. The de minimis levels for the Montgomery County and Metro Area on attainment criteria pollutants are listed in Table 3.8-2 (USEPA, 2019g).

Federal Operating Permit Programs

Federal Title V of the CAA requires all major sources of air pollution to obtain an operating permit known as a Title V permit. MDE administers the program, which is codified by the COMAR. For Title V applicability in Montgomery County, the major source threshold for emissions of oxides of nitrogen (NO_x) and Volatile Organic Carbon (VOC) is 25 tons per year (TPY) (MDE, 2019b). This permit consolidates all State and federal air quality requirements that apply to the source, including emissions limits and monitoring, record keeping, and reporting requirements.

Table 3.8-2. Montgomery County and the Metro Area Attainment Status and General Conformity Rule *De Minimis* Thresholds

Criteria Pollutant	Classification of Montgomery County and the Metro Area	Pollutant or Precursor of Concern	De Minimis Emission Rate (tons/year) [a, b]
Ozone (O_3)	Nonattainment of the 2015 standard (marginal) Nonattainment of the 2008 standard (marginal) Nonattainment of the 1997 standard (moderate)[c]	NO_x	100
		VOC	50
Particulate Matter ($PM_{2.5}$) [c]	(Maintenance)[d,e]	$PM_{2.5}$	100
		NO_x	100
		SO_2	100
Carbon Monoxide (CO)	Attainment (maintenance area)	CO	100
Lead (Pb)	Attainment	Pb	N/A
Nitrogen Dioxide (NO_2)	Attainment	NO_2	N/A
Particulate Matter (PM_{10})	Attainment	PM_{10}	N/A
Sulfur Dioxide (SO_2)	Attainment	SO_2	N/A

Notes:

[a] *De minimis* levels are emission rates specified in 40 CFR 93.153(b), which may not be exceeded by federal actions taking place in nonattainment and maintenance areas. Federal actions in nonattainment areas for $PM_{2.5}$ must also consider the *de minimis* levels for $PM_{2.5}$ precursors, including NOx and SO_2.

[b] N/A designates that Montgomery County is an attainment area for that pollutant and *de minimis* levels are therefore not applicable for that pollutant.

[C] 8-Hour Ozone (1997 Standard) revoked 4/6/2015)

[d] On October 6, 2014 the USEPA published a Final Rule in the Federal Register approving the State of Maryland's request to redesignate the Maryland region of the Washington DC-MD-VA Nonattainment Area for the annual PM2.5 NAAQS to Attainment status. The DC area includes Charles, Frederick, Montgomery and Prince George's counties. The rule became effective November 5, 2014.

[e] The 1997 Primary Annual PM-2.5 NAAQS (level of 15 µg/m3) is revoked in attainment and maintenance areas for that NAAQS. For additional information see the PM-2.5 NAAQS SIP Requirements Final Rule, effective October 24, 2016.

Sources: USEPA, 2018a; 2019g; 2019e; 2019f; 2019h; 2019i; USEPA, 2016

Maryland Air Quality Programs

The State of Maryland requires a permit to construct (PTC) from MDE before construction or modification of an emission source, including emergency generators and boilers, unless the source is exempted from PTC requirements under COMAR 26.11.02.10. For large sources, preconstruction approval may need to be obtained from the New Source Review (NSR) program and/or the Prevention of Significant Deterioration (PSD) program. Small stationary generators with engine output of less than 373 kilowatts (kW) are an example of an exempt source under COMAR 26.11.02.10.

The NSR program is a preconstruction review process established under the CAA to assist in efforts to achieve compliance with the NAAQS (40 CFR 51 Subparts I and P; 40 CFR 52.10). Any proposed new or modified major stationary source that would discharge significant amounts of criteria pollutants must obtain an NSR approval prior to construction. According to COMAR 26.11.02.01(C), a source is considered a major source if it meets any of the following criteria:

a. emits, or has the potential to emit, 10 TPY or more of an individual hazardous air pollutant (HAP), or 25 TPY or more of any combination of HAPs;

b. emits, or has the potential to emit, 100 TPY or more of any air pollutant (including criteria pollutants in attainment status); or

c. emits, or has the potential to emit, criteria pollutants in exceedance of certain thresholds for nonattainment areas.

Because Montgomery County and the Metro Area are nonattainment areas for ozone, new air pollution sources at the Campus with the potential to emit 25 TPY or more of VOC or NO_X require NSR approval. In Maryland, COMAR 26.11.02 (under Permits, Approvals, and Registration) implements the NSR program. Applicants must submit their NSR application with a PTC application that includes additional requirements to demonstrate sufficient emission controls and offsets (MDE, 2019c).

The PSD program is intended to prevent significant deterioration of ambient air quality by limiting the amount of air pollutants released by a new or modified facility located in a NAAQS attainment area. The MDE implements this program under COMAR 26.11.06.14, Control of PSD Sources, and it requires all PSD sources to comply with the requirements of 40 CFR 52.21, Prevention of Significant Deterioration of Air Quality. The following actions require PSD approval (MDE, 2019d):

1 New air pollution sources that have the potential to emit at least 100 TPY of any regulated pollutant, if the proposed source belongs to one of the 26 source categories listed in COMAR 26.11.01.01B;

2 New air pollution sources that have the potential to emit at least 250 TPY of a regulated pollutant from unlisted source categories; and

3 Major modifications to an existing major facility that would result in a net emissions increase above the levels listed in Table 3.8-3.

Table 3.8-3. PSD Criteria Pollutant Emission Thresholds

Pollutant	Significance Level (TPY)
CO	100
NO_x	40
SO_x	40
PM_{10}	15
VOC	40
Lead	0.6

Source: MDE, 2019d

Maryland's air quality program also incorporates federal emissions standards that apply to stationary sources such as National Emission Standards for Hazardous Air Pollutants (NESHAPs), which require the application of technology-based emissions standards known as Maximum Achievable Control Technology (MACT) to control HAPs, and New Source Performance Standards (NSPS), which apply to specific categories of stationary sources. In addition, Maryland's air quality program includes requirements for sources that emit toxic air pollutants (TAPs), as defined in COMAR 26.11.15. These requirements specify that new sources of TAPs must obtain a PTC and that the owner or operator of all new sources and certain existing sources of TAPs must apply the best available control technology for toxics.

Region

Air Quality

The Maryland Ambient Air Monitoring Network consists of 24 air monitoring stations throughout the state that measure ground-level concentrations of criteria and other pollutants (MDE, 2019e). In addition, Washington monitors ambient air quality at 5 stations throughout the district (District Department of the Environment [DDOE], 2019). Table 3.8-4 presents ambient air quality for the three ozone and $PM_{2.5}$ monitoring stations located closest to the Campus, while Table 3.8-5 shows the monitoring data for CO. The table illustrates that monitors close to the project area report concentration levels that are close to or higher than the ozone standard, a finding consistent with the area's nonattainment status. With respect to PM 2.5, the monitors close to the project area report levels slightly below or at the standard.

Emissions Sources

In support of the region's SIP, the MWCOG submitted a comprehensive base year (2011) emission inventory of all stationary (point and area) and mobile (on-road and non-road) sources within the Metropolitan Washington region (MWCOG, 2014). MWCOG's comprehensive 2011 base year emission inventory, which is the most recent inventory available, included all local sources of VOC, NOX, CO, PM2.5, SO2 and ammonia. Figure 3.8-1 below summarizes the annual average TPD of VOC, NOx, CO, and PM2.5 emissions within the region.

Figure 3.8-1 shows that, in 2011, approximately 50 percent of VOC emissions within the region originated from mobile sources (on-road and non-road combined) with the other half from stationary sources that are mostly minor area sources. The largest contributors to the region's NOx and CO emissions in 2011 were on-road mobile sources (such as cars, pickups, and heavy-duty trucks) at nearly 195 TPD and 975 TPD, respectively. Area sources were the largest contributors to PM2.5 emissions in the region (MWCOG, 2014).

Table 3.8-4. Ozone and $PM_{2.5}$ Ambient Air Monitoring Data from Stations Located Near the Campus

Monitoring Site	Year	Ozone		$PM_{2.5}$	
		8-hour Max (ppb)	8-hour Exceedances	24-hour Max (ug/m^3)	Annual (ug/m^3)
USEPA NAAQS		70	N/A	35	12
Lathrop E. Smith Environmental Education Center 5110 Meadowside Lane Rockville, MD (8 miles N of the Campus)	2017	**82**	-	25.4	6.1
	2016	**70**	-	**35.0**	6.4
	2015	**83**	-	30.8	9.6
	2014	67	-	27.7	9.0
	2013	**72**	-	27.4	8.1
2500 1st Street, N.W. Washington, DC (7 miles SE of the Campus)	2017	**76**	-	26.5,21.2	7.5
	2016	**79**	-	31.4, 31.5	7.9, 8.1
	2015	**78**	-	27.7, 27.2	8.9, 9.4
	2014	**80**	-	30.1, 24.0	9.6, 9.3
	2013	68	-	27.6, 27.3	9.1
350 Stafford Road Calvert, MD (5 miles SE of the Campus)	2017	**73**	-	*N/A*	
	2016	**75**	-		
	2015	68	-		
	2014	**72**	-		
	2013	**72**	-		
Park Services Office 1100 Ohio Drive Washington, DC (9.5 miles SE of the Campus)	2017			25.1	9.5
	2016			**41.2**	8.0
	2015			26.4	9.2
	2014			24.6	9.1
	2013			25.7	8.3

Source: USEPA, 2019j

Note: Bold text highlights the exceedances of ozone and PM2.5 NAAQS concentrations.

Table 3.8-5. CO Ambient Air Monitoring Data from Stations Located Near the Campus

Monitoring Site	Year	CO	
		1-hour Max (ppm)	8-hour Max (ppm)
USEPA NAAQS		35	9
Howard University's Beltsville Laboratory, 12003 Old Baltimore Pike Beltsville, MD (12.5 miles E of the Campus)	2017	1	.7
	2016	2.1	1.1
	2015	1.6	1
	2014	1.5	.9
	2013	1	0.9
2500 1st Street, N.W. Washington, DC (7 miles SE of the Campus)	2017	1.9	1.4
	2016	1.7	1.3
	2015	1.7	1.5
	2014	1.7	1.5
	2013	2.1	1.2

Source: USEPA, 2019j.

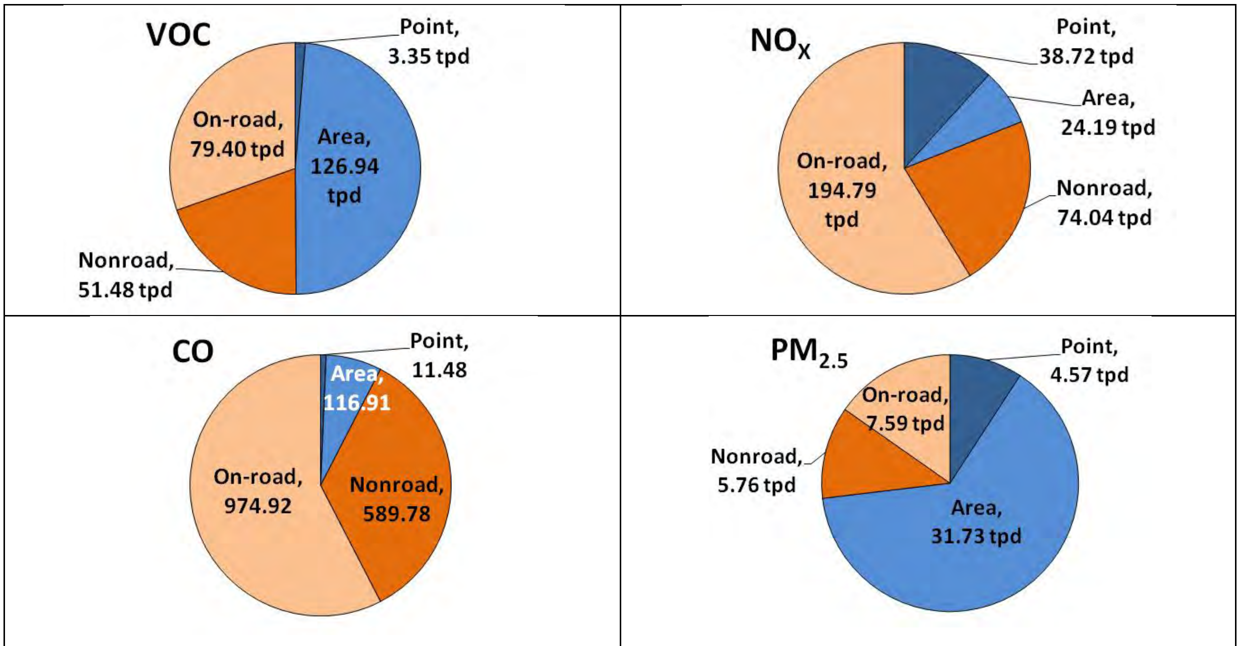


Figure 3.8-1. 2011 VOC and NO_X Annual Average Daily Emissions in the Washington Nonattainment Area by Sector Category

Campus

Stationary Emissions Sources

The primary source of stationary emissions at the Campus is the NIH CUP housed in Building 11. This plant consists of five boilers and a cogeneration unit (COGEN) that produce steam required by the Campus for heating and laboratory equipment sterilization. Boilers 1 through 5 are dual-fuel and can operate on either natural gas or No. 2 low sulfur content diesel oil. Each boiler has an individual stack diameter of 40 inches, and a central stack encompasses the individual stacks, routing their collective emissions to the atmosphere at a single release point at a height of 117 feet above ground level. The COGEN facility is separate from the boilers, and it has an 8-foot stack diameter and a height of 140 feet above ground level. Title V permit 24-031-00324 currently regulates several emission sources at the Campus including Boilers 1 through 5, the COGEN facility, gasoline storage tanks, and emergency diesel generators with a capacity over 375 kW (NIH, 2014a). The 2011 NOx emission inventory from the five boilers and COGEN boiler totaled 81.16 tons, which is well below the Title V permitted level of 137.3 tons.

In addition to the five boilers and COGEN boiler, the CUP also contains 12 chillers producing chilled water to air condition laboratories and other buildings. The operation of these chillers fluctuates with the outdoor temperature. During winter, the chillers experience their minimal/baseline requirement. All 12 chillers must operate when outdoor temperatures exceed 95°F, and they operate at approximately half capacity when outdoor temperatures are 75°F.

Emission units at the Campus also include 18 underground storage tanks (USTs) and 56 aboveground storage tanks (ASTs) that store fuel for powering boilers, generators, or vehicles. There are 63 permanently installed emergency generators at the Campus including the following fuel types: 55 diesel, seven natural gas, and one steam-driven. In addition, there are seven portable emergency generators. The combined capacity of the emergency generators is 53,590 kW. Many of these generators have an operational capacity larger than 375 kW and are therefore included in the Title V permit. Building 59A houses a central emergency generator plant with three 1,500-kW generators. Building 10 has five generators with a combined capacity of 2,635 kW, a mean capacity of 527 kW per unit. Buildings 14 and 28 (the animal care complex) have several emergency power generators that together can support the entire building demand of over 2,000 kW. Building 45 (office space) has a 1,000-kW generator capable of powering the full electrical needs of the building including computers. Other emergency generators throughout the Campus are smaller, only serving critical needs such as emergency lighting during an outage.

Laboratory buildings at the Campus are also stationary sources of air pollutant emissions. The emissions are typically not from combustion, and the types of pollutants released vary from day to day depending on experimental protocols. When required, experiments are performed in laboratories within sealed chambers connected to fume hoods that collect the airborne pollution and vent it to the atmosphere. Experiments with hazardous substances have fume hoods connected to a High Efficiency Particulate Arresting (HEPA) air filter before releasing the outflows. The HEPA filters remove dust, smoke, spores, bacteria, viruses, and other particles down to the 0.1-micron size.

Mobile Emissions Sources

The largest category of mobile source emissions at the Campus includes exhaust emissions from visitor and employee traffic at the Campus, Campus shuttle operations, and federal government vehicle fleet emissions. In addition to these fleets, other mobile sources include grounds maintenance vehicles, as well as temporary construction equipment activity.

Air quality analysis of traffic often focuses on CO as the reference pollutant because it is the NAAQS standard that would generally be exceeded as a result of vehicle emissions. A dispersion modeling analysis of CO emissions from worst case scenarios of high traffic levels at the Campus found that these mobile source emissions would not cause local exceedances of the CO NAAQS in 2013 (NIH, 2014a). Furthermore, vehicle emission rates of CO and other pollutants are projected to decrease in future years due to the introduction of cleaner technologies into fleets, the adoption of which are necessary to meet increasingly stringent federal emissions standards.

3.8.2 Greenhouse Gas Emissions

Background

GHGs are gases in the lower atmosphere that absorb infrared radiation emitted from the earth's surface and then radiate most of this energy back to the earth's surface. According to the IPCC, anthropogenic (human-generated) GHG emissions include the following: carbon dioxide (CO_2), nitrous oxide (N_2O), methane (CH_4), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6) (IPCC, 2014).

EO 13514 required federal agencies to compile annual GHG emission inventories and set GHG emission reduction targets for fiscal year (FY) 2020, relative to FY 2008. EO 13693, issued in May 2015, replaced EO 13514 and required federal agencies to establish new GHG emission reduction targets for FY 2025, also relative to FY 2008. Federal agencies were directed to submit the GHG targets to the CEQ, but associated guidance did not establish a schedule for CEQ's response to agencies or when the targets will be made public. EO 13834: Efficient Federal Operations, signed on May 17, 2018, revoked EO 13693, calls for federal agencies to prioritize actions that reduce waste, cut costs, enhance the resilience of Federal infrastructure and operations, and enable more effective accomplishment of its mission." Information about metrics, targets and overall guidance for this EO is currently pending (FedCenter, 2019).

USEPA classifies GHG emissions and reduction targets as Scope 1 (direct emissions), Scope 2 (indirect emissions from purchased energy), or Scope 3 (other indirect emissions). Scope 1 emissions include emissions from direct fossil fuel combustion such as in the operation of boilers, generators, incinerators, and vehicles operated by the organization, as well as fugitive emissions of refrigerants and other GHG gases (e.g., fire suppressants). Scope 2 emissions include upstream emissions from purchased electricity, steam, heating, and cooling. Scope 3 emissions include all other indirect emissions not included in Scope 2, such as emissions from employee commuting, employee business travel, transmission and distribution losses associated with purchased electricity, methane emissions from contracted solid waste disposal, methane and nitrous oxide emissions from contracted wastewater treatment, and upstream emissions associated with purchased products and services.

In response to various executive orders mentioned above, and EO 13423 which was issued in 2007, the HHS established agency-wide GHG reduction targets to reduce Scope 1 and Scope 2 GHG emissions by 10.3 percent and Scope 3 emissions by 3.3 percent by FY 2020, relative to emission levels in FY 2008. NIH contributes to HHS goals by implementing measures to reduce existing GHG emissions and attempting to minimize GHG emissions associated with new or expanded operations and buildings, through its Strategic Sustainability Performance Plan described below. NIH will similarly contribute to revised HHS goals, once HHS establishes those goals in accordance with EO 13834. The NIH developed its GHG inventory in accordance with the *Federal Greenhouse Gas Accounting and Reporting Guidance Technical Support Document* (TSD), issued by CEQ on 6 October 2010.

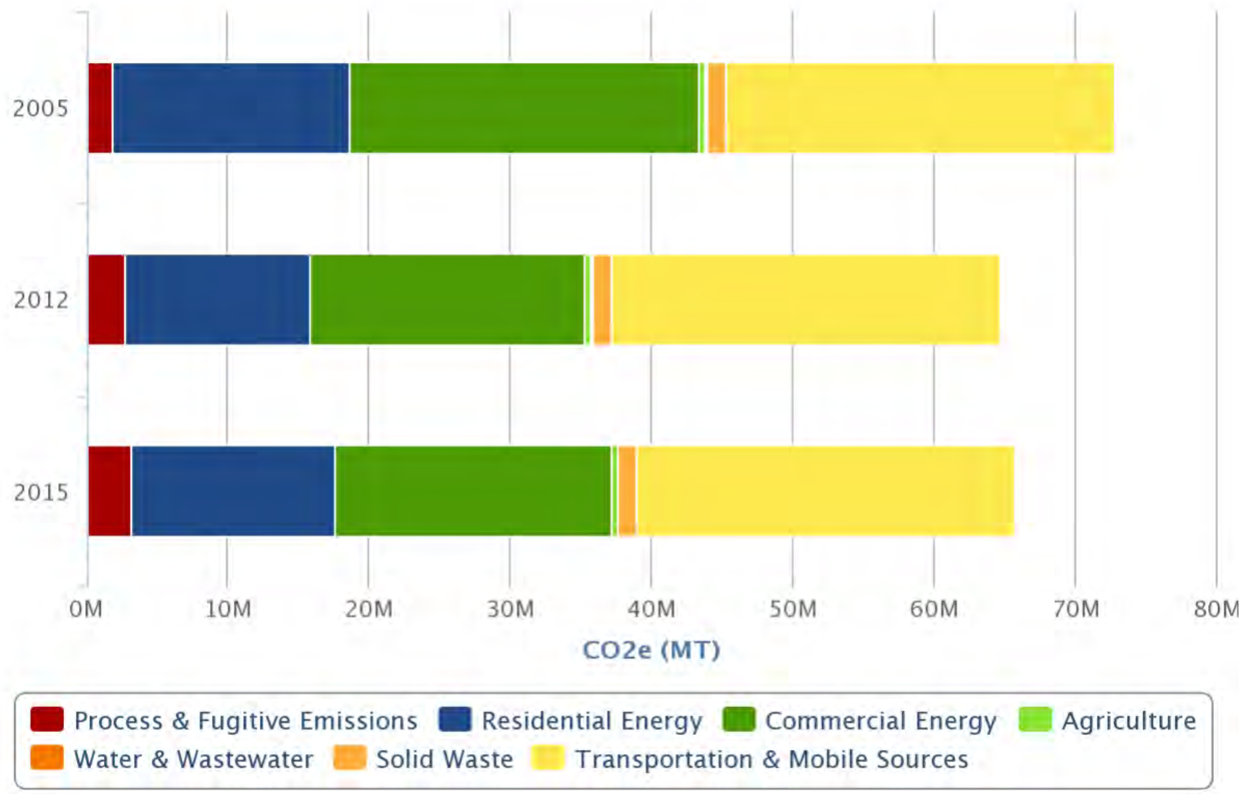
Region

<u>Emission Sources</u>

In 2008, MWCOG and local governments across metropolitan Washington collaboratively established regional GHG emission reduction goals of 10 percent below business as usual projections by 2012 (back down to 2005 levels); 20 percent below 2005 levels by 2020; and 80 percent below 2005 levels by 2050. Metropolitan Washington met the 2012 goal, demonstrating that GHG reductions are possible even as the population and economy grows.

In 2018, the MWCOG released a community-wide greenhouse gas inventory summary for the metropolitan Washington region (MWCOG, 2018a; Figure 3.8-2). The inventories measured GHG-emitting activities undertaken by residents, businesses, industry, and government located in Metropolitan Washington, as well as emissions from visitors. Emissions sources accounted for include:

- Electricity consumption from all sectors within the region;
- Combustion of natural gas and other fuels;
- Mobile transportation, including on-road vehicular travel, air travel, and commuter rail travel undertaken by residents, business, and visitors in the region, and off -road activities such as use of construction and landscaping equipment;
- Collection and treatment of solid waste produced by residents and activities within regional boundaries;
- Pumping and treatment of water and wastewater used or produced by residents and activities Agricultural emissions from enteric fermentation, manure management, and soils (including fertilizer application); and
- Fugitive emissions from ozone depleting chemicals and natural gas.



Source: MWCOG, 2018a

Figure 3.8-2. Community-Wide Greenhouse Gas Inventory Summary Metropolitan Washington 2005 – 2015

All emissions are reported in million metric tons of carbon dioxide equivalent (MMTCO2e) or metric tons of carbon dioxide equivalent (MTCO2e). The report shows that GHG emissions decreased by 10 percent between 2005 and 2015. Major report findings are:

- Despite a 16 percent growth in population, GHG emissions reduced from 72.7 MMTCO2e (million metric tons of carbon dioxide equivalent) in 2005 to 65.6 MMTCO2e in 2015.
- Per capita emissions decreased 22 percent between 2005 and 2015; from 15.8 MTCO2e (metric tons of carbon dioxide equivalent) in 2005 to 12.3 MTCO2e in 2015.
- In 2015, energy consumption (residential and commercial) accounted for 52 percent of GHG emissions and transportation and mobile sources accounted for 41 percent. Efficiency and switching to cleaner fuel sources contribute to GHG reductions.

Campus

Operations at the Campus produce GHG emissions through a variety of activities, including the following:

- Operation of Boilers 1-5, the COGEN facility, numerous emergency generators, Campus shuttles, and government vehicle fleets (Scope 1);
- Purchase of electricity (Scope 2); and
- Commuting of employees to the Campus, transmission and distribution losses from purchased electricity, and employee business travel (Scope 3).

These emission-generating activities provide the baseline to determine any changes in emissions resulting from construction and operation of new facilities under the Proposed Action. NIH has developed a GHG inventory addressing activities at the Campus to satisfy agency-wide GHG reporting requirements. Table 3.8-6 shows the MTCO2e GHG emissions from the NIH Bethesda Campus for 2017 and 2018 that meet the reporting requirements under 40 CFR 98. These emissions exceed 25,000 MTCO2e and are therefore required to be reported under the CAA.

Table 3.8-6. GHG Facility Emissions at the Campus CUP

GHG Pollutant	Year 2017	Year 2018
Emissions of CO2 in MTCO2e	193,956	206,912
Emissions of CH4 in MTCO2e	94	102
Emissions of N2O in MTCO2e	119	137
Total Facility Emissions of CO2e (excluding Biogenic CO_2)	**194,169**	**207,147**

The Campus receives power from PEPCO via three PEPCO-owned substations. Multiple electrical generating units supply the Campus with electricity, producing GHG emissions from electric generation. Employees and visitors to the Campus arrive by personal vehicle, carpool, Metrorail, or bus, which combust fossil fuels and produce GHG emissions. Lastly, employee business travel by plane, train, and automobile generates GHG emissions.

NIH's Strategic Sustainability Performance Plan established programs to include sustainability through the management of building design, construction, renovation, procurement, landscape, energy, water, waste, emissions, transportation, human health, and productivity. In response to Executive Order 13693, the NIH established a goal to reduce scope 1 and 2 GHG by 43 percent by 2025 from a 2008 baseline. The NIH has focused on energy conservation projects within the Bethesda Campus central utility plant to reduce both electricity use and fuel consumption. The NIH utilizes Utility Energy Savings Contracts to increase the performance of buildings to reduce energy consumption and associated GHG emissions. The NIH set a goal to reduce scope 3 GHG emissions by 25.4 percent by 2025 from a 2008 baseline. One of the main priorities is to reduce single car commuting through the NIH Transhare Program and the NIH Telework Program.

Executive Order 13693 also required OPDIVS to reduce the fleetwide per mile GHG emissions by 20 percent by FY2025. The NIH strategy to meet this requirement includes purchasing electric and hybrid vehicles, installing GPS on fleet vehicles to monitor use and increase efficiency, and the use of a Fleet Management Information System (FMIS) to track real-time fuel consumption. The NIH is awaiting final guidance from CEQ on Executive Order 13834 to determine what changes to the GHG programs will be needed to meet those new requirements.

3.9 Utilities

Background

Utilities are the basic services needed for a building or Campus to function. The Campus relies on a mix of on-site and off-site generated utilities. Potable water, natural gas, and electricity are supplied to the Campus from local utilities. In addition to directly supporting operations in Campus buildings, these are used to generate chilled water, steam, additional electricity, and compressed air in the onsite CUP. Fuel oil, supplied by offsite vendors and stored in tanks at the CUP, is used as a supplemental fuel to generate steam and additional electricity.

Regional and Local

Potable Water

The WSSC supplies potable water to more than 1.8 million people in Montgomery and Prince George's counties (WSSC, 2019). Two water filtration plants, the Patuxent and the Potomac, supply 390 million gallons per day (MGD) of potable water to a distribution network of more than 5,700 miles of water main lines. WSSC supplies potable water to the Campus through seven separate metered locations:

- 16-inch line at Old Georgetown Road and South Drive;
- 12-inch line at West Cedar Lane and Cedarcrest Drive;
- 12-inch line at West Cedar Lane and West Drive;
- 10-inch line at West Cedar Lane and West Drive;
- 10-inch line via Roosevelt Street in Edgewood/Glenwood;
- 8-inch line at Rockville Pike and Woodmont Avenue; and
- 8-inch line at South Drive and Rockville Pike.

Once the water enters the Campus, it is distributed through a network of NIH water mains ranging in size from 6 inches to 16 inches. The grid forms 14 square loops that surround individual clusters of buildings throughout the Campus.

The NIH uses potable water at the Campus primarily for drinking, sanitary needs, chilled water generation, and steam generation. In 2011 and 2012, the NIH used an average of 2.37 MGD of water. Peak daily water demand for the Campus is 3.84 MGD. Water usage is highest on weekdays between 8:00 am and 4:00 pm at approximately 1,000 gallons per minute (GPM), and lowest during the evening and weekends, decreasing to approximately 400 GPM.

EO 13693 requires government agencies, including the HHS, to reduce their potable water consumption intensity by 36 percent by FY 2025 compared to FY 2007. The NIH contributes to HHS's efforts toward this requirement by implementing water conservation measures and by evaluating water intensity impacts associated with planned projects.

Natural Gas

Washington Gas Light Company (Washington Gas) supplies natural gas to more than 1 million residential and business customers in Washington D.C., and in surrounding counties in suburban Maryland and Virginia (Washington Gas, 2019). Natural gas enters the Campus through mains along West Cedar Lane and Old Georgetown Road. Two eight-inch mains enter the Campus at the Washington Gas Pressure Regulating Station in the southwest corner of the Campus along Old Georgetown Road. One of the eight-inch mains delivers 100-pounds per square inch gauge (psig) natural gas to the CUP as fuel for the boilers. The natural gas supplied to the boilers accounts for over 99 percent of NIH's natural gas use on the Campus. The other eight-inch line follows the southern boundary before exiting the Campus along Rockville Pike to supply gas to the WRNMMC. The six-inch service main enters the Campus from West Cedar Lane and supplies low pressure 15-psig natural gas to 38 Campus buildings through a network of distribution pipes ranging in size from 3/8 inch to six-inch. Though Washington Gas owns and operates the service mains, the NIH owns and operates the smaller building service lines. There are approximately 15,000 linear feet of natural gas lines at the Campus.

A 2005 analysis indicated that the existing Campus infrastructure is capable of delivering approximately 700,000 cubic feet per hour of natural gas. This capacity is less than the theoretical peak natural gas demand of 739,500 cubic feet per hour; however, this theoretical peak demand assumes all dual-fuel equipment is operating solely on natural gas. Due to a curtailment agreement between Washington Gas and NIH, alternative fuels (e.g., oil) are utilized when temperatures drop below 27 degrees ˚F. Therefore, the actual peak demand for natural gas is lower than the theoretical peak demand and the physical capacity of the system does not limit the amount of gas supplied to Campus.

Electricity

PEPCO supplies electricity to Washington D.C. and Montgomery and Prince George's Counties. PEPCO supplies the Campus with electricity via three substations, located in Building 17, Building 46, and Building 63. Four 35-kilovolt (kV) lines distribute electricity to the Campus from Rockville Pike and three 35-kV lines distribute electricity to the Campus from Old Georgetown Road. The total Campus allotted capacity is 169,000 kilovolt-ampre (kVA). The substations are serviced through a combination of overhead and underground lines and are considered to have high operational reliability. The primary distribution network consists of over 21 miles of 13.8-kV lines directly serving all Campus buildings.

Chilled water production accounts for between 50 and 60 percent of the peak electricity demand. Peak electricity demand is 74,300 kVA and generally corresponds with peak chilled water demand.

Campus

Chilled Water

The NIH primarily utilizes chilled water for building climate control. The CUP has twelve 5,000-ton capacity chillers with a total nominal plant capacity of 60,000 tons and a firm capacity of 55,000 tons (NIH, 2019a). Peak chilled water demand within the Campus is 58,100 tons during the summer. Water is obtained from WSSC through the potable water distribution network. Nine of the chillers are powered by electricity and three of the chillers are capable of either electric or steam-powered operation. Chilled water generated at the CUP is distributed through more than 7 miles of major lines located in tunnels and utility trenches, and minor lines buried directly in the ground. The main chilled water tunnel runs north-south between Building 11 and the Clinical Center and continues south to service Building 14. Buildings to the south of Building 11 and buildings in the northeast section of the Campus are serviced through pipes in utility trenches.

Steam

Steam for heating buildings is generated within the CUP through a combination of five natural gas boilers and a natural gas fired COGEN. Four of the boilers are rated at 150,000 pounds per hour (pph) and the fifth is rated at 200,000 pph. The COGEN unit is rated at 107,000 pph but can supply up to 180,000 pph when the turbine heat is supplemented by fuel oil-fired duct-mounted burners. The COGEN unit uses exhaust air from the turbine to generate steam at the same temperature and pressure as the boilers. The total nominal capacity is 907,000 pph and the firm capacity is 707,000 pph; however, the NIH can generate 980,000 pph of steam for short periods of time using the additional capacity of the COGEN unit. Peak steam demand within the Campus is 880,600 pph during the winter months when peak heating occurs.

Fuel oil is used in the dual-fuel boilers during natural gas curtailment periods and in duct-mounted burners in the COGEN unit during maximum electricity and steam production. The CUP has two main 567,000-gallon USTs for fuel oil storage. There are also two 100,000-gallon USTs for fuel oil storage located adjacent to Building 34. Building 58 serves as a transfer station between the main tanks and the day tanks via a 1,550-LF underground trench.

A network of pipes distributes steam across the Campus. The network includes approximately 11,000 linear feet of pipe in utility tunnels, 5,000 feet of pipe in trench envelopes, and 68,000 feet of direct buried pipe. Steam is distributed to individual buildings where it is used for space heating, domestic water heating, laboratory bench supply, animal cage cleaning, humidification, and sterilization of laboratory and hospital equipment.

<u>Supplemental Electricity</u>

Supplemental electricity is generated by the COGEN unit in the CUP. The COGEN unit has a nominal gross capacity of 23 Megavolt-amps (MVA) and generates approximately 19.6 MVA of electricity. The COGEN unit generates both electricity and steam at a high efficiency and is therefore operated continuously. The electricity generated by the COGEN unit is delivered via a 15-kV underground cable to the NIH West Substation. Campus electricity demand is highest during the summer when extra electricity is required to operate the chillers at the CUP.

<u>Emergency Electricity</u>

The Campus has 63 permanently installed generators with a total capacity of 52,050 kW and seven portable trailer-mounted generators with a total capacity of 1,540 kW that supply emergency electricity. Fifty-five generators are diesel powered, seven are natural gas powered, and one is steam powered.

<u>Compressed Air</u>

The CUP generates compressed air at 125 psig and delivers the air throughout the Campus at approximately 110 psig. Compressed air is used for process needs and provides the motive force for operating duct dampers in HVAC systems. The distribution system includes a network of pipes to the north, south, and west of the CUP.

Site of the Evaluated Alternative

A review of the locations of Campus utilities in the vicinity of the Proposed Action in the Campus Master Plan (NIH, 2014a) identified the following:

- A utility tunnel underlies the proposed location of the SRLM Building, PPG, and UV;
- Two utility corridors extend off the utility tunnel west from the location of the PPG to the Convent;
- Steam and chilled water utility tunnels extend off the utility tunnel east from the location of the PPG towards the CC;
- Electrical ducts underlie the proposed location of the SRLM Building, PPG, and UV; and
- Water mains pass through the utility tunnel underlying the proposed location of the SRLM Building, PPG, and UV, and also underlie Convent Drive and a portion of the proposed location of the SRLM Building outside of the utility tunnel.

3.10 Sustainability

Background

The NIH requires the incorporation of sustainable and high performance design principles in all planning, siting, design, construction, operation, maintenance, and decommissioning in order to promote the health of the public and employees and minimize potential impacts of its mission activities on the environment.

EO 13693, issued March 19, 2015, replaced requirements of EO 13514, issued October 5, 2009, which incorporated and expanded on requirements of EO 13423, issued January 4, 2007. EO 13693 requires that federal agencies achieve the following:

- Ensuring that all new construction of Federal buildings greater than 5,000 gross square feet that enters the planning process is designed to achieve energy net-zero and, where feasible, water or waste net-zero by 2030 (beginning in 2020).
- Identifying at least 15% by number or total square footage of NIH existing buildings above 5,000 gross square feet that will, by 2025 comply with the Guiding Principles for Sustainable Federal Buildings (CEQ, 2016), and making annual progress toward 100% conformance for building inventory.
- Identifying a percentage of existing buildings above 5,000 square feet intended to be energy, waste, or water net-zero buildings by fiscal year 2025 and implementing actions that will allow these buildings to meet the target.
- Including in the building planning for new buildings, cost-effective strategies to optimize sustainable space usage and consideration of existing community transportation planning and infrastructure, including access to public transit.
- Ensuring all new construction, major renovation, repair, and alterations of agency buildings include appropriate design and deployment of fleet charging infrastructure.
- Including the incorporation of climate-resilient design and management elements into the operation, repair, and renovation of existing agency buildings and the design of new agency buildings.

The Guiding Principles require buildings to implement or achieve a combination of sustainable requirements such as optimizing energy performance, protecting and conserving water, enhancing the indoor environmental quality, and reducing the environmental impacts of materials. Because construction and operation of buildings represent the largest source of NIH's environmental impacts, meeting this requirement is anticipated to result in significant reductions in Campus energy and water use, material use, waste generation, and GHG emissions.

Campus

The NIH contributes to HHS's efforts toward these requirements by implementing energy conservation measures and by designing new buildings to minimize energy consumption. In recent years, boilers at the Campus have been modernized to include economizers and to burn natural gas instead of fuel oil. Three boilers feature oversized combustion chambers leading to more efficient steam generation. The COGEN unit, installed in 2003, produces both electricity and steam at over double the efficiency (75 percent compared to 35 percent) of traditional power plants. The COGEN unit uses clean burning natural gas as its fuel source, thus reducing GHG emissions. The use of the COGEN unit also uses combined heating and power generation to reduce energy demand, and can additionally reduce energy demand by using the CUP's three steam powered chillers to produce both electricity and chilled water. Current chillers at the CUP are more efficient than the older units and use 32 percent less energy. The Campus also utilizes "free cooling" heat exchangers that use outdoor air to cool returned chilled water during the winter.

The NIH FY 2019-2020 Sustainability Implementation Plan (NIH, 2019b) summarizes the applicable goals and objectives, as well as the implementation status, in the areas of energy efficiency, use of renewable energy, water efficiency, high performance sustainable buildings, waste management and diversion, transportation and fleet management, electronics stewardship, and greenhouse gas emissions. New construction and major renovation projects at the Campus must obtain a third party green building certification. Also, site development must be conducted in accordance with Technical Guidance on Implementing the Stormwater Runoff Requirements for Federal Projects under Section 438 of EISA 2007. The NIH has incorporated these various environmental and sustainability requirements into the NIH *Design Requirements Manual* (DRM; NIH, 2018). The NIH applies the DRM to all design and construction projects.

To work towards meeting the requirements listed above, the NIH will continue to implement energy and water conservation measures at the Campus, such as:

- Installation of energy monitoring and control systems to provide for night time and off-peak hour energy cutbacks to non-critical areas;
- Sub-metering of steam, chilled water, and electrical distribution systems for evaluation of implemented energy savings measures;
- Computerized control and monitoring of steam and chilled-water production and distribution systems;
- Replacement of existing steam lines as necessary to solve leakage problems;
- Installation of new energy efficient chillers to replace older, less efficient equipment; and
- Efficiency improvements in chilled water distribution temperature differentials.

Green or sustainable building is the practice of designing, constructing, operating, maintaining, and removing buildings in ways that conserve natural resources, reduce energy and water consumption, improve the health of occupants and minimize pollution. The NIH has established a sustainable building program across all if its campuses to guide NIH's practices toward sustainability through the management of building design, construction, renovation, procurement, landscape, energy, water, waste, emissions, transportation, human health, and productivity (NIH, 2019c). NIH Sustainable Building Strategies include:

- Campus Wide - protecting and retaining existing landscaping and natural features; the use of plants that have low water and pesticide needs, and generate minimum plant trimmings; no irrigation systems for Campus landscape plantings; extensive public transportation access, both buses and Metrorail; and a Van and Carpools program as well as actively promoting teleworking (NIH, 2019d).
- Passive Design Systems - affect building energy performance - building shape and orientation; passive solar design (use of the sun's energy for the heating and cooling); and the use of natural lighting (NIH, 2019e).
- Active Control Systems - the use of technology and energy to heat and cool; NIH design techniques include: renewable energy sources, solar hot water heating, photovoltaic arrays, geothermal/ground source heat pumps, chilled beam technology, energy recovery wheels/systems, energy efficient lighting to (automatic dimming controls, daylight sensors, occupancy sensors, glare controls, use of led lighting), reductions the number of air changes in laboratories during unoccupied periods, and energy star rated equipment (NIH, 2019f).
- Third Party Certification – LEED assessments and certifications (NIH, 2019g).
- Global Information System - NIH is in the process of constructing a Geographic Information System (GIS) database that will be utilized to capture all sustainable building information and display it in an interactive real time format. This GIS database will allow all users to continually track and view how their buildings are performing, providing a vital tool to see whether or not the energy and water conservation and reduction strategies that have been implemented have worked (NIH, 2019h).

3.11 Wastes, Hazards, and Safety

3.11.1 Non-Hazardous Solid Wastes

Background

Municipal solid waste (MSW) is any garbage, refuse, sludge, or other discarded material including solid, liquid, semisolid, or contained gaseous material resulting from industrial, commercial, agricultural, or community activities.

Federal agencies are required to manage their facilities in accordance with various federal and state regulations governing MSW disposal. Several EOs set goals for the federal government to conduct operations in a manner that is sound in terms of energy efficiency, toxic chemical reduction, recycling, sustainability, and water conservation (e.g., EO 13693, *Planning for Federal Sustainability in the Next Decade*; and EO 12873, *Federal Acquisition, Recycling, and Waste Prevention*). In addition, the USEPA's *Guidelines for the Thermal Processing of Solid Wastes* (40 CFR 240) and *Guidelines for the Storage and Collection of Residential, Commercial, and Institutional Solid Waste* (40 CFR 243) provide specifications for the treatment and disposal of MSW.

Subtitle D of the Resource Conservation and Recovery Act (RCRA) encourages states to initiate and oversee the implementation of solid waste management plans in order to promote recycling practices. Maryland requires that each county adopt a ten-year solid waste management plan and that MDE review this plan. The *Montgomery County Comprehensive Solid Waste Management 10 Year Plan, 2012-2023*, developed in response to this requirement, lays out the guidelines for the management of solid waste disposal systems, solid waste acceptance facilities, and the collection and disposal of solid waste.

The Maryland Recycling Rates and Waste Diversion Goal Act (2012) required a County plan to reduce, through recycling, of at least 35 percent of the County's wastestream, and implementation of the plan by December 31, 2015. Pursuant to this, Montgomery County established a goal to achieve, maintain, or exceed 70 percent recycling by the end of 2020 (Montgomery County, 2015).

In 2015, Americans generated about 262 million tons of trash and recycled or composted almost 91 million tons of this material, equivalent to a 34.7 percent recycling rate. On average, Americans recycled or composted 1.55 pounds out of our individual waste generation rate of 4.48 pounds per person per day. Over the last few decades, the generation, recycling, composting, and disposal of MSW have changed substantially. Solid waste generation per person per day peaked at 4.74 pounds per person per day in 2000, although the 2015 rate of 4.48 pounds per person per day is an increase over 4.45 pounds per person per day in 2014. The recycling rate has increased from less than 10 percent of MSW generated in 1980 to over 34.7 percent in 2015. Disposal of waste to a landfill has decreased from 89 percent of the amount generated in 1980 to 52.5 percent of MSW in 2015 (USEPA, 2018b).

Campus

Information on the management of general waste and recycling is described in the *NIH Waste Disposal Guide* (NIH, 2014b). Solid waste at the Campus includes office waste, disposable paper products, plastics, glass, wood, animal bedding which is not contaminated, cafeteria waste, and a small amount of residential trash. It also includes yard waste and waste from Campus maintenance and construction.

General waste is collected by custodial staff and placed in about 60 dumpsters located throughout the Campus. Yard and construction waste are handled separately by ground maintenance. A private contractor collects the waste and disposes of it at the Montgomery County Transfer Station where fees are paid to the County on a pass-through basis. Approximately 8 to 12 truckloads per weekday are hauled to the transfer station.

The NIH has a proactive recycling program. Items recycled include mixed paper, aluminum, glass, tin, plastic, corrugated cardboard, electronics, Tyvek suits, toner cartridges, fluorescent lamps, batteries, scrap metal, wooden pallets, x-ray films, and yard waste.

3.11.2 Hazardous Wastes

Background

A hazardous waste is defined by USEPA as a solid waste that exhibits a characteristic of ignitability, corrosivity, reactivity, or toxicity, or is specifically listed as a hazardous waste. Federal, state, and county laws regulate hazardous wastes. Chemical waste includes discarded non-radioactive chemicals, including hazardous and nonhazardous chemicals. Chemical waste includes items defined as Hazardous Wastes (40 CFR 261), Hazardous Substances (40 CFR 302.4), Hazardous Materials (40 CFR 171.8), and Controlled Hazardous Substances (26 COMAR 13.02.06).

RCRA authorizes USEPA to control hazardous waste from “cradle to grave.” This lifecycle includes the generation, transportation, treatment, storage, and disposal of waste. USEPA has delegated the enforcement of RCRA in Maryland to MDE. USEPA also controls toxic chemicals through the Toxic Substances Control Act (TSCA), which addresses chemical substances and mixtures whose manufacture, processing, distribution in commerce, use, or disposal may present an unreasonable risk of injury to health or the environment.

Campus

The *NIH Waste Disposal Guide* (NIH, 2014b) also describes the regulations and requirements for the handling, storage, and disposal of chemical, multi-hazard, radioactive, and medical pathological waste (MPW) waste at the Campus. The NIH handles chemical waste with toxic or hazardous characteristics in accordance with hazardous waste requirements, even if the waste does not meet the regulatory definition of hazardous waste. Examples of this type of waste frequently encountered at the Campus include salts, sugars, agar, enzymes, nutrients, saline solutions, and silica. Most of the chemical waste at the Campus consists of used, spent, or surplus chemicals. NIH’s generation of chemical waste at the Campus follows no particular pattern. The amount generated can range from 143 to 318 TPY depending on individual and collective research programs that are underway at any given time.

Multi-hazard waste is an NIH term for a waste that meets the definition and properties of more than one of the restricted wastes (medical-pathological waste, radioactive waste, and chemical waste). Examples of multi-hazard wastes are aqueous radioactive waste with trace levels of chloroform or heavy metals, radioactive methanol/acetic acid solutions from protein precipitations, phenol/chloroform mixtures used to extract DNA from radioactively labeled cells, and chemical or radioactive waste containing blood.

Prior to 1987, the NIH conducted its hazardous waste activities at the Campus under an “interim status” hazardous waste facility authorization from the USEPA. Since that year, the NIH has managed hazardous waste under the terms and conditions established by an agreement with MDE. The NIH has a RCRA hazardous waste management facility operating permit for the Campus. The permit allows the NIH to continue to conduct the following hazardous waste management activities: provide short-term storage of hazardous waste in approved containment until disposal or treatment can be arranged; chemically and physically treat hazardous waste to render it non-hazardous, reduce hazard, or reduce volume; provide longer-term storage of hazardous waste (mixed waste) for which offsite disposal or treatment is currently unavailable; and receive hazardous waste from off-Campus NIH facilities for treatment and storage along with Campus-generated waste.

Treatment methods used by the NIH include bulking, blending, neutralization, and detoxification using carbon adsorption and ultraviolet peroxidation to reduce the amounts of hazardous waste or make the substances less hazardous. The RCRA permit allows the NIH the capacity to store up to 26,360 gallons of liquid hazardous waste at the Campus for subsequent treatment, transport, and disposal.

Site of the Evaluated Alternative

No known hazardous wastes or contamination with hazardous materials are known to be present at the proposed sites of the SRLM Building, PPG, or UV.

The Proposed Action would include renovation of a portion of Building 10. Current operations within Building 10 generate wastes and, as a result, portions of this building may contain or be contaminated with hazardous materials, including lead, asbestos, polychlorinated biphenyls (PCBs), and mercury. NIH would follow federal, state, and local waste management and disposal procedures to ensure that the project site does not become contaminated as a result of renovation activities. Therefore, this EIS assumes that all hazardous materials would have been properly removed from the site prior to the actions analyzed in this EIS.

3.11.3 Safety

Site of the Evaluated Alternative

As discussed in Section 1.2.3 (Security and Safety), the NIH has identified the potential for a future increase in unsafe conditions in the Building 10 garage, which is underneath Building 10. The existing garage has serious structural deficiencies due to corrosion of the concrete and underlying (exposed) rebar, despite on-going maintenance. This condition poses a safety threat to users of the facility, and a liability threat to the government, due to the potential for falling pieces of concrete.

3.12 Socioeconomics

Socioeconomics examines the social impact of economic change. Components of socioeconomic resources that are analyzed include population, housing, employment, income, and recreational activities. A subset of socioeconomics is environmental justice. Environmental justice strives to ensure negative socioeconomic impacts do not disproportionately impact sensitive populations, such as minorities and low-income communities.

This section describes the socioeconomic resources in the vicinity of NIH, including minority and poverty characteristics related to environmental justice.

3.12.1 Social Resources and Sensitive Populations

Background

Social resources consist of elements of the environment integral to personal and community dynamics, including population, housing, education, and open spaces. Access to these resources is essential to maintaining sustainable communities.

Sensitive populations are identified in two executive orders:

- EO 12898, *Federal Actions to Address Environmental Justice in Minority and Low-Income Populations* (Federal Register, 1994), serves to avoid the disproportionate placement of adverse environmental, economic, social, or health impacts from federal actions and policies on minority and low-income populations.
- EO 13045, *Protection of Children from Environmental Health Risks and Safety Risks* (Federal Register, 1997), states that federal agencies will identify and address environmental health and safety risks from their activities, policies, or programs that may disproportionately affect children.

Campus and Region

The project area is located in Bethesda, an unincorporated, census-designated place in southern Montgomery County, Maryland, located approximately 7 miles northwest of the U.S. capital of Washington, D.C. (United States Census Bureau [USCB], 2014; Google Earth, 2019). The 2017 estimated population of Montgomery County is 1,031,108 (USCB, 2019a). Population increased 18.1 percent between 2000 and 2017, a faster rate of growth as compared to the state (10.6 percent) and national (11.2 percent) levels for the same period. According to the Maryland Statistical Handbook (Maryland Department of Planning, 2017), Montgomery County is one of the fastest growing counties in the state. As projected by the State of Maryland, the county's population is estimated at 1,128,800 by 2030, indicating continued growth, although at a slower rate of increase (9.5 percent) (MWCOG, 2018b). The county's projected growth is less than the projected state and national population growth. Population trends and projections are presented in Table 3.12-1.

Table 3.12-1. 2000 – 2030 Population Data

Area	2000	2010	2017 Estimated	2030 Projection	Percent Increase 2000 - 2017	Percent Increase 2017 - 2030
Bethesda CDP[a]	55,277	60,858	62,346	n/a	12.79	n/a
Montgomery County	873,341	971,777	1,031,108	1,128,800	18.06	9.47
Maryland	5,296,486	5,773,552	5,856,088	6,518,750	10.57	11.32
United States	281,421,906	308,745,538	313,048,563	355,101,000	11.24	13.43

Source: U.S. Census Bureau, 2019a; 2019b; 2019c; 2019d; and MWCOG, 2018b

[a] A Census-Designated Place (CDP) is a concentration of population identified by the United States Census Bureau for statistical purposes, and does not necessarily align with city limits.

Table 3.12-2 illustrates minority, low-income and housing demographic data from the decennial 2000 and 2010 censuses, and estimates for 2017 for Bethesda (the project area vicinity) as well as county, state and national levels.

Sensitive populations, such as low-income families, minorities, and children are present within both Bethesda and Montgomery County. Minority populations (i.e. populations of a majority of all non-white racial groups combined and/or Hispanic or Latino populations) are present in the vicinity of the project area. As shown in Table 3.12-2, the vast majority of people living in Bethesda are white. In 2010, minorities comprised just 22.2 percent in Bethesda, significantly lower than the Montgomery County (50.7 percent) and the State (45.3 percent) levels. In 2017, minority population increased to 25 percent in Bethesda, with corresponding increases in the County (55 percent) and State (48 percent) (USCB, 2019e; USCB, 2019f). Generally, if the minority population of the affected area exceeds 50 percent or more of the total population (as defined by the U.S. Census) a minority population exists. Alternatively, a minority population exists if the percentage of minority individuals within the affected area is meaningfully greater than the percentage within the general population (i.e. Montgomery County). Since the minority population of the surrounding community does not meet either of these thresholds, the project does not have the potential to disproportionately affect minority communities.

Low-income populations were not identified within the proposed project vicinity in the census designated place of Bethesda. The portion of the population in Bethesda that had income below the poverty level in

2010 decreased to 2.6 percent, from 3.3 percent in 2000. Montgomery County's low income population increased slightly to 6 percent in 2010, from 5.4 percent in 2000. Maryland's low income population similarly increased slightly to 8.6 percent in 2010, from 8.3 percent in 2000 (USCB, 2019g; USCB, 2019h). In 2017, Bethesda's low income population increased slightly to 2.8 percent, while both the county and national levels showed greater increases to 7 percent and 9.7 percent respectively (USCB, 2019e). Generally, a low-income population exists if a community has 50 percent or more of its residents living below the poverty threshold (as defined by the U.S. Census) or its population of poverty level residents is meaningfully greater than the proportion of low-income individuals within the general population (i.e. Montgomery County). Since the low-income population of the surrounding community does not meet either of these thresholds, the project does not have the potential to disproportionately affect low-income communities.

Results of an EJSCREEN report (USEPA, 2019k) of an area within a 5 mile radius of the project site indicated that while low-income and minority populations exist in the vicinity of the project area, these populations are in relatively low proportion as compared to the state average, and therefore do not contain sensitive populations subject to environmental justice consideration.

Residential housing includes single-family homes, apartments, condominiums, and townhouses. The 2010 census reported 27,470 housing units in Bethesda, with a 92.9 percent occupancy rate, and 7.1 percent vacancy rate. Bethesda's estimated 2017 housing indicators show substantially similar results. The 2010 Census reported a total of 375,905 housing units within Montgomery County with only a 5 percent vacancy rate, which was lower than Bethesda's vacancy rate as well as the state vacancy rate of 9.3 percent. Total housing units in the county grew to 386,587 in 2017, a 2.8 percent increase. In 2010, the median home value in Bethesda was $798,900, significantly higher than Montgomery County (76 percent higher) and Maryland as a whole (154 percent higher). In 2017, median home value grew 9.8 percent to $877,300 in Bethesda; almost triple the state of Maryland median value of $296,500. The vacancy rate in Montgomery County fell from 5 percent in 2010 to 4.5 percent in 2017, while the state's vacancy rate increased from 9.3 percent to 10.1 percent over the same time period. Bethesda's vacancy rate declined slightly to 6.7 percent during the same period (USCB, 2019b; 2019c; and 2019i). Housing occupancy and trends in Bethesda, Montgomery County and Maryland are shown in Table 3.12-2.

Educational resources in the area surrounding the NIH Campus include private and public schools, the Uniformed Services University of the Health Sciences (located on nearby military base), and the Foundation for Advanced Education in the Sciences. Public schools in Bethesda include three high schools, three middle schools, and 11 elementary schools.

There are 21 private schools serving religious and nonsectarian students from pre-kindergarten through 12th grade (Schooldigger, 2019).

Shared and open spaces in the vicinity of the Campus include the Bethesda Trolley Trail and the Capital Crescent Trail. The Bethesda Trolley Trail is a 4-mile long shared-use path that links Bethesda and North Bethesda. It runs along the perimeter of the National Institutes of Health and crosses both I-270 and I-495 via pedestrian and bicycle access only bridges. The Capital Crescent Trail is an 11-mile long car-free hiker-biker trail serving downtown Bethesda which leads to Washington D.C. (Bethesda Transit Solutions, 2018).

Table 3.12-2. 2000 – 2017 Minority, Low-Income and Housing Demographic Data

	2000			2010			2017 Estimated		
	Bethesda CDP[a]	Montgomery County	Maryland	Bethesda CDP[a]	Montgomery County	Maryland	Bethesda CDP[a]	Montgomery County	Maryland
Total Population	55,277	873,341	5,296,486	60,858	971,777	5,773,552	62,346	1,031,108	5,856,088
White [b]	45,210 (81.8%)	519,318 (59.5%)	3,286,547 (62.1%)	47,327 (77.8%)	478,765 (49.3%)	3,157,958 (54.7%)	46,748 (75.0%)	464,378 (45.0%)	3,043,026 (52.0%)
Minority	10,067 (18.2%)	354,023 (40.5%)	2,009,939 (37.9%)	13,531 (22.2%)	493,012 (50.7%)	2,615,594 (45.3%)	15,598 (25.0%)	566,730 (55.0%)	2,813,062 (48.0%)
Low-Income	1,828 (3.3%)	47,024 (5.4%)	438,676 (8.3%)	1,522[c] (2.6%)	56,011[c] (6.0%)	476,732[c] (8.6%)	1,761[d] (2.8%)	72,085[d] (7.0%)	566,966[d] (9.7%)
Total Housing Units	24,368	334,632	2,145,283	27,470	375,905	2,378,814	27,074	386,587	2,427,014
Occupied Units	23,659 (97.1%)	324,565 (97.0%)	1,980,859 (92.3%)	25,512 (92.9%)	357,086 (95.0%)	2,156,411 (90.7%)	25,273 (93.3%)	369,242 (95.5%)	2,181,093 (89.9%)
Vacant Units	709 (2.9%)	10,067 (3.0%)	164,424 (7.7%)	1,958 (7.1%)	18,819 (5.0%)	222,403 (9.3%)	1,801 (6.7%)	17,345 (4.5%)	245,921 (10.1%)
Median Value, Owner-Occupied	$396,400	$221,800	$146,000	$798,900	$482,900	$329,400	$877,300	$467,500	$296,500

Source: U.S. Census Bureau, 2019a; 2019b; 2019c; 2019d; 2019e; 2019f; 2019g; 2019h; and 2019i

[a] A Census-Designated Place (CDP) is a concentration of population identified by the United States Census Bureau for statistical purposes, and does not necessarily align with city limits.

[b] Data used are representative of the white population alone.

[c] 2010 data for "Low-Income" is derived from the 2010 5 year American Community Survey as 'population for whom poverty status is determined'. 2000 data for "Percent Low-Income" are reported in 2000 Census as percentage of individuals below poverty level.

[d]2017 data for "Low-Income" is derived from the 2017 5 year American Community Survey as 'population for whom poverty status is determined'.

3.12.2 Economics

Background

Economics analyzes the production, distribution, and consumption of goods and services. Economic drivers are industries, such as manufacturing and biomedical research, which direct and push the economy by providing jobs, goods, and services. Economic indicators allow analysis of economic performance and predictions for future performance. Common economic indicators include income, poverty rate, and employment rate.

Campus and Region

Several major economic drivers in Montgomery County support a viable economy. Due to the county's proximity to Washington, D.C., the federal government provides a number of employment and economic opportunities to the area through a variety of governmental agencies, such as the NIH, the Food and Drug Administration, and the National Institute of Standards and Technology. Civilian employment by industry in Montgomery County is shown in Table 3.12-3.

Table 3-12-3. Montgomery County Civilian Employment Age 16 and Over by Industry (2017)

Industry	Number	Percent
Total	**554,085**	**100.0**
Educational Services, and Health Care and Social Assistance	120,638	21.8
Professional, Scientific, and Management, and Administrative and Waste Management Services	120,186	21.7
Public Administration	62,343	11.3
Arts, Entertainment, and Recreation, and Accommodation and Food Services	46,343	8.4
Other Services, Except Public Administration	38,694	7.0
Retail Trade	42,259	7.6
Finance and Insurance, and Real Estate and Rental Leasing	37,501	6.8
Construction	31,271	5.6
Manufacturing	15,903	2.9
Information	15,041	2.7
Transportation and Warehousing, and Utilities	15,356	2.8
Wholesale Trade	7,366	1.3
Agriculture, Forestry, Fishing and Hunting, and Mining	1,184	0.2

Source: U.S. Census Bureau, 2017 5 year ACS (USCB, 2019j)

As shown in Table 3.12-3, the leading industries in Montgomery County are educational services, health care and social assistance (21.8 percent) with the professional, scientific, and management services sector following closely behind (21.7 percent). This is in large part due to the presence of NIH and a strong biotechnology and life science cluster (ThinkMoco, 2018). Economic indicators suggest an overall healthy economy in Montgomery County and in the area surrounding the Campus. Job growth in the county is projected to increase 30.5 percent by the year 2045, adding approximately 158,600 jobs (MWCOG, 2018b). According to 2017 Census Bureau estimates, the median income is nearly $103,178 in Montgomery County, which is 175 percent higher than the national estimate of $57,652. Median income is nearly $154,559 in Bethesda. The estimated unemployment rate in Montgomery County was 3.9 percent in 2017, which was lower than the state unemployment rate of 4.1 percent (USCB, 2019j). As discussed above, the poverty rate in Bethesda and Montgomery County was 2.8 percent and 7 percent respectively, among the lowest in the nation. Employment data for Bethesda, Montgomery County, Maryland and the nation are shown in Table 3.12-4.

Table 3.12-4. Economic Characteristics for Bethesda, Montgomery County, Maryland, and U.S. (2017)

Economic Characteristic	Bethesda CDP		Montgomery County		Maryland		US	
	Number	Percent [a]	Number	Percent[a]	Number	Percent[a]	Number	Percent[a]
Total labor Force (Civilian)	33,971	67.5	585,924	71.3	3,239,167	67.5	161,159,470	63.0
Employed in Labor Force	32,807	65.2	554,085	67.4	3,040,792	63.3	150,599,165	58.9
Unemployed in Labor Force	1,164	2.3	31,839	3.9	198,375	4.1	10,560,305	4.1%
Median Household Income ($)	154,559	--	103,178	--	78,916	--	57,652	--
Individuals Below Poverty Level	1,761	2.8	72,085	7.0	566,966	9.7	45,650,345	14.6

Source: U.S. Census Bureau, 2017 5 year ACS (USCB, 2019j)
[a] Percent of total population.

3.13 Cultural and Historic Resources

Historic properties include prehistoric or historic districts, sites, buildings, structures, or objects that are significant in American history, architecture, archeology, engineering, and culture. Historic properties serve as resources, as they provide valuable information about the history of human life and cultures.

To ensure the protection of historic resources, the United States Congress passed the National Historic Preservation Act (NHPA) in 1966 and subsequently amended the NHPA several times, most recently in 2006. The NHPA established the Advisory Council on Historic Preservation (ACHP) and authorized the creation and maintenance of the National Register of Historic Places (NRHP; “the National Register”). The National Register is composed of districts, sites, buildings, structures, and objects that are significant in American history, architecture, archeology, engineering, and culture.

Typically, properties considered eligible for inclusion in the National Register are at least 50 years old. A property is eligible for inclusion in the National Register if it: 1) possesses the integrity of location, design, setting, materials, workmanship, feeling, and association, and 2) meets at least one of the following National Register Criteria for Evaluation (USDOI, 2015):

1. It is associated with events that have made a significant contribution to the broad pattern of U.S. history (Criterion A);
2. It is associated with the lives of persons significant in our past (Criterion B);
3. It embodies the distinctive characteristics of a type, period, or method of construction; it represents the work of a master; it possesses high artistic values; or it represents a significant and distinguishable entity whose components may lack individual distinction (Criterion C); and/or

4 It has yielded or may be likely to yield important information in prehistory or history (Criterion D).

Section 106 of the NHPA, which is implemented under 36 CFR 800, requires federal agencies to consider the effects of undertakings (i.e., actions) on any historic property, and to afford the ACHP a reasonable opportunity to comment on such undertakings. An adverse effect is anything that could alter the historic fabric (i.e., characteristics) that makes the property eligible. Examples of adverse effects may include changes to the property or alterations to landscape, noise levels, visual characteristics, traffic patterns, or land use near the property, depending on how these changes specifically impact the property.

The NHPA also authorized the creation of a State Historic Preservation Officer (SHPO) for each state. The SHPO participates in statewide historic preservation planning and surveying activities; nominates properties for the National Register; provides advice, assistance, training, and public outreach; and participates in Section 106 undertaking reviews. In Maryland, the Maryland Historical Trust (a division of the Maryland Department of Planning) serves as the MD SHPO.

Additionally, the MD SHPO administers its own program for properties that are of significance to American history and culture. The Maryland Inventory of Historic Properties (MIHP) includes all properties from the National Register that are located in Maryland, plus additional properties that are considered significant in Maryland history and culture. Properties listed in the MIHP are protected under the Historic Preservation Ordinance (Chapter 24A of the Montgomery County Code), which provides certain controls regarding alteration, demolition, and maintenance of the property.

Historic properties can be broadly classified into architectural and archeological resources, which are discussed below.

3.13.1 Architectural Resources

Background

Pursuant to 36 CFR 800.4, the NIH must determine and document the area of potential effects (APE) for its planned actions and must take the steps necessary to identify historic resources within this area. Historic resources include any district, site, building, structure, or object listed in or eligible for listing in the National Register. This review also considered properties listed in the MIHP.

The APE is defined in 36 CFR 800.16 as “the geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties.” The Proposed Action APE, shown in Figure 3.13-1, was developed based on the topography, surrounding buildings, and size and function of the facility and includes the Convent to the west, the adjacent Convent Drive to the east, the adjacent South Drive to the south, Center Drive to the North, and the buildings across those streets (Buildings 22, 37, 40, 49, MLP-9, and Building 10).

Resources outside the Campus

The APE for the Proposed Action does not include any properties outside the Campus that are listed or eligible for listing in the National Register or the MIHP.

Resources within the Campus

Pursuant to Section 110 of the NHPA, the NIH is responsible for the identification, evaluation, and nomination to the National Register properties under its control or jurisdiction. In fulfillment of this requirement, the NIH sponsored a cultural resources study in 1997 of all buildings located at the Campus over 50 years of age and all buildings that exhibited the likelihood of possessing exceptional significance regardless of age. In this effort, the NIH worked with the MD SHPO to determine which resources at the Campus were eligible for listing in the National Register as individual resources or as contributing resources to a historic district. Since then, the NIH has carried out periodic additional review of their resources to determine their potential eligibility for the National Register.

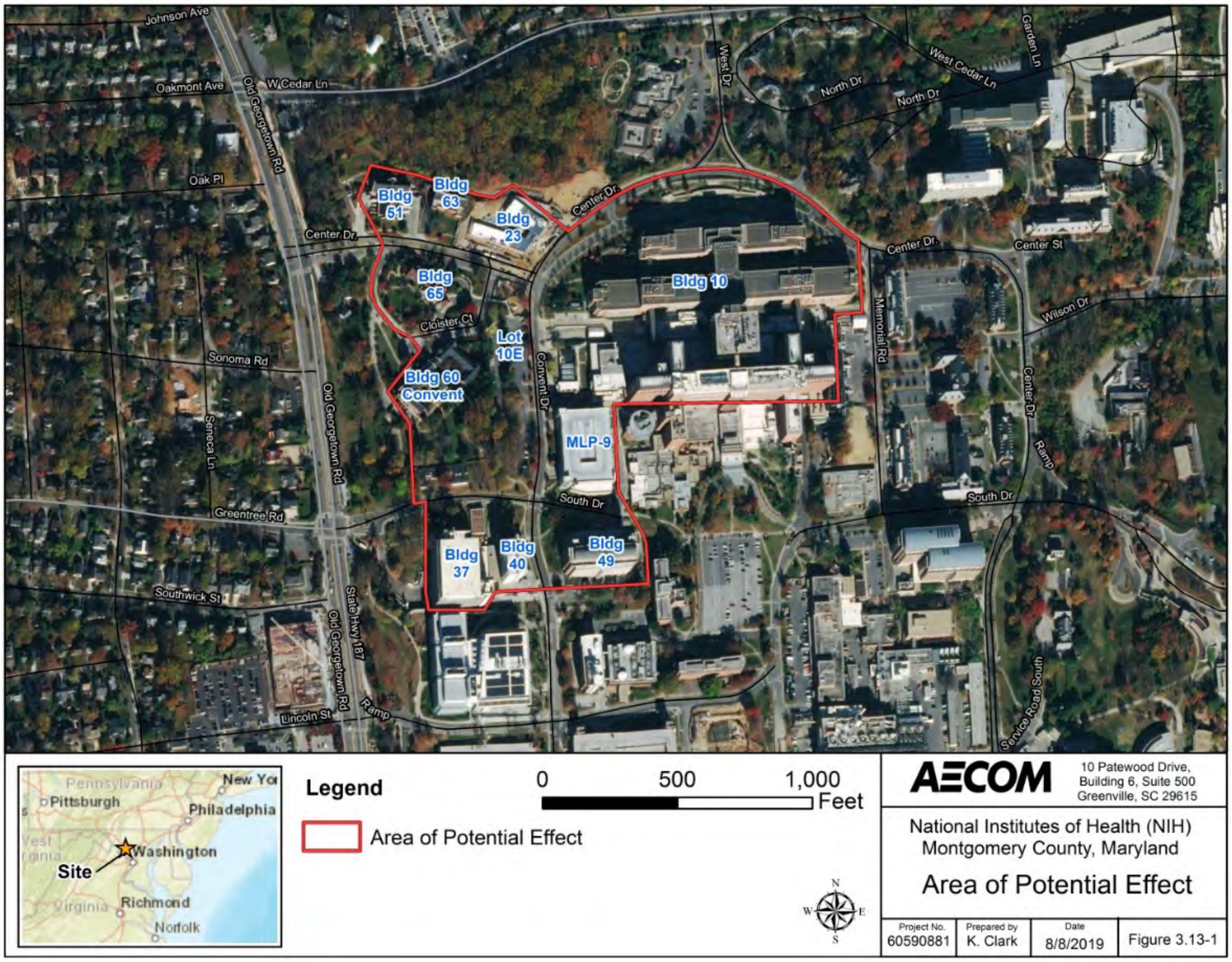


Figure 3.13-1. Area of Potential Effects for the Proposed Action

To date, the following three historic districts (and associated contributing buildings) have been determined eligible for listing in the National Register:

- NIH Historic Core Historic District (M: 35-9-2): This district forms the foundation of the Campus. It includes six contributing resources (Buildings 1, 2, 3, 4, 5, and 6) and one noncontributing resource (Building 8). Buildings 1-6 are Georgian Revival brick buildings dating from 1936-41, the earliest period of construction of the Campus. These buildings housed the first administration and medical research offices of the Campus and today form the symbolic and visual core of the expanded Campus. Building 1 within the Historic Core has served as the primary administrative facility for the NIH for decades. The historic district is significant for its association with the early functions of the institution and for its design.

- Officer's Quarters Historic District (M: 35-9-7): This district includes eight brick duplex and detached housing units featuring elements of the Georgian Revival style. Constructed in 1940, the houses (duplex units Buildings 15B1-B2, 15C1-C2, 15 D1-D2, 15E1-E2, 15F1-F2, and 15G1-G2, and detached units Buildings 15H and 15I) represent the only small-scale housing constructed by the NIH. The residential complex exemplifies the Radburn principle, a precursor to modern-day suburban design employed throughout the country in the 1930s and 1940s, with the houses fronting onto a common green, linked by paths and surrounded by an access road. The historic district is significant in the areas of significance of architecture, community planning, politics and government.
- George Freeland Peter Estate Historic District (M: 35-9-1): This district includes two contributing resources – a large stone Colonial Revival house (Building 16), also known as the Stone House, and a small frame caretaker's cottage (Building 16A). George Freeland Peter, a prominent Episcopal clergyman, built the house on a hill overlooking Rockville Pike in 1931. Walter G. Peter, George Peter's brother and a noted Washington architect, designed the estate. The Federal Government purchased the estate in 1949 for the expansion of the Campus. The George Freeland Peter Estate Historic District is significant for its architectural style and for its association with the early twentieth-century development of Rockville Pike.

In addition, the following buildings have been determined individually eligible for listing in the National Register: Memorial Laboratory (Building 7), Tree Tops (Building 15K), the Biologics Standards Laboratory and Annex (Buildings 29 and 29A), the Dental Research Building (Building 30), the National Library of Medicine complex (Buildings 38 and 38A and associated features), and the Convent of the Visitation of Washington (Building 60).

Figure 3.13-2 depicts the historic buildings and districts within the Campus that are eligible for listing in the National Register. The majority of these buildings are outside of the proposed project area with the exception of Building 60.

Building 60, the Convent of the Sisters of the Visitation of Washington (MIHP M: 35-9-6) is eligible for the NRHP. Completed in 1923, the property is eligible for listing in the National Register of Historic Places under Criteria A and C with national significance. It was constructed as a cloistered monastery for the Catholic Order of the Sisters of the Visitation, and it served in its religious function until 1981 when the NIH assumed ownership. Within the property, the NIH constructed a compatible addition to Building 60 in the 1980s. Just beyond the property, the Campus has built up from the 1950s through to the present. In 2013, Robinson & Associates and O-Neil & Manion Architects completed the Building 60 Character-Defining Features report to describe the contributing elements to the NRHP-eligible facility and the current conditions of those elements. The facility was divided into treatment zones as depicted in Figure 3.13-3.

Site of the Evaluated Alternative

SRLM Building

Under the Proposed Action, the SRLM Building would be an addition connected to the West Laboratory Wing of the CRC, between the CC and Convent Drive. The location is currently a playground and open space. There is also an outdoor CO_2 tank, the Clinical Data Center emergency generator, and an underground electrical ductbank within the footprint of the proposed structure. As shown in Figure 3.13-2, the proposed SRLM Building site is not located within the immediate vicinity of any historic buildings or districts. The SRLM Building would be visible from the NRHP-eligible Convent Building 60, as shown in Figure 3.13-4.

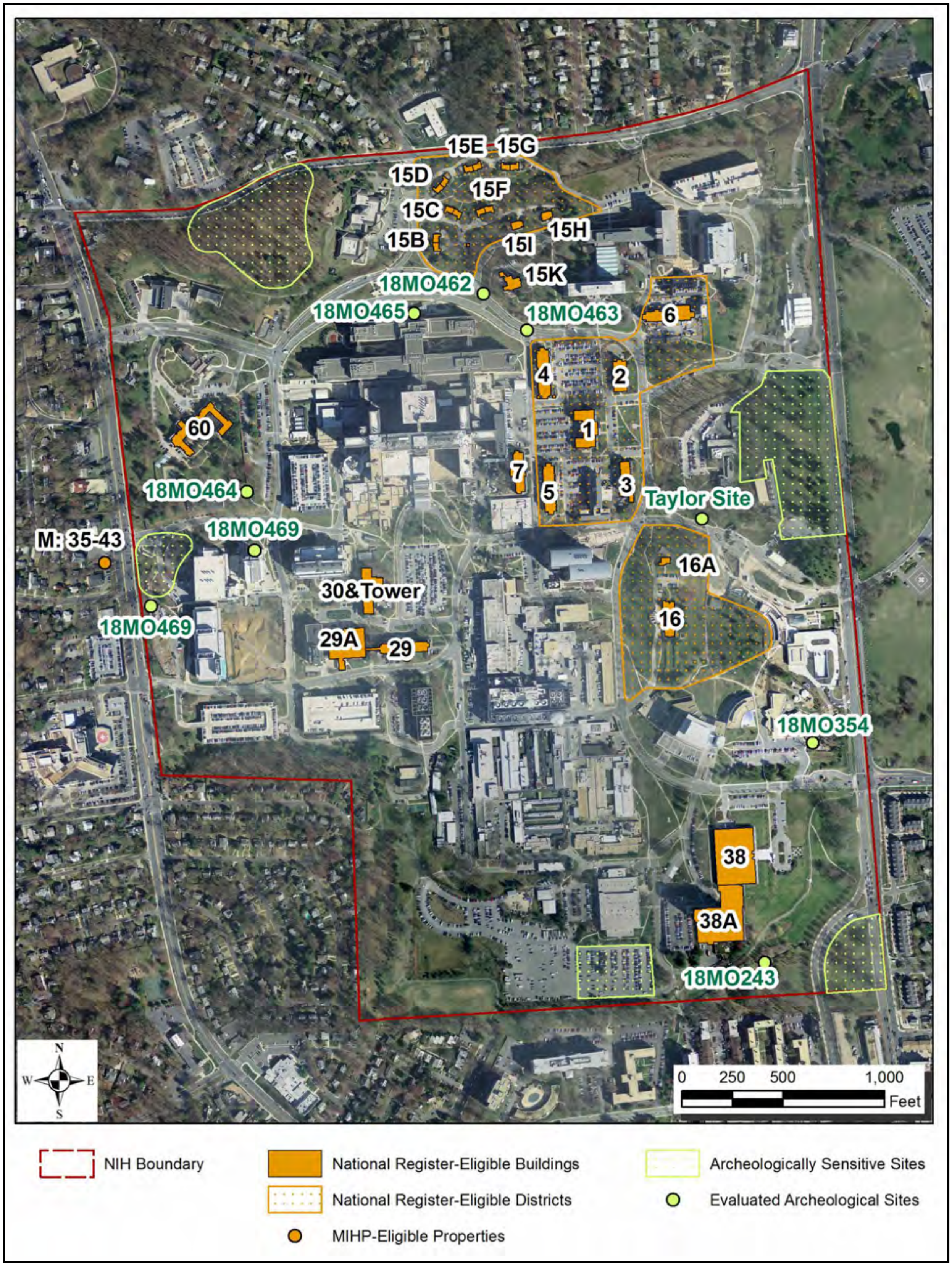


Figure 3.13-2. Historic Properties and Archeologically Sensitive Areas within the Campus

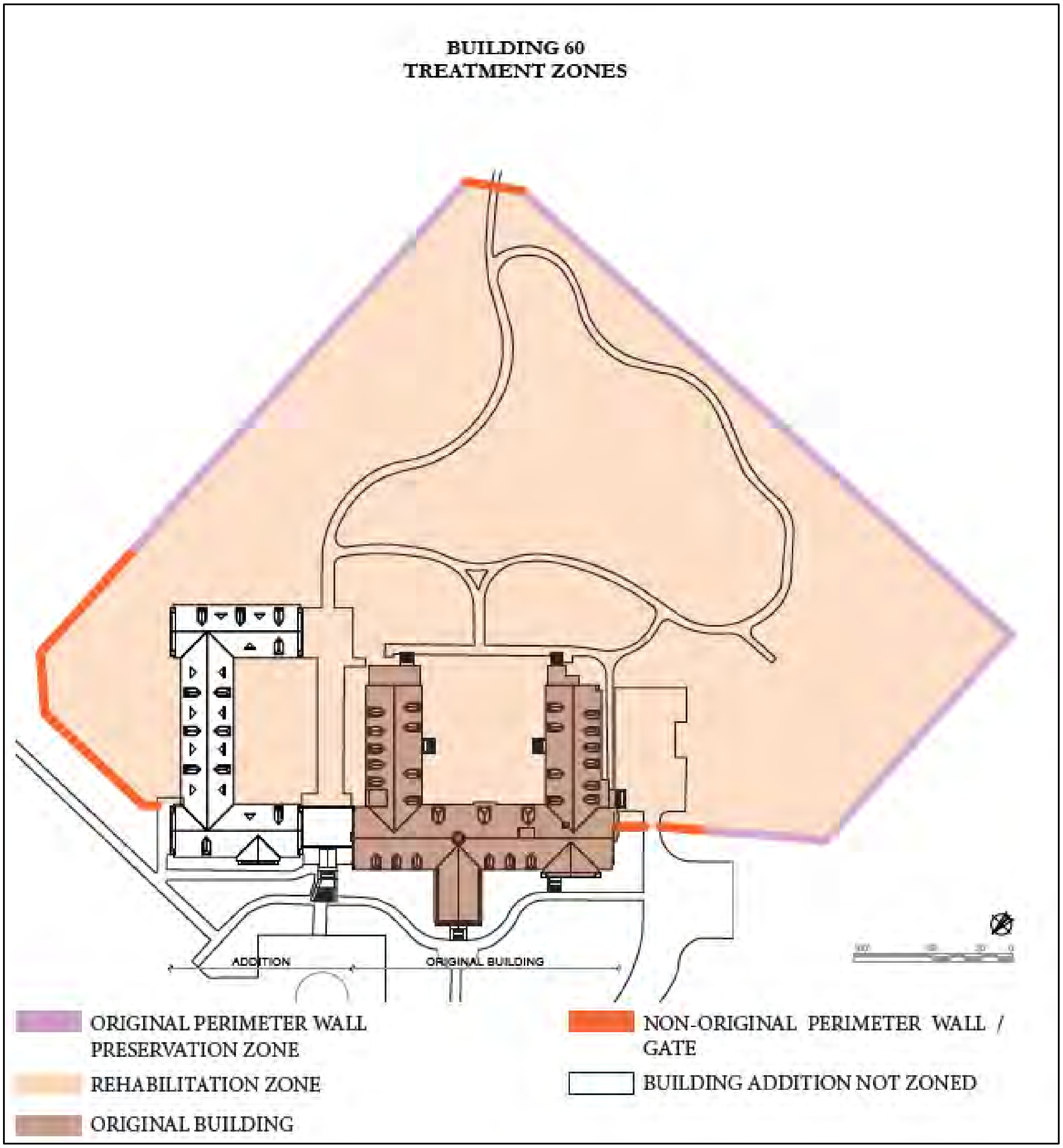


Figure 3.13-3. Building 60 Treatment Zones

Patient Parking Garage and Utility Vault

The proposed six-level high PPG would be constructed on the opposite (west) side of Convent Drive from the SRLM. The entrance(s) to the PPG may be from Center Drive, South Drive, or Convent Drive, or a combination of these. The proposed UV would be located adjacent to the southern end of the PPG, on the west side of Convent Drive. The proposed Service Yard, used to store storage tanks, would be located adjacent to the northern end of the PPG, on the west side of Convent Drive.

The proposed PPG, UV, and Service Yard are immediately adjacent to, and would be visible from, the NRHP-eligible Convent (Figure 3.13-5).

The location of the proposed PPG and UV is currently a parking lot with mature trees and open space. The side is bounded on the west by the Convent perimeter garden wall, a contributing element to the NRHP-eligible Building 60. This portion of the perimeter wall adjacent to the PPG/UV site is an original element of the Convent constructed of terra cotta masonry units with brick piers and capstones (Figure 3.13-5). The terra cotta masonry units along the southern portion of the side of the perimeter wall closest to the proposed PPG and UV are in need of repair. The southeastern corner of the perimeter wall has been previously modified and a non-original gate installed at that location. A footpath passes through the gate and into the Convent garden. The Convent garden is considered to be a contributing element to the NRHP-eligible facility; however, the specific layout of, and species within, the garden and the materials used for the footpaths and other paved surfaces are not contributing. The specific species and locations of plantings may be changed as long as the overall ratio of open space to wooded areas and the variety of evergreen and deciduous trees are maintained.

Figure 3.13-4. View of the Convent from the SRLM Building Site

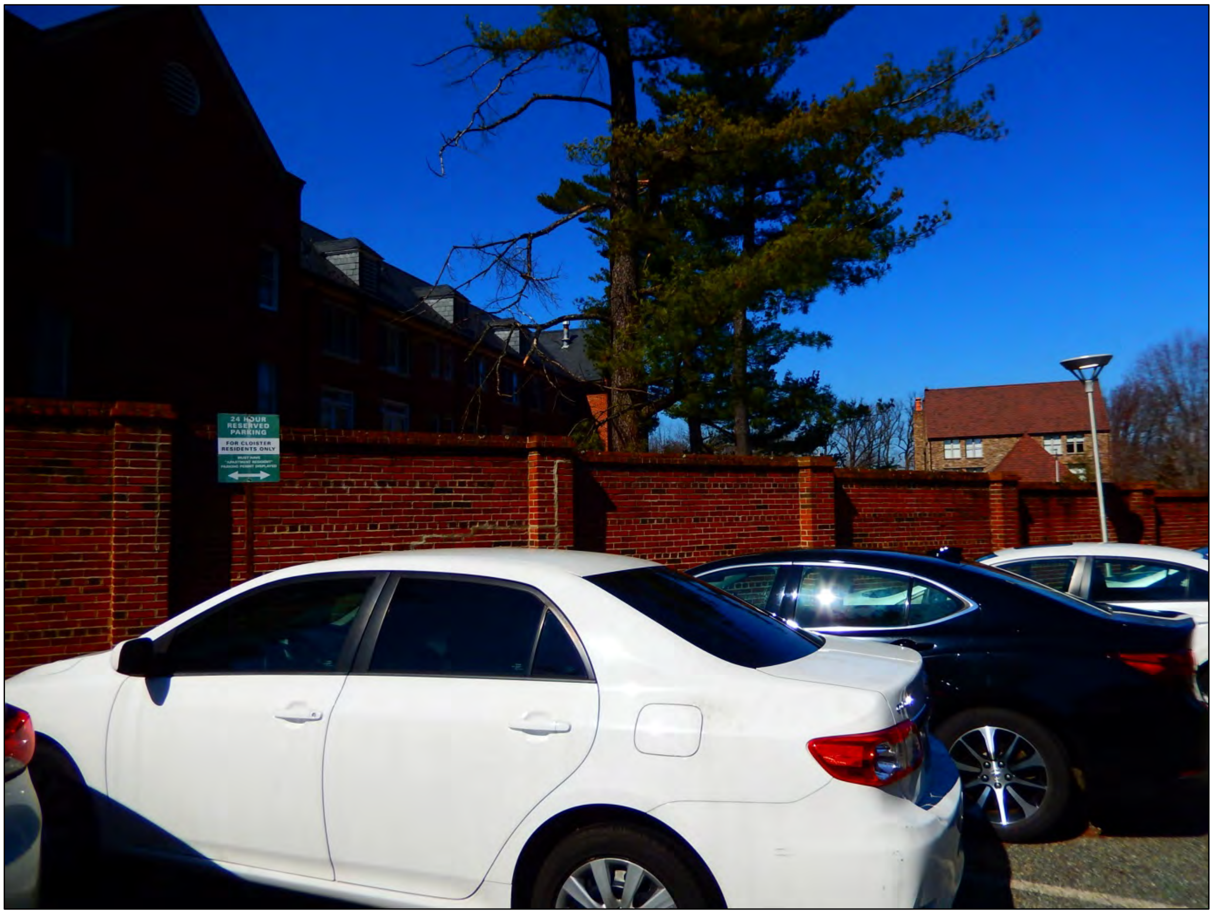


Figure 3.13-5. Brick Convent building (left side of photo) and non-original Convent perimeter garden wall from upper Lot 10E

3.13.2 Archeological Resources

Campus

In accordance with the requirements of Section 110 of the NHPA, the NIH has conducted several Phase I and II archeological investigations to evaluate the presence of potentially significant archeological resources within the Campus. These surveys have identified a total of eight archeological sites within the Campus, none of which retain the significance necessary for listing in the NRHP. Refer to the *Campus Master Plan EIS* for additional background regarding the historic context and previous archeological investigations within the Campus (NIH, 2014a).

Extensive development and fill throughout the central core of the Campus have extensively altered the ground surface and significantly reduced the potential for encountering archeological resources during earthwork. Figure 3.13-2 shows the few remaining Campus areas that have not been investigated previously and remain relatively undisturbed by modern construction. While these are identified as archeologically-sensitive areas based on their potential, this does not imply that they contain cultural materials or soil context. Sites in proximity to where historic structures were located may also hold potential. Prior to conducting earth disturbance within these archeologically-sensitive areas, the NIH would perform a Phase I survey of the site to assess the archeological significance and potential eligibility for the NRHP. If Phase I surveys indicate that the areas contain materials of potential significance, the NIH would either avoid disturbance within the site or complete an intensive Phase II survey of the site to determine its significance.

Site of the Evaluated Alternative

The SRLM Building Site is not located within an archeologically-sensitive area as depicted in Figure 3.13-2.

The proposed PPG and UV site overlaps the archaeological site 18MO464 as shown on Figure 3.13-2. Site 18MO464 is a Late Archaic to Middle Woodland site that was originally identified in 1997 and further investigated in 1999. The site was determined to be heavily disturbed and it was determined to be ineligible for the NRHP. In August 2018, NIH conducted a Phase I archaeological survey of the proposed PPG and UV site to further assess the site integrity. The survey did not uncover any additional cultural material. No further work is recommended at 18MO464 (Franz and Bodor, 2018).

4.0 Environmental Consequences

4.1 Topography, Geology, and Soils

4.1.1 Topography

Proposed Action

The Proposed Action would have moderate localized impacts on topography due to construction activities, including excavation and grading. The SRLM Building Site is currently occupied by a playground and is relatively level. The PPG/UV Site is currently occupied by Parking Lot 10E. Lot 10E consists of two rows of parking spaces parallel to Center Drive. The row of parking spaces directly adjacent to Center Drive is elevated about 8 feet higher than Center Drive, and the second row of parking spaces is elevated even higher. As a result, construction of the PPG and UV would require substantial excavation and levelling of this area. The majority of construction would occur in previously disturbed and developed areas at the SRLM Building and PPG/UV Sites and adjacent roads or sidewalks. A portion of construction would occur within previously undisturbed areas on the PPG/UV site.

These direct impacts to the Campus topography would influence drainage patterns in the immediate vicinity of the proposed structures. Refer to Section 4.4.3 (Stormwater) for discussion of stormwater management techniques that the NIH would utilize to mitigate impacts to stormwater runoff.

No-Action Alternative

The No-Action Alternative would not involve excavation or grading activities and, therefore, would not impact the topography of the Campus.

4.1.2 Geology and Soils

Proposed Action

The Proposed Action would result in moderate soil disturbances due to construction activities. Both previously developed and previously undisturbed soils would be directly impacted. The NIH would implement SEC measures during earth disturbance to minimize impacts to soil. The Proposed Action would exceed 5,000 SF of disturbance and would, therefore, require an SEC plan designed in accordance with the *Maryland Standards and Specifications for Soil Erosion and Sediment Control* and submitted to MDE for approval. As noted in Section 4.1.1 (Topography), the Proposed Action would require some excavation and grading, but with the use of appropriate SEC measures, the potential for extensive soil erosion is expected to be minimal.

Construction activities could potentially directly impact soil quality. Soil surface and subsurface compaction may result from heavy machinery traffic around the sites of the project elements.

The stability of existing development at the Campus indicates that soil conditions would be suitable for new development. Geotechnical subsurface borings at the site of the Proposed Action would be conducted prior to construction to ensure the adequacy of the design to address geology and soil conditions.

Operational use of the proposed structures is not expected to impact soils.

No impacts associated with employee exposure to radon are anticipated as a result of implementation of this project.

No-Action Alternative

Continued operations under the No-Action Alternative would not impact geology or soils.

4.2 Land Use and Zoning

Proposed Action

The Proposed Action would not impact zoning within the Campus. The Proposed Action would be consistent with the current institutional land use within Campus. Land use would change from open and parking areas to building areas. However, land use under the Proposed Action would remain consistent with the Montgomery County zoning and the M-NCPPC *Bethesda-Chevy Chase Master Plan*. The Proposed Action is consistent with the land use goals and objectives of the *Campus Master Plan*. Therefore, no significant impacts to land use and zoning would occur.

No-Action Alternative

The No-Action Alternative would not impact land use or zoning as no changes to the site would occur.

4.3 Biological Resources

4.3.1 Vegetation

Proposed Action

The Proposed Action would result in minor, direct impacts to vegetated areas due to construction. As discussed in Section 3.3 (Biological Resources), the Campus currently contains 209 acres of open space. Construction of the SRLM and PPG/UV buildings would result in a net loss of approximately 125,196 SF (2.9 acres) of vegetated area. Site preparation and installation of supporting infrastructure may result in the minor or temporary disturbance of additional areas of vegetation; these areas would be replanted with native vegetation after completion of work, where feasible. The Proposed Action would not impact vegetation in established no-mow areas.

Implementation of the Proposed Action would require cutting of landscape trees within the impacted vegetated areas discussed above. To address trees which are required to be removed from the construction areas for the Proposed Action, NIH would follow their Campus-wide *Forest Conservation Plan*, which requires one-to-one replacement to achieve no-net loss of trees. The Campus-wide plan has been submitted to and approved by the Maryland Department of Natural Resources (MDNR). The Campus-wide plan requires the development and submission of project-specific plans. The project-specific *Replacement Tree Plan* for the Proposed Action has been developed, and would be submitted to MDNR for approval prior to construction. The *Replacement Tree Plan* calls for the planting of approximately 140 trees, including 14 landscape plantings, 35 replacement trees within the LOD at the PPG and UV, 25 replacement trees within the LOD at the SRLM Building and east of Center Drive, and 66 trees to be planted within the Convent area. Any hardwood trees removed would be managed in accordance with Maryland Department of Agriculture guidance to prevent the spread of the emerald ash borer.

The Proposed Action would not result in any impacts to champion trees or to forest trees. Current NIH tree, forest and vegetation policies would remain in place requiring ongoing protection, replacement, and enhancement as necessary in accordance with the updated *Campus Master Plan* and *Urban Forest Conservation Plan* approved by MDNR.

Trees that would be affected by development would be transplanted when feasible. Most prior transplants on the Campus have been five inches or less in bole diameter, although transplants have been successful with trees up to ten inches in diameter. Trees lost as a result of construction activities would be replaced on at least a one-for-one basis in accordance with the NIH's policy.

No-Action Alternative

The No-Action Alternative would not result in any changes in impacts to vegetation.

4.3.2 Wildlife

Proposed Action

Implementation of the Proposed Action would result in minor, indirect impacts to wildlife. The reduction in grassy vegetated and landscaped areas represents a minor reduction in potential wildlife habitat. Much of the affected grassy and landscaped areas are routinely maintained and offer poor foraging and habitat value than other vegetated areas (e.g., large contiguous tracts and stream buffers) around the Campus. The Proposed Action would not disturb federal or state-listed rare, threatened, or endangered species. The Proposed Actions also would not disturb forested areas of sufficient size to support Forest Interior Dwelling Species.

If required to comply with the Migratory Bird Treaty Act (16 U.S.C. §703), trees to be removed may need to be surveyed prior to construction. The NIH would verify that no bird eggs and/or young protected under the Migratory Bird Treaty Act are present. If the NIH determines that eggs and/or young are present, tree clearing would proceed only after it is verified that the young have fledged.

Noise from the construction activities under the Proposed Action may disturb wildlife in and around the project sites, including migratory birds nesting nearby; however, these impacts would be indirect and temporary. The Campus is located in an urban environment, however, with many existing noise sources and it is anticipated that wildlife would acclimate to the expected change in noise or human activity at the SRLM and PPG/UV buildings. Construction and operational activities would comply with all applicable local, state, and federal noise regulations. Potential noise impacts are discussed further in Section 4.7 (Noise).

As discussed in Section 4.4.2 (Surface Water), the Proposed Action could result in minor indirect impacts to Campus streams due to runoff from construction sites, although the Proposed Action would not result in construction in or near surface waters (streams). Runoff to streams could include sediment or other contaminants, which have the potential to adversely impact aquatic organisms that dwell in the streams. As discussed in Section 4.4.3 (Stormwater), the NIH would implement stormwater management and pollution prevention measures during construction to reduce potential impacts to aquatic species that inhabit the Campus streams.

Previous communications with USFWS and MDNR regarding threatened and endangered species have not identified any such species on Campus. Threatened or endangered species would not by impacted by implementation of the Proposed Action.

No-Action Alternative

The No-Action Alternative would not result in any changes in impacts to wildlife or habitat.

4.4 Water Resources

4.4.1 Groundwater

Proposed Action

Because groundwater is likely to be encountered at a depth of one to greater than six feet, construction activities associated with implementation of the Proposed Action would have the potential to directly impact groundwater. The NIH would implement appropriate pollution prevention measures to avoid spills and exposure of groundwater to contamination. These measures could include using booms or pigs during fuel transfer, protecting excavations during fuel transfer and use, and implementation of stormwater management controls during construction as discussed in Section 4.4.3 (Stormwater).

The Proposed Action would not impact groundwater consumption. The Proposed Action would not result in an increase in potable water consumption. As discussed in Section 3.9 (Utilities), WSSC supplies the NIH with treated water from the Potomac River.

No-Action Alternative

The No-Action Alternative would not involve modifications to the water infrastructure and would not increase groundwater consumption. Additionally, no ground disturbance would occur and there would be no contact with groundwater. Therefore, there would be no potential impacts to groundwater.

4.4.2 Surface Water

Proposed Action

No direct impacts to surface waters are anticipated under the Proposed Action, as implementation of the Proposed Action would not result in any construction in or near surface waters (streams), and would not require construction of buried utilities in the vicinity of underground piped streams. The Proposed Action also would not modify blowdown or other discharges from Campus utility systems.

Implementation of the Proposed Action could result in minor indirect impacts to the NIH Stream due to runoff from construction sites, which could enter stormwater sewer drains that lead to that stream. Impacts to surface waters resulting from the construction projects are likely to be minor due to compliance with state and federal regulations and mitigation measures. Mitigation measures include development of sediment and erosion control plans, stormwater management plans, and implementation of pollution prevention measures to ensure that sediments, petroleum products and other contaminants do not migrate to the storm drains during construction. Refer to Section 4.4.3 (Stormwater) for additional discussion of stormwater runoff mitigation that would be utilized during construction activities.

No-Action Alternative

Under the No-Action Alternative, no changes to surface water locations or amounts would occur, therefore there would be no impacts to surface waters.

4.4.3 Stormwater

Proposed Action

<u>Temporary Construction Impacts</u>

Implementation of the Proposed Action would result in minor temporary impacts to stormwater quantity and quality due to earth disturbances during construction activities. The LOD for the Proposed Action, shown in Figure 2-5, would be approximately 378,972 SF (8.7 acres) of earth during construction activities.

Potential erosion and sediment runoff impacts would be mitigated through implementation of stormwater management practices, including the development of an erosion and sediment control plan that is approved by MDE. The construction of the SRLM, PPG and UV would disturb more than one acre and therefore would obtain coverage under the MDE 2014 General Permit for Stormwater Associated with Construction Activity (MDE, 2014). As a result, construction activities under the Proposed Action would have a minor impact on stormwater quality. Additionally, some of the existing stormwater drainage systems would have to be modified or moved as they are currently within the LOD. NIH would design and construct replacement systems so as not to impact existing drainage characteristics.

Long-Term Stormwater Management

Implementation of the Proposed Action would result in minor long-term stormwater management impacts. The project area covers a total of 8.7 acres. The Proposed Action would increase impervious surface at the Campus by approximately 125,196 SF (2.9 acres), which would increase runoff within the Rock Creek Watershed relative to baseline conditions. The construction of the SRLM, PPG, and UV would each disturb greater than 5,000 SF, and therefore site design would be required to meet EISA 2007 Section 438 requirements to restore each site to predevelopment conditions. This requirement would minimize hydrologic impacts resulting from increased stormwater runoff volumes, such as damage to storm sewer infrastructure, increased likelihood of flooding, and increased erosion. Table 4.4-1 presents a summary of the net change in impervious area for the Proposed Action.

The Proposed Action would require permanent site stormwater management to control runoff and provide water quality treatment per federal and Maryland stormwater regulations. Long-term stormwater management facilities would be designed and installed per an MDE approved stormwater management plan. Construction of the SRLM, PPG, and UV would incorporate bioretention areas including stormwater planter boxes. These vegetated areas would infiltrate runoff from impervious surfaces at the sites, reducing the quantity of stormwater runoff and improving the water quality. The NIH would incorporate appropriate and feasible ESD practices into the project designs to restore the predevelopment hydrology to the maximum extent technically feasible. Overall, these practices would reduce runoff volume and rate, disperse flow, remove pollutants, and provide for groundwater recharge by facilitating infiltration into the soil. These measures would have the potential to benefit the ability of NIH to meet the Campus' TMDL nutrient and sediment load reduction requirements, and thus comply with the Campus' MS4 TMDL requirements.

The Proposed Action would not impact coverage under the Campus's MS4 permit.

No-Action Alternative

The No-Action Alternative would not result in any changes to impervious or pervious areas or associated impacts to stormwater quality or quantity. Land use conditions would remain the same and additional stormwater quantity or quality management would not be required.

Table 4.4-1. Change in Pervious and Impervious Areas due to Proposed Action

Component	Square Feet	Acres[a]
Current Conditions		
Current Buildings	653	0.015
Roads	91,476	2.1
Driveways, Sidewalks, Playground, and Parking Areas	130,027	2.985
Total Impervious Area	222,156	5.1
Grass/Trees (Pervious Area)	156,816	3.6
Total Area in LOD	378,972	8.7
Proposed Action Conditions[b]		
SRLM Building	55,500	1.3
PPG/UV and ancillary facilities	60,984	1.4
Current Buildings	653	0.015
Roads	82,764	1.9
Driveways, Sidewalks, and Parking Areas	147,451	3.385
Total Impervious Area	347,352	8.0
Grass/Trees (Pervious Area)	31,620	0.7
Total Area in LOD	378,972	8.7
Total Change in Impervious Area due to Proposed Action	+125,196	+2.9
Percentage Change in Impervious Area due to Proposed Action	+56%	+56%

Notes:
All numbers have been rounded.
The current outlines of Project components are conceptual, and subject to change during project design.

4.4.4 Wetlands

Proposed Action

As discussed in Section 3.4.4 (Wetlands), there are no wetlands in the vicinity of the potential construction sites. Implementation of the Proposed Action would result in no direct or indirect impacts on identified wetlands.

No-Action Alternative

The No-Action Alternative would have no direct or indirect impact on wetlands.

4.4.5 Floodplains

Proposed Action

Implementation of the Proposed Action would result in no impact to floodplains. As discussed in Section 3.3.4 (Floodplains), there are no 100-year floodplains at the potential construction sites.

No-Action Alternative

The No-Active Alternative would have no impact on the 100-year floodplain.

4.5 Visual Resources

4.5.1 Construction

Proposed Action

During construction of the SRLM, PPG and UV, direct visual impacts would occur on Campus. Large construction equipment would be deployed in the project area for the duration of activities. It is anticipated that cranes, earth-moving equipment, concrete trucks and other heavy machinery would be in use for approximately 6 years. Due to the phased construction, the time frame is extended, and this would represent a moderate, direct impact to visual resources at the project location. Off-Campus observers may also be directly impacted as many of the trees currently screening the CC from external views would be removed during construction. This impact would be considered minor, however, as the distance from the property line would reduce the scale of the equipment. Additional minor impacts are anticipated due to the partial closure of Center Drive and redirection of traffic during construction.

No-Action Alternative

Under the No-Action Alternative there would be no construction, and therefore no construction related visual impacts.

4.5.2 Lighting Impacts

Proposed Action

The Proposed Action would result in minor temporary impacts to light trespass due to use of supplemental lighting (e.g., temporary portable lighting) during construction activities. The NIH would conduct the majority of construction activities during daylight hours, primarily to limit noise during off hours. Temporary construction lighting would be used to illuminate work areas during the limited nighttime construction work and to ensure safety and security at unoccupied work sites. The NIH would mitigate this temporary lighting by ensuring construction contractors direct lighting away from the Campus boundary whenever feasible.

The Proposed Action would result in minor long-term, direct impacts to light trespass due to new permanent lighting. The SRLM, PPG, and UV would each require area lighting to ensure safety and security and to facilitate occasional evening maintenance activities. New street lighting would be installed along Center and Convent Drives where poles were removed for construction. This new lighting would not be adjacent to residential neighborhoods and therefore would not be a potential new source of light trespass to external neighborhoods.

Light trespass is possible at the Convent due to the height of the new PPG and UV. The trees and part of the garden wall currently screening the Convent from light emanating from the CC would be protected during construction. The wall currently surrounding the Convent is not tall enough to screen security lighting emanating from the PPG and UV. Figure 4.5-1 shows the plan of areas identified for potential tree replacement for the Convent area. The placement of these trees in between the PPG and the Convent would reduce the lighting impacts at the Convent. Partial screening would be achieved over time once the trees are taller than the Convent, blocking some of the light from the PPG/UV from entering the Convent windows. Additionally, lighting would be chosen which accomplished the goals of the Master Plan, for example, downward directed street lamps and directional lighting in the PPG. Therefore, lighting impacts on-Campus would be minimal during operation of the new facilities. Due to the buffer area at the perimeter of the Campus, off-Campus lighting impacts would not be anticipated.

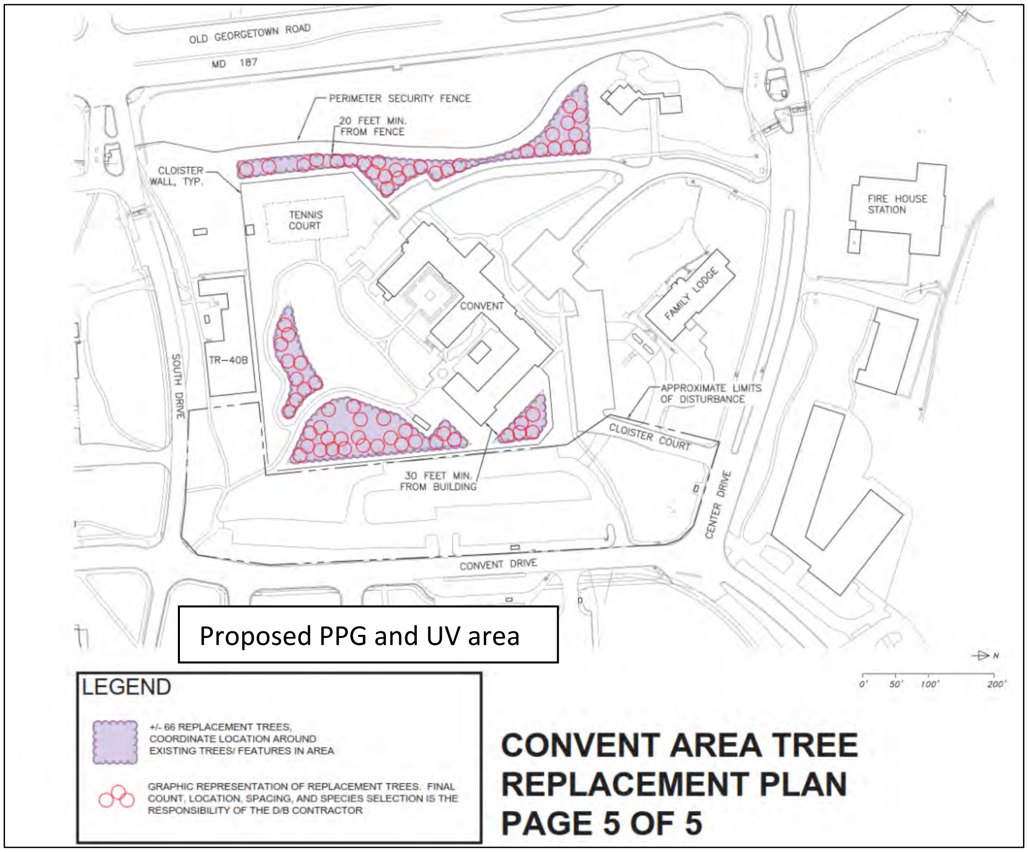


Figure 4.5-1. Plan of Areas Identified for Potential Tree Replacement

No-Action Alternative

The No-Action Alternative would not impact lighting at the Campus.

4.5.3 Viewscapes

Proposed Action

The Proposed Action would result in minor impacts to external viewscapes. Existing topographical features and vegetation that largely block many potential views from adjacent neighborhoods would not be significantly altered as a result of the Proposed Action. If the SRLM addition and PPG were visible from external areas, they would blend in with the existing CC, which is the largest structure on Campus. From a distance, the addition would simply appear as part of the larger structure.

The Proposed Action would result in moderate, direct impacts to internal viewscapes. Figures 4.5-2 and 4.5-3 present renderings of the SRLM Building.

Figure 4.5-2. Rendering of the SRLM addition from the northwest

Figure 4.5-3. Rendering of the SRLM addition from the west

The construction of the SRLM Building would be considered a minor impact as the new structure would blend in with the existing CC. Minor impacts from the re-location of a portion of Center Drive are also anticipated. Figure 4.5-3 shows that a similar façade to the existing CC is proposed, which would minimize visual impacts to this area. Although the building may appear slightly larger, this would not entail a significant difference.

Figures 4.5-4 and 4.5-5 present renderings of the proposed new PPG and UV. Visual impacts to external observers would be minimal, as the buffer would screen the PPG and UV from off-Campus individuals. Visual impacts for on-Campus observers are anticipated to be direct, moderate, and significant. This area is currently a surface lot with a large number of large trees. This is significantly different from a six-story parking structure and utility vault. The structure changes the view from a natural area to an institutional urban area. Views of the PPG and UV from Convent Drive would be considerably different than the existing scenery. Landscaping along Convent Drive may ameliorate this slightly, but due to the size and placement of the proposed structure, it cannot be hidden from view. The addition of another large structure along Convent Drive may contribute to a perception of higher density and scale, which could lead to an observer feeling more crowded in comparison to current conditions. These impacts along Convent Drive would be minimal however, due to the existing CC and MLP 9 which are large and institutional-looking buildings.

Figure 4.5-4. Rendering of the proposed PPG and UV as viewed from the northeast

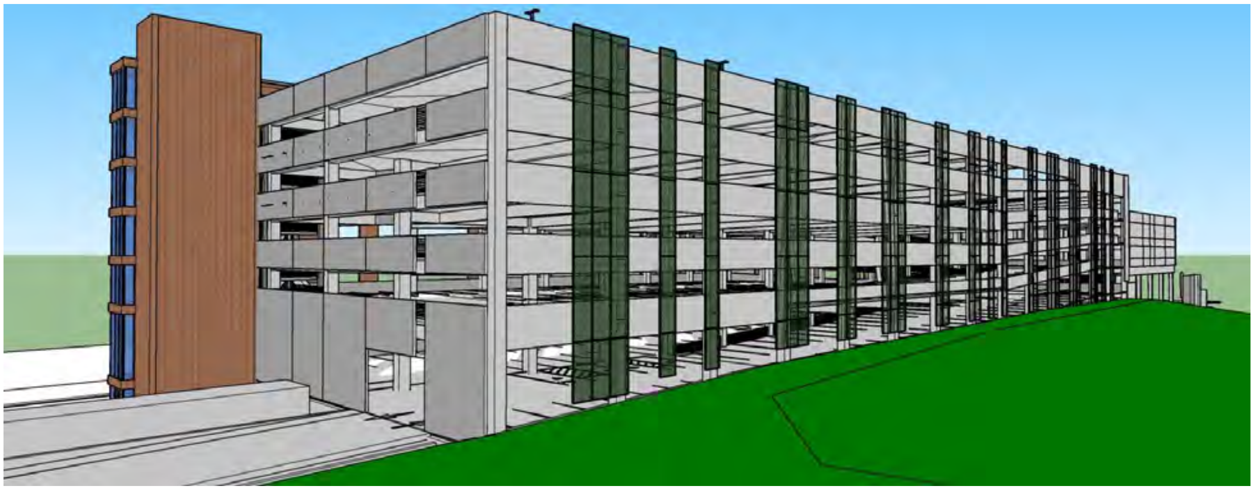


Figure 4.5-5. Rendering of the proposed PPG and UV from the Convent area

Views from the NRHP-eligible Convent would also be altered. The current view consists of a brick garden wall and trees. The PPG and UV are large enough to be visible from the Convent grounds. Although proposed revegetation involves placing trees in between the Convent and the PPG, it is reasonable to assume the trees would not completely block the view given the scale of the structures, the distances separating them from the Convent, and the eventual height of the trees. The structure would be visible over the wall and trees and would contrast with the visual nature of the Convent area. The Convent area has much smaller buildings than the NIH area to the east and the Convent includes extensive open space and natural areas. The appearance of a large institutional structure on the periphery of the more natural scenery would result in a significant change in the viewshed including an impact in the amount of sunlight that reaches the Convent area at certain times of day. Visual impacts in the Convent area would be considered direct, moderate, and significant.

Refer to Section 4.13.1 (Cultural and Historical Resources) for discussion of the potential visual impacts to historic properties.

No-Action Alternative

The No-Action Alternative would not impact external or internal viewscapes of the Campus.

4.6 Transportation and Traffic

4.6.1 Roads, Transit, and Traffic

Implementation of the Proposed Action would result in minor temporary impacts to off-Campus roads, transit, and traffic due to construction activities. This would include additional traffic due to construction vehicles, as well as shifts in employee and patient traffic patterns.

Construction vehicles would utilize the South Drive entrance on Rockville Pike (see Figure 3.6-1). As reported in the 2015 Chilled Water EIS, peak morning traffic at Rockville Pike and Wilson Drive, which is just south of the service vehicle entrance, is 2,800 cars southbound on Rockville Pike and 1,100 cars northbound on Rockville Pike. It is assumed peak traffic on those roads is similar to or higher than was reported in 2015. Therefore, the overall impact to off-Campus roads would be minor as the number of construction vehicles would be minimal (<100 vehicles per day) relative to existing traffic counts.

During construction, some traffic patterns would temporarily shift as drivers select alternative entrances to the Campus, either to avoid construction work or due to changes in destination, such as vehicles displaced from parking at Lot 10E (see Section 4.6.2, Parking). However, it is anticipated that this impact on traffic patterns outside the Campus would be minor as closure of entrances is not anticipated and drivers typically utilize all entrances.

Implementation of the Proposed Action would result in minor to moderate, direct impacts to on-Campus roads, transit, and traffic during construction activities. During construction, Center Drive and Convent Drive would be partially closed intermittently throughout the approximately 6 years of construction. Closures along Center Drive would impact access to facilities along Center Drive including the Child Care Center, Children's Inn, and emergency vehicles from the fire station. The NIH would minimize these impacts by communicating any roadwork to employees and establishing alternate routes as needed. Additionally, NIH would implement phased trenching, flaggers for traffic control, and off-peak hour lane closures. If a full closure is required, this would be closely coordinated and potentially done off-hours (nights and weekends). Maintaining an open lane would allow for prioritization of emergency traffic. The existing road network within and outside the Campus has capacity to adequately handle these potential shifts. In general, the changes in traffic patterns or volume would be minor relative to typical patterns and volume. During peak periods, temporary road closures could result in moderate, direct impacts to traffic patterns along Center and Convent Drives.

As noted in Section 3.6 (Transportation and Traffic), the NIH Shuttle Bus system has routes in the vicinity of the proposed SRLM and PPG/UV Sites, including along Center and Convent Drives. During construction, traffic delays or road diversions would be expected in these areas, particularly during peak traffic times. Select bus stops might be closed and passengers would be required to use alternate stops (existing or temporary). The NIH would minimize these impacts by communicating any planned alterations to shuttle routes, stops, or schedules to employees. Once construction is complete, shuttle bus traffic would be expected to return to the permanent routes and would not experience any delays due to the Proposed Action.

On-Campus pedestrian and bicycle routes could experience temporary closures during construction activities. The NIH would mitigate these impacts by communicating any temporary closures to employees, and ensuring that alternate routes are available as needed. Upon completion of construction, on-Campus pedestrian and bicycle routes are expected to return to normal and the completed project would have no permanent impacts.

Upon completion of construction, traffic levels would return to pre-construction levels. The local intersections would continue to operate at LOS A or B (Sabra, Wang & Associates, 2018). No permanent changes would occur in traffic volume to, from, or within the Campus.

The existing access to the northern entrance of the CC would be modified, as shown in Figure 4.6-1. Currently, Center Drive north of the CC consists of two curved segments separated by a grassy median. The northern segment is two lanes wide, with one lane in each direction. The southern segment is also two lanes wide, but both lanes carry only eastbound traffic from the intersection with Convent Drive in the southwest. At the northern entrance to the CC, a driveway extends off of the southern segment, leading to the valet entrance to the CC. As shown in Figure 4.6-1, a portion of the southern segment would be overlain by the SRLM Building. As a result, the entrance to the one-way portion of the southern segment would be moved further to the east. Instead of being located at the intersection of Center Drive and Convent Drive, as it is currently, the entrance would be located on the north side of the SRLM Building. This would not require a substantial re-direction of traffic, and levels of service on Campus roadways would remain acceptable.

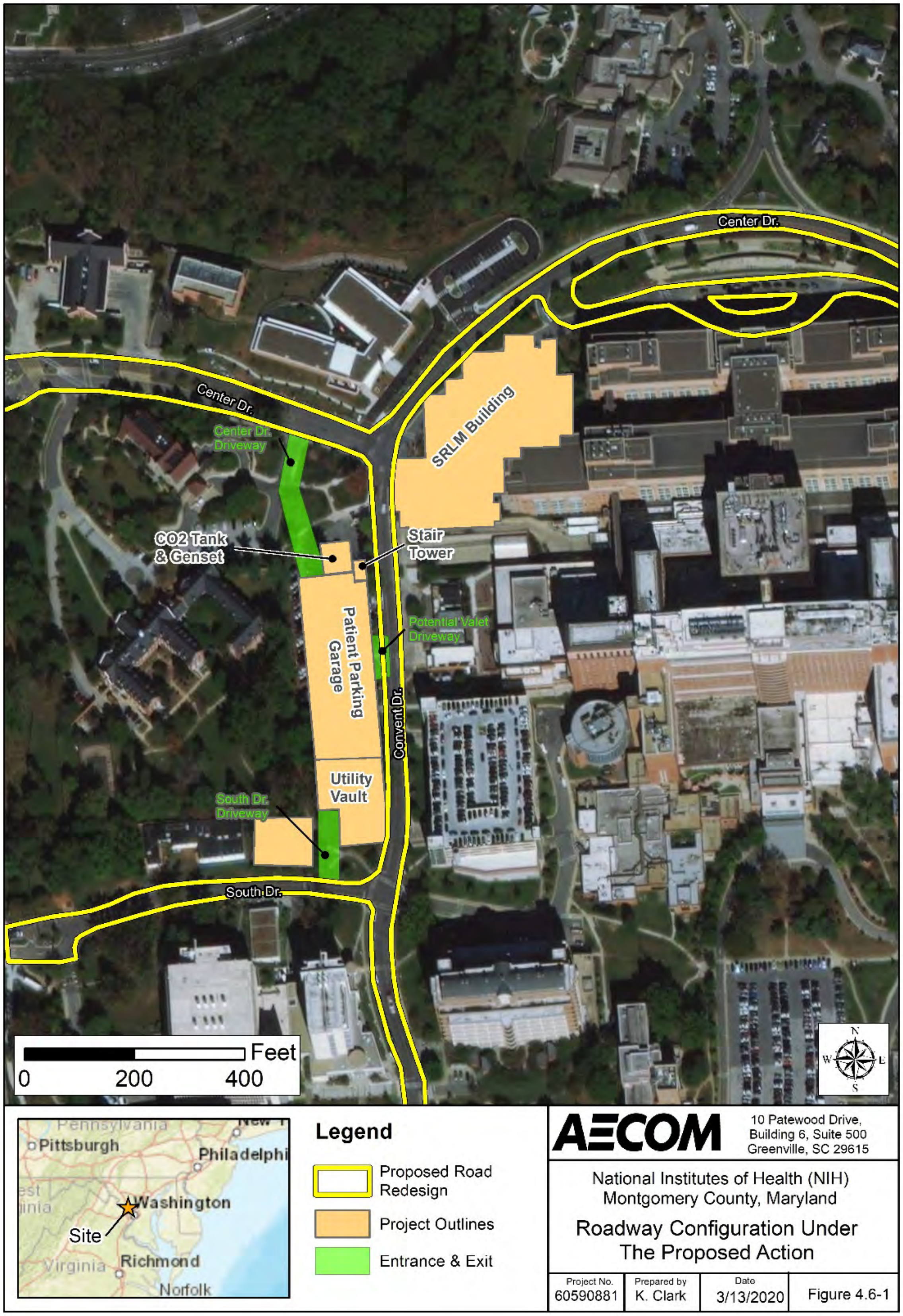


Figure 4.6-1. Configuration of Convent Drive and Center Drive Following Construction

4.6.2 Parking

Proposed Action

In the proposed site plan, access to and from the PPG would be via Center Drive, South Drive, and possibly a valet driveway on Convent Drive. It is possible that the South Drive access could be service/utility access only. The South Drive access driveway would be new construction, while the Center Drive ingress/egress and Convent Drive valet driveways would encompass a realignment of existing driveways to the Convent and Lot 10E. The PPG would have direct access to Old Georgetown Road (MD 187) via South Drive and Center Drive. Access to the PPG from Cedar Lane (north of NIH) and MD 355 to the east is available via internal Campus roads. No changes to lane configuration or roadway geometry are proposed for South Drive and Center Drive in this site plan (Sabra, Wang & Associates, 2018).

Implementation of the Proposed Action would result in moderate adverse impacts to on-Campus parking during construction activities. Demand for parking spaces would temporarily increase during construction, due to vehicles used by construction workers. It is assumed approximately 200 construction worker vehicles would be parking on-Campus during the peak construction period. The likelihood of construction workers parking in surrounding neighborhoods is low due to existing restrictions on street parking (e.g., meters, signage). The construction of the PPG would reduce parking capacity at Parking Lot 10E by 100 valet parking spaces. During construction of the UV and PPG, temporary valet parking would be located at the future site of the SRLM Building. Construction staging for the UV and PPG would be to the south and west of MLP-9. Once construction of the UV and PPG are completed, equipment and vehicles for the construction of the SRLM Building would be staged at the PPG. The NIH would further mitigate this potential parking impact by including language in the construction contract that requires the contractor to ensure employees and subcontractors park in designated areas within the Campus. Limited on-Campus parking would be provided for some construction vehicles. Additionally, NIH would encourage mass transit, carpooling, and off-site parking.

Valet services would be available in the PPG after construction is completed. Additionally, after construction the Building 10 parking garage would be converted to other uses and parking spaces there would be no longer available. Those spaces would be accommodated in the new PPG.

In the long term, the demand for parking would return to normal after conclusion of the construction activities. After completion of construction, the Proposed Action would have no net effect on the availability of parking. In accordance with an agreement between the NIH and the NCPC documented in the 2013 Comprehensive Master Plan Errata, NIH would stay within the 9,045-employee parking space cap. NIH is evaluating strategies to meet the NCPC Comprehensive Master Plan ratio of 0.33 spaces per employee. Because the spaces in the PPG are necessary to support the mission of the CRC, the NIH draft parking reduction maintains these spaces, and proposes eliminating MLP-14.

No-Action Alternative

The No-Action Alternative would not impact the regional or local transportation network or traffic levels and would not change vehicle use within the Campus. There would be no change to parking availability or access throughout the Campus.

4.7 Noise

4.7.1 Proposed Action

Implementation of the Proposed Action would result in direct, temporary, minor noise impacts due to construction activities as well as direct, long-term, moderate noise impacts due to operational changes at the SRLM, PPG, and UV.

Construction activities associated with the Proposed Action would temporarily increase environmental noise levels in the vicinity of the project site, primarily due to the use of heavy equipment. Equipment that may be used includes backhoes, bulldozers, and excavators. Construction equipment noise emission levels generally range between 74 to 101 dBA 50 feet from the source, depending on the type of equipment (U.S. DOT FHWA, 2014). Residents at the Convent would likely experience elevated noise levels during construction activities. The NIH would mitigate the impact of this construction noise by limiting most construction activity to between the hours of 7 AM and 5 PM. The NIH would ensure that noise levels from construction activities would not exceed 75 dBA at neighboring properties or 85 dBA if a noise suppression plan is approved by the Montgomery County DEP. Most of the construction noise would be temporary and would dissipate as the distance from the source increases. It is expected that residents in surrounding neighborhoods would not experience noise louder than the applicable noise limit.

Construction personnel would take the necessary precautions (e.g., hearing protection) to ensure that they would not be exposed to noise louder than the OSHA standard of 90 dBA for 8 hours. Because the construction of the SRLM, PPG, and UV would result in the temporary loss of some parking spaces at surface parking lot 10E and the Building 10 garage, some vehicular traffic would be redirected to other parking areas at the Campus. While these other destinations may see an increase in vehicular traffic, the increases are expected to be minor and would not be expected to substantially alter the noise levels anywhere at the Campus. Any added traffic noise would blend with ambient noise.

The Proposed Action would include installation of new equipment, including pumps and generators at the UV. The NIH would mitigate operational noise from this equipment by installing equipment inside utility buildings or providing sound-attenuating enclosures. Due to this mitigation, operational noise from all elements of the Proposed Action would be expected to be below regulatory thresholds.

The Proposed Action may change traffic patterns during the operations phase, as more services would be consolidated at the SRLM complex and as parking shifts from Building 10 to the PPG. However, an overall increase in traffic is not anticipated. General operations would continue to meet the Montgomery County nighttime noise ordinance of 55 dBA at the property lines. If necessary, the NIH would utilize noise suppression techniques in order to meet that requirement.

Overall, construction impacts would be minimal and temporary, and operational impacts would be minor.

4.7.2 No-Action Alternative

The No-Action Alternative would not generate any temporary noise associated with construction. Overall operational noise levels within the Campus would not change. Therefore, there would be no impacts to noise under the No-Action Alternative.

4.8 Air Quality

4.8.1 Ambient Air Quality

Proposed Action

Implementation of the Proposed Action would result in minor direct and indirect impacts to air quality at the Campus as a result of the following activities:

- Construction and operations of the proposed SRLM addition of approximately 505,300 gsf, plus the renovation of existing adjacent space, including two mechanical towers that would house HVAC equipment.
- Construction of a subsurface pedestrian tunnel under Convent Drive linking the SRLM to the PPG.
- Construction and operations of a PPG, a multi-level, self-park garage, accommodating approximately 780 cars with an overall gsf of 330,000.
- Construction and operations of a Utility Vault, which would house an electrical switching station to replace the switching station currently located in Building 59, emergency generators to replace the three 1,500 kW currently located in Building 59A, a new 350 kW emergency generator to serve the PPG, and a fire pump to serve the UV and PPG.
- A new CO_2 storage tank and a new 7,700 gsf underground fuel vault for fuel storage tanks to support future generators.

The following subsections describe these air quality impacts in more detail and summarize the results of the General Conformity Rule (GCR) applicability analysis.

Construction Activities

Construction activities associated with the Proposed Action would result in temporary minor emissions of NO_X, VOC, CO, PM, and SO_2 from the use of construction equipment, such as backhoes, compressors, cranes, dozers and front-end loaders, gas engine vibrators, grader, concrete pumps, hammers, and construction trucks. On-road vehicles, such as delivery trucks, concrete trucks, and dump trucks, would also be used. Construction was assumed to occur over an approximately 6-year period.

The methodology and assumptions used to calculate project air emissions are provided in Appendix B. The NIH estimated emissions from construction equipment and the on-road vehicles using USEPA's Motor Vehicle Emission Simulator (MOVES) MOVES2014b emission factor model (USEPA, 2015). Estimates of equipment emissions on an annual basis were based on the estimated hours of usage and emission factors for each motorized source for the project. Emission factors for each pollutant related to heavy-duty diesel equipment were obtained from the MOVES2014b emission factor model (USEPA, 2015) with the Montgomery County-specific input data provided by Metropolitan Washington Council of Governments (MWCOG, February 8, 2019). The MOVES 2014b program was also used to predict both truck and commuter vehicle emission factors for both criteria and greenhouse gas emissions in terms of CO_2. In addition to construction vehicle and equipment exhaust emissions, the on-paved road surface fugitive dust emissions from delivery truck and commuter vehicles and the on-unpaved surface within the construction site from other trucks such as water trucks and non-road equipment, were also estimated. The USEPA AP 42, *Compilation of Air Pollution Emission Factors* (USEPA, 1995), was used to predict fugitive dust emissions from vehicles traveling on paved and non-paved surfaces. Emissions factors derived from AP-42 Sections 13.2.1 and 11.9 were used to calculate fugitive emissions in terms of PM2.5 and PM10 emissions associated with surface disturbance.

Construction activities often cause fugitive dust (PM) emissions that might have a temporary impact on local air quality. Dust emissions during building construction are associated with land clearing, ground excavation, grading, and the construction of the building itself. Emissions may vary substantially from day to day, depending on the level of activity, specific type of activity, and weather conditions. The quantity of dust emissions from construction is proportional to the area of land where the activity is taking place, as well as the level of construction activity.

The NIH is required to take reasonable precautions to prevent PM from becoming airborne, per COMAR 26.11.06.03D. These precautions may include a number of air quality best management practices, which would limit fugitive dust impacts to temporary, minimal health or environmental effects. These practices would include, but would not be limited to, the following:

- Watering down active construction areas to reduce fugitive dust emissions;
- Stabilizing exposed or graded areas (e.g., by paving roads and hydroseeding open areas) as soon as possible upon completion of grading;
- Properly covering trucks hauling fill material or maintaining at least two feet of free-board;
- Limiting truck speeds on unpaved areas of the site to 15 miles per hour or less;
- Grading sites in phases, thereby limiting the time that disturbed soil is exposed; and
- Temporarily halting construction activities when winds exceed 25 miles per hour.

The results of air emissions estimates for construction are presented in Table 4.8-1.

Table 4.8-1. Total Construction Emissions[1]

Activity	VOC (tons)	NOx (tons)	CO (tons)	$PM_{2.5}$ (tons)	PM_{10} (tons)	SO_2 (tons)	CO_2 (tons)
Non-Road Construction Equipment Exhaust Emissions	0.26	1.73	1.54	0.13	0.13	0.00	407.34
On-Road Vehicle Exhaust Emissions	0.01	0.07	0.04	0.00	0.01	0.00	42.87
Earth Disturbance Fugitive Dust Emissions	--	--	--	5.35	24.7	--	--
Total Emission	0.3	1.8	1.6	5.5	24.8	0.00	450.2
De minimis Threshold (tons per year)	*50*	*100*	*100*	*100*	*n/a*	*n/a*	*n/a*

1 – Emissions are total emissions throughout the 6-year construction period. Calculation methodology, assumptions, and results are presented in Appendix B.

Onsite Stationary Sources

Under the Proposed Action, there would be no change in air emissions of NO_X, CO, VOC, SO_2, and PM from onsite stationary sources. The generators to be operated within the UV would be replacements of the current generators in Building 59A, and at the site of the SRLM Building.

The new generators in the UV would likely be subject to “Tier 4” USEPA emission standards for non-road engines. The Tier 4 emission standards establish emission limits for multiple pollutants, including CO, PM, and NO_X. The generator would also likely be subject to the NSPS for Stationary Compression Ignition Internal Combustion Engines (40 CFR Part 60 Subpart IIII) and the NESHAP for Stationary Reciprocating Internal Combustion Engines (40 CFR Part 63 Subpart ZZZZ). The NIH would consult with the MDE prior to installation to reach final regulatory applicability determinations for the new unit. The NIH would obtain a PTC from MDE prior to installation if the generator exceeds the applicability thresholds defined in COMAR 26.11.02.10 and would confirm that the potential emissions from each generator do not exceed the NSR or PSD applicability thresholds. The NIH would also work with the MDE to determine whether the expected emissions from the generators exceed the NIH's Title V permit levels for the Campus.

Offsite Stationary Sources

The Proposed Action would have a minor, indirect impact on offsite stationary emissions. The continuous operation of the new facilities at the SRLM, PPG, and UV would require the purchase of additional electricity generated at offsite locations. The net increase in electricity demand should be minor.

Mobile Sources

The Proposed Action would have no impact on vehicle-related air emissions because the implementation of the Proposed Action would have no long-term impact to traffic patterns at the Campus and would not affect the number of personnel commuting to and working at the Campus.

GCR Analysis and Emissions Summary

In order to demonstrate that the Proposed Action would result in minor increases in emissions, the NIH conservatively performed a GCR and air emission calculations, presented in Appendix B. This analysis conservatively estimates the emissions of nonattainment criteria pollutants during construction of the proposed facilities for the entire 6-year construction period. The conservative results, even assuming that the total emissions over approximately six construction years would occur only within a single year, and presented in Table 4.8-1, show no exceedance of the applicable *de minimis* criteria of 100 tpy for NOx, 50 tpy of VOC, and 100 tpy of CO and PM2.5. Therefore, the Proposed Action would have minimal air quality impacts and would not require a formal conformity determination. These incremental emissions would also be well below the PSD major source threshold of 250 tpy. The PSD program is applicable to the attainment area. Therefore, it is anticipated that the attainment pollutant emissions under construction of the Proposed Action would be minimal resulting in no significant air quality impacts.

The NIH would work with the MDE to determine regulatory applicability of the NSPS and NESHAP to the new generators, as necessary. However, the Proposed Action does not include any change in operations for any of the departments affected except relocation and consolidation, which would result in more efficient operations. There would be no associated change in the numbers of employees or patients, and therefore no impact to traffic levels or need for parking. There would be no change in the need for or amounts of utilities provided to support operations. The new generators would replace the current generators, so would not result in an increase in air emissions. Therefore, the need to update the current facility air permits, such as the Campus Title V permit, is not anticipated. Thresholds specified in COMAR 26.11.02.10 are not expected to be exceeded; operational emissions are not expected to exceed NSR or PSD levels. The air quality effects of criteria pollutants at the Campus would be insignificant under operations of the Proposed Action and would not interfere with regional efforts to meet the NAAQS.

No-Action Alternative

The No-Action Alternative would result in no changes in Campus air quality compared to the baseline.

4.8.2 Greenhouse Gas Emissions

Proposed Action

Implementation of the Proposed Action would result in minor, direct impacts to Scope 1, 2, and 3 GHG emissions. Construction and operation activities under the Proposed Action would result in emissions of GHG. Scope 1 GHG emissions would include those occurring due to operation of the new generators in the UV, and are expected to be the same as those currently associated with the generators at Building 59A and in the footprint of the SRLM Building. Scope 2 GHG emissions would be generated from the additional electricity purchased by the Campus to power the SRLM, PPG, and UV. Finally, Scope 3 emissions of GHG would result from the temporary construction activities due to the use of on-road and non-road mobile equipment.

The NIH used the MOVES2014b emission factor model (USEPA, 2015) to directly calculate carbon dioxide (CO_2) emissions from Scope 3 emissions occurring during temporary construction activities, in addition to the criteria air pollutants discussed previously. The NIH also used AP-42 emission factors to calculate CO_2 emissions from non-road construction sources (Scope 3).

The results of the calculation are shown in Table 4.8-1, which shows that the total CO_2-equiavalent emissions over the approximately 6-year construction period would be approximately 450 tons. Even if emitted within a single year, this would be approximately 0.2 percent of the 2018 Campus CO_2e emission inventory of 207,147 metric tons (203,875 tons) reported in Table 3.8-6.

The expansion of the CC would require the Campus to purchase additional electricity, which would result in off-site GHG emissions (Scope 2) and the associated losses of transmission/distribution (Scope 3). The NIH did not develop emissions estimates for these GHG emissions, but they are expected to be minor.

No-Action Alternative

The No-Action Alternative would result in no increase in GHG emissions at the Campus.

4.9 Utilities

4.9.1 Potable Water

Proposed Action

Implementation of the Proposed Action would result in modification to potable water infrastructure including installation of a new potable water line(s) within the Campus to supply the SRLM, PPG, and UV.

The Proposed Action would not involve any modification of off-Campus potable water infrastructure, and therefore would have no temporary construction-related impacts on potable water quality or availability to off-Campus users.

The Proposed Action could result in temporary minor impacts on quality or availability of potable water to on-Campus users during construction activities. The new piping would be located in such a way as to minimize the impact to existing utility networks. Precautions would be taken during construction to ensure that existing utility lines are not damaged and service impacts are minimized. For example, the NIH anticipates that when feasible, potable water line modifications would be accomplished via night work in order to minimize the potential impact to nearby buildings. Following construction, the Proposed Action would not impact the NIH's consumption of potable water.

During construction, NIH Campus potable water supplies may be required for dust suppression activities. This use of potable water would not impact quality or availability of potable water to on-Campus or off-Campus uses during construction activities.

The Proposed Action would have no impact on the quality of potable water to the surrounding community or to Campus.

The Proposed Action would not impact the NIH's ongoing efforts to reduce water intensity in accordance with EO 13693.

No-Action Alternative

The No-Action Alternative would not change the Campus utilities infrastructure. The Campus potable water supply would continue to be vulnerable to WSSC outages caused by natural disasters or other emergencies. During outages, mandatory evacuations of the facility would be required due to a lack of water to supply fire sprinklers and fire protection equipment.

4.9.2 Other Campus Utilities

Proposed Action

The Proposed Action would result in construction activities as detailed in Section 2.1 (Proposed Action). As illustrated in Section 3.9 (Utilities), these construction activities would result in construction of new electrical connections via new feeders from the PEPCO Substation Building 63 to the UV. As needed, displaced utilities would be re-routed to ensure continued availability where needed. Precautions would be taken prior to and/or during demolition and construction to minimize service impacts. For example, the NIH could re-route electrical service to buildings prior to demolition or construction activities that would otherwise disturb or displace the electrical line that services those buildings. Any new utilities infrastructure would be located and installed in such a way as to minimize the impact to existing utility networks.

The Proposed Action would not change the number of emergency generators at the Campus.

The Proposed Action would directly impact the demand for other utilities. There would be an increase in the demand for chilled water and steam, supplied via existing underground distribution systems provided to support operations. It is expected that the increase would be negligible and would be supported by the current systems without need for addition or modification.

No-Action

Under the No-Action Alternative, there would be no change to Campus infrastructure. No components of steam, electricity, natural gas, fuel oil, or compressed air infrastructure would be displaced. The No-Action Alternative would not impact demand for these other utilities.

Under the No-Action Alternative, the utility infrastructure serving the CC would eventually be insufficient to serve the needs to the facility. Normal and emergency power, communication, and heating, cooling and ventilation systems would periodically be interrupted for repairs, or due to unexpected outages. The inability to control temperature and humidity would negatively impact the patient samples that are being processed and tested. The electrical equipment in Buildings 59 and 59A would need replacement due to space constraints, the inability to acquire replacement parts, and failure of the current system to meet requirements of the Life Safety Code (NFPA 101) and EC standards of the Joint Commission.

4.10 Sustainability

Proposed Action

The Proposed Action would likely result in a minor increase in energy demand associated with the construction of the new SRLM, PPG, and UV. This minor increase would not detract from the NIH's efforts to reduce energy intensity under EO 13693.

The Proposed Action would construct new structures including the SRLM, PPG, and UV. During design and construction of these buildings, the NIH would implement all applicable sustainability requirements, including those from the DRM.

For additional discussions relevant to sustainability impacts of the Proposed Action, refer to Section 4.4.3 (Stormwater) and Section 4.11 (Wastes).

No-Action

The No-Action Alternative would not result in any changes to Campus infrastructure. The NIH energy demand at the Campus would not change. The sustainable stormwater design features discussed in Section 4.4.3 (Stormwater) would not be implemented.

4.11 Wastes, Hazards, and Safety

4.11.1 Non-Hazardous Solid Wastes

Proposed Action

Implementation of the Proposed Action would result in minor impacts to non-hazardous solid waste generation associated with construction activities including construction debris, biological debris (e.g. felled trees) and excavated soil and asphalt. Any impacts would be direct and temporary, and occur only during the construction period. As part of construction requirements, the NIH would require the contractors to recycle and reclaim significant portions of waste and demolished materials, reducing the waste stream from construction activities. Any excavated soil not able to be reused onsite would be transported offsite to another NIH location that would be able to accommodate the spoils or the NIH would have to make arrangements with a third party to accept their construction spoils.

No new solid waste from operations is expected to be generated as a result of the Proposed Action. The NIH would continue to generate, manage, and dispose of solid waste as described in Section 3.11.1 (Non-Hazardous Solid Wastes).

No-Action Alternative

The NIH would not generate any new solid waste as a result of implementing the No-Action Alternative. The NIH would continue to generate, manage, and dispose of solid waste as described in Section 3.11.1 (Non-Hazardous Solid Wastes).

4.11.2 Hazardous Wastes

Proposed Action

Implementation of the Proposed Action would result in a minor, direct impact on hazardous waste generation due to operation, maintenance and repair of generators. These activities could result in the generation of waste oil or diesel fuel but, because the new generators would replace existing generators, the total amount of waste generated is not expected to change. Personnel would exercise caution in the handling, storage and disposal of any waste oil and/or fuel in order to prevent release to the environment. Wastes would be stored and disposed or recycled in accordance with state and federal regulations.

No-Action Alternative

The NIH would not generate any new hazardous wastes as a result of implementing the No-Action Alternative. The NIH would continue to generate, manage, and dispose of hazardous wastes at the Campus as described in Section 3.11.2 (Hazardous Wastes).

4.11.3 Safety

Proposed Action

Implementation of the Proposed Action would be beneficial with respect to safety threats to patients, visitors, and employees using the Building 10 parking garage. The existing garage has serious structural deficiencies due to corrosion of the concrete and underlying (exposed) rebar, despite on-going maintenance. Repairs to the garage are expensive, due to patient occupancy on floors above. The concrete and rebar corrosion is from years of salt and chemicals brought into the garage by the vehicle traffic. This condition poses a safety threat to users of the facility, and a liability threat to the government, due to the potential for falling pieces of concrete. This safety threat would be eliminated under the Proposed Action by eliminating car traffic within the garage, and eventually converting the garage to other uses.

No-Action Alternative

Under the No-Action Alternative, safety threats to patients, visitors, and employees using the Building 10 parking garage would increase over time as the structure continued to deteriorate.

4.12 Socioeconomics

Proposed Action

Implementation of the Proposed Action would result in temporary minor impacts on the population and the availability of housing, due to construction workers who might temporarily relocate to the area. The Proposed Action would result in no permanent impacts to these resources as there is no projected change in staff. Temporary impacts on population and housing associated with construction activities are expected to be minor as Bethesda is a densely populated urban area and therefore the small temporary increase in population would be very small on a percentage basis.

Bethesda as a whole has relatively low proportions of minority, or low-income populations compared to the county and state levels. An EJSCREEN which considers the demographics of the population within 5 miles of the project site yields the same conclusion. As discussed above, the impacts to social resources such as population and housing would be minor and temporary. Therefore, the Proposed Action would not result in disproportional impacts to sensitive populations.

Implementation of the Proposed Action would improve performance of the NIH’s mission to conduct and support innovative biomedical research by addressing deficiencies in the current facilities. This would reduce the potential for disruptions to the NIH’s mission, the fulfillment of which is a key driver of Montgomery County’s economy.

The Proposed Action would impact on-Campus recreation through the removal of the playground located within the proposed SRLM Building Site. This would be a moderate impact to on-Campus recreation for patients and visitors.

The Proposed Action would not have a significant impact on recreational activities and the use of nearby parks off-Campus. Temporary construction-related noise levels would be minor and would not affect the recreational use of nearby parks (see Section 4.7, Noise). Air emissions from operations and construction activities would not be expected to affect ambient air quality within nearby parks (see Section 4.8, Air Quality). Impacts to viewscapes are expected to be minor due to intervening topography, vegetation, and buildings (see Section 4.5, Visual Impacts).

The Proposed Action would result in minor benefits to the local economy during construction activities (e.g., meals and incidentals for construction workers). The Proposed Action would not result in a permanent change in job availability at the Campus or associated effects on the local economy.

No-Action Alternative

The No-Action Alternative would have no impact on the population (including sensitive populations), housing, or open spaces in the surrounding area.

The No-Action Alternative would not re-locate the operations of several departments from their current locations to the newly constructed SRLM Building nor would it address deficiencies in the parking garage underneath the CC and in the current power infrastructure in the Building 59 Switching Station and Building 59A Emergency Generator Station. Therefore, the No-Action Alternative would not meet the project purpose and need. It could potentially affect the NIH's mission to conduct and support innovative biomedical research, a key driver of Montgomery County's economy. Impacting the NIH's mission could result in significant economic impacts on the surrounding communities.

The No-Action Alternative would not affect parks or recreation in the vicinity of the Campus.

4.13 Cultural and Historic Resources

4.13.1 Architectural Resources

Proposed Action

Construction of the SRLM Building, PPG, and UV would result in direct, temporary construction impacts (e.g., air quality, noise, and visual resources) to the NRHP-eligible Convent. Dust and noise resulting from construction activities would be discernible at the Convent, and viewshed would change from the present conditions to an active construction site. These impacts would be direct, temporary, and minor.

Construction of the PPG and UV would result in permanent, direct impacts to the contributing element consisting of the original perimeter wall of the NRHP-eligible Convent (Building 60). The PPG/UV would be as close as seven feet from the perimeter garden wall in some locations. The original portions of the wall are part of the "Preservation Zone" of the NRHP-eligible Convent and are a defining feature of the facility. The terra cotta masonry units of the perimeter wall are in need of repair, particularly along the eastern side of the property adjacent to the proposed PPG/UV site. The southeast corner of the perimeter wall was previously modified to install a gate and pedestrian walkway at an angle inconsistent with the rest of the wall. The non-original gate would be removed as part of the project activities and relocated to the west of its current location or an in-kind replacement would be constructed at the new location. The garden path would be rerouted to emerge into the pedestrian plaza and ramp would connect to the sidewalk along South Drive. These modifications would restore the original southeast corner of the Convent perimeter wall.

Construction of the SRLM, PPG, and UV would result in permanent long-term changes to the viewshed of the NRHP-eligible Convent. Each of these sites is visible from the Convent grounds and windows. The

PPG/UV facility would dominate the view east from the Convent gardens and portions of the Convent where it is not screened by foliage. NIH evaluated multiple massing and plan studies for the PPG/UV facility to determine the optimal layout. During this evaluation, NIH performed solar studies to analyze the impact of building height on the Convent garden. These studies determined there would be a slight difference in shade in the eastern portion of the garden, approximately 30 minutes to an hour depending on the time of the year. The PPG/UV facility design seeks to minimize the visual effect of the facility as much as possible. The structure would be clad in precast panels in two colors to contrast vertical and horizontal elements which would add visual interest and reduce the apparent length of the building. The patterns in the precast concrete should be responsive to typical materials used in other facilities onsite including the terra cotta of the perimeter garden wall. The vertical panels would also minimize light pollution from the garage into the Convent and gardens. NIH plans to add additional trees to the Convent garden as well to further minimize the visual impacts.

The landscape surrounding the Convent and gardens has changed significantly since the facility was constructed in 1923. Building 10 to the east, MLP-9 to the southeast, and Buildings 37 and 40 to the south are all clearly visible from the Convent and gardens. The construction of the PPG/UV would, however, be closer to the Convent and gardens than these other structures. The change to the viewshed would constitute an impact to Building 60 and would be at least partially mitigated by the planting of additional screening trees in the Convent gardens.

All work conducted on the original perimeter wall would conform with requirements of the current Secretary of the Interior's Standards for Historic Preservation. Care would be taken when disassembling the original wall to preserve historic bricks and terracotta masonry units intact. The new gate would be sympathetic to the historic vehicle gate and perimeter wall design while also being clearly distinguishable from the original historic fabric and also being reversible in construction. The restored section of the southeast corner of the perimeter wall would reuse salvaged historic material when possible. New materials would match the historic characteristics to the extent possible, be compatible in appearance, and yet remain distinguishable from original material. These measures would minimize impacts associated with the proposed actions.

Pursuant to Section 106 of the NHPA, the NIH initiated consultation with the Maryland (MD) SHPO to obtain their concurrence with this finding. The MD SHPO requested additional information regarding the project on 29 May 2019. Appendix C presents the correspondence associated with this consultation.

No-Action Alternative

Under the No-Action Alternative, no new structures would be constructed and the existing conditions at the Campus would remain unchanged. Therefore, the No-Action Alternative would not affect any historic properties or MIHP-listed properties.

4.13.2 Archeological Resources

Proposed Action

The Proposed Action would not involve any earth disturbance within archeologically sensitive areas or any previously identified archeological sites.

The Proposed Action would not affect any archeological sites listed or eligible for listing on the National Register. The Proposed Action would overlap archaeological site 18MO464, however, this site has been determined not eligible for the NRHP. As described earlier, the NIH initiated consultation with the MD SHPO to obtain their concurrence with this finding. Appendix C presents the correspondence associated with this consultation.

No-Action Alternative

Under the No-Action Alternative, the NIH would not perform any earth disturbance associated with construction of new structures. Therefore, the No-Action Alternative would not affect any archeological sites listed or eligible for listing on the National Register.

This Page Intentionally Left Blank

5.0 Cumulative Impacts

The Proposed Action, in combination with other past, present and reasonably foreseeable actions at or near the Campus, could potentially contribute to cumulative improvements and impacts to certain environmental resources. Cumulative impacts can result from individually minor but collectively significant actions taking place over a specific period of time.

5.1 Past, Present, and Reasonably Foreseeable Future Actions

As discussed in Section 3.2 (Land Use and Zoning), the NIH has developed a Campus Master Plan that identifies planned development at the Campus. The NIH projects potential growth over 20 years from 20,000 to 24,000 employees. To accommodate this growth and address aging facilities, the NIH plans to construct new buildings for research, administrative offices, amenities and other support facilities. When feasible, older historic buildings would be renovated and converted to administrative or support functions. The NIH would upgrade utilities and roadways to support this growth and address aging infrastructure. This includes additions to the CUP and distribution systems for steam, chilled water, and electric power. The Campus Master Plan also identifies broad goals for development and land use, such as enhancing the natural buffer zone around the Campus periphery by removing surface parking and adding plantings.

Because most Campus Master Plan projects are conceptual and not yet funded, they are not considered to be reasonably foreseeable future projects. In addition, NIH continually conducts maintenance on existing facilities, including replacing aging HVAC and other utility systems. These projects are ongoing and can occur at any location throughout the Campus.

This cumulative impact analysis considers the potential impacts associated with major projects that have been funded, and are therefore reasonably foreseeable future actions. These include:

(1) **Center for Disease Research**: The specific location for this project has not yet been determined. When it is constructed, it would replace the Building 14 complex.

(2) **Replace Clinical Center Patient and Visitor Parking:** This project is a proposed multi-level parking garage on the south side of the Campus.

(3) **VRC Lab Expansion, Building 40 Addition:** This project would occur on the west side of Campus, just south of the PPG and UV.

(4) **NIA Alzheimer’s Disease Facility:** This project would be located in the southwest portion of the Campus, east of Building 46. The temporary facility will be a two-story metal building (1st floor: structural steel frame with insulated metal panel walls and roof sitting on a slab on grade concrete foundation. 2nd floor: composite concrete and metal deck supported by open web steel joist and steel columns). The facility will be approximately 24,000 GSF, split between office and laboratory spaces. The expected occupancy of the facility will be approx. 130 people, with approximately 60% office and 40% laboratory personnel.

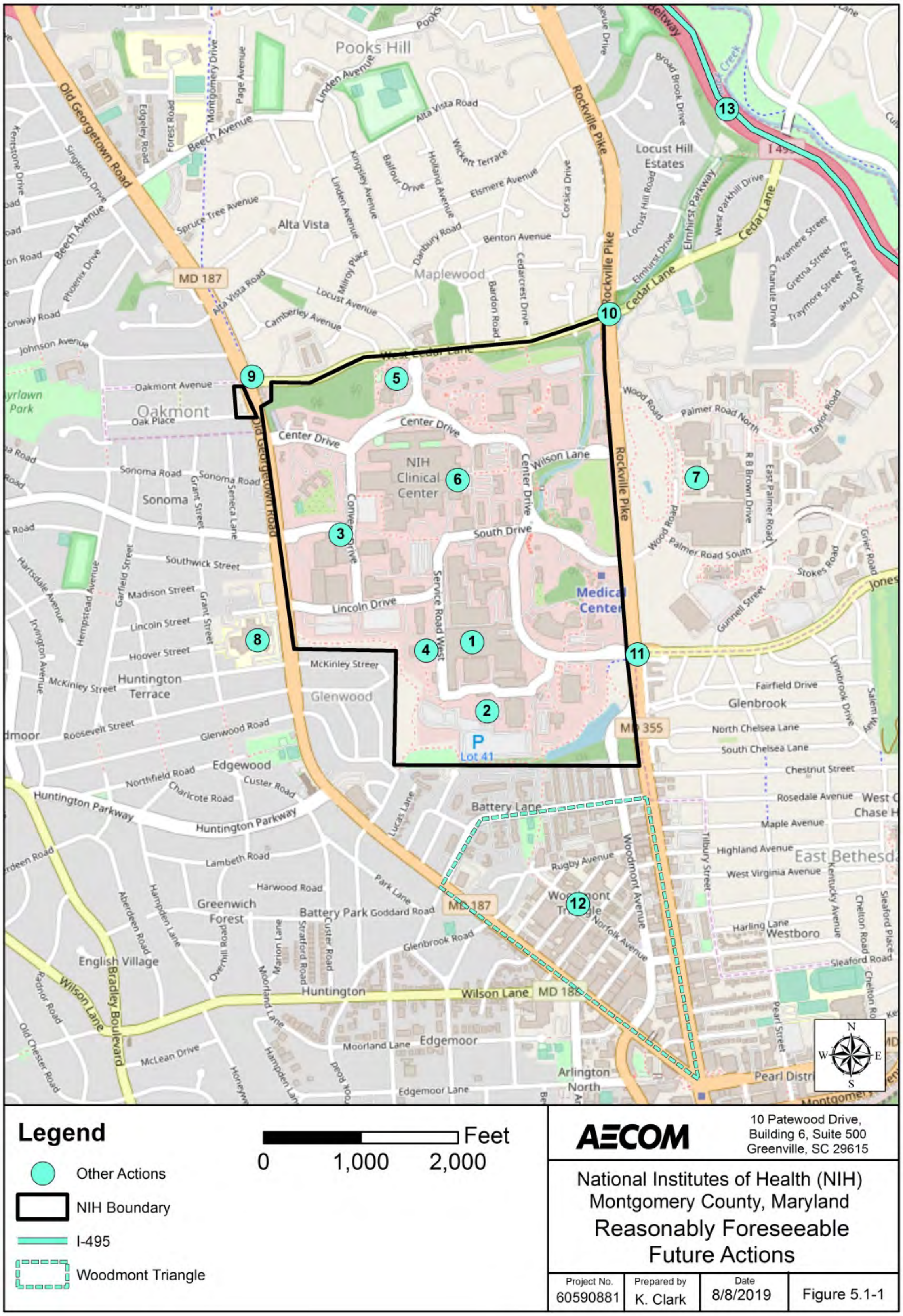


Figure 5.1-1. Reasonably Foreseeable Future Actions

(5) The Children's Inn at NIH – One of the 2025 strategic plan goals for the NIH Children's Inn is to establish a state-of-the-art "smart" living environment for the residents. This includes developing a master facility plan focused on ensuring families the best in comfort, safety, and security. Modernizing rooms and common spaces. Incorporating best practices in hospitality design, and integrating new technologies into every aspect of the living environment – from infection control to communication with residents. The strategic plan also calls for implementation of a comprehensive facility maintenance management system to optimizer use of rooms and maximize the number of families that can be accommodated each year (The Children's Inn at NIH, 2019a). The Children's Inn at NIH has partnered with the architectural, planning, and consulting firm Gensler to create a facility master plan for a redesign of interior spaces. The initial draft of the master plan is anticipated to be completed by late summer 2019 (The Children's Inn at NIH, 2019b).

(6) Building 10 E Wing Renovations – NIH has contacted with architectural firm Perkins & Will for renovation of E Wing of Building 10 to ensure the various institute spaces within this wing meet modern-day needs. Construction within the approximately 250,000 square foot wing would occur in stages from 2018 through 2021. The space was formerly patient care and laboratory areas and after renovation would house a mixture of laboratory, office, and classroom spaces (Sernovitz, 2015).

Planned Projects at Adjacent Institutions:

(7) Expansion of Medical Facilities and University Expansion at NSA Bethesda. The Defense Base Realignment and Closure (BRAC) Commission, led to a series of projects at WRNMMC and the NNMC. At WRNMMC, two new buildings have been constructed, the American Building outpatient facility and Arrowhead building addition to the NNMC which houses emergency in-patient services. Two newly constructed parking structures added 2,150 parking spaces. Interior renovations to NNMC's existing facilities further consolidated the two hospitals (Clark Construction, 2019a). Current activities include construction of a new parking garage, construction of a pedestrian tunnel, construction of a new base communications center, installation of new emergency generators, and utility work in preparation for additional remodeling. These construction projects are estimated to be completed by 2020 (Walter Reed National Military Medical Center, 2019).

(8) Expansion of Suburban Hospital. Suburban Hospital in Bethesda is expanding its existing facilities with a 300,000-SF addition. The addition will include private patient rooms, pre- and post-operative areas, a new main lobby, an education and conference center, physician offices, and administrative spaces. Two new catherization labs and 14 new operation room suites will also be constructed. The hospital's dining area will be renovated and additional interior updates will help maintain patient safety. Modifications will also include a new soiled loading dock, connector tunnel and bridge as well as rebuilding the hospital's existing clean loading dock. The project is anticipated to be completed in 2019 (Clark Construction, 2019b).

Transportation/Roadwork Projects near the Campus:

(9-11) Intersections near Bethesda Naval Center – Four intersections are being reconstructed near the southeastern corner of the NIH Campus are currently in various stages of design or construction to improve key locations along access routes to the Bethesda Naval Center. Improvements vary at each intersection but generally include the addition of through lanes and/or turning lanes, bicycle and pedestrian facilities will be provided where appropriate. As of October

2018, construction activities at the intersections of (11) MD 187 (Old Georgetown Road) and West Cedar Lane and (12) MD 355 (Wisconsin Avenue) and Cedar/West Cedar Lane are complete. Construction activities and utility relocations at the intersection of (13) MD 355 (Wisconsin Avenue) and Jones Bridge Road are underway. Phase 1 and 2 of the (14) MD 185 (Connecticut Avenue) and Jones Bridge Road intersection are complete. Design activities, utility relocations, and right-of-way acquisitions for Phase 3 are in progress. Utility relocations are anticipated to be complete by Spring 2021 with construction on the intersection is anticipated to occur from Spring 2020 through Spring 2022. The intersection improvements project is being directed by the Maryland Department of Transportation State Highway Administration (Maryland State Highway Administration, 2019).

Residential/Commercial Development Projects within One-Half Mile of the Campus:

(12) Office/Residential/Commercial/Transportation Projects in Downtown Bethesda – there are a number of office, residential, commercial, and mixed-use projects in various stages of development within Downtown Bethesda, especially within the Woodmont Triangle. Projects include new office buildings and apartment buildings, some of which will have retail or commercial facilities, often on the ground floor. Marriott International will be establishing a new hotel and headquarters. Additionally, the Purple Line, a new 16-mile light rail that will extend from Bethesda in Montgomery County to New Carrollton in Prince George's County will be located within this area. These construction activities are anticipated to be occurring through at least 2022. As some projects are still in early design phases, it is likely construction will continue beyond that date as well.

(13) I-495 (Capital Beltway)/I-270 Widening – The Maryland State Highway Administration and Department of Transportation have developed plans to widen approximately 70 miles of interstate along I-495 (the Capital Beltway) and I-270 to ease traffic congestion. The project would occur as a public-private partnership. The State Highway Administration and Department of Transportation held six workshops in April and May 2019 to present the traffic, environmental, and financial analysis associated with the various project alternatives and recommendations for alternatives to be retained for further evaluation in the Environmental Impact Statement. The Final EIS on this project is anticipated in Fall 2020 and construction of the first phase would be anticipated to being shortly after publication of the Final EIS and Record of Decision. The first Phase would include widening of I-495 from Bethesda to Greenbelt (Maryland Department of Transportation, 2019a; 2019b; and 2019c).

5.2 Cumulative Impacts

The sections below evaluate the long term potential cumulative impacts of the Proposed Action when viewed in combination with the past, present, and reasonably foreseeable actions listed above.

As discussed in Section 4 (Environmental Consequences) and summarized in Table S-1, certain resources would not be substantially affected by the Proposed Action and therefore were not considered in this cumulative effects analysis. No significant, adverse impacts are expected within the resource areas of Topography, Geology, and Soils (Section 4.1), Land Use and Zoning (Section 4.2), Wildlife (Section 4.3.2), Groundwater (Section 4.4.1), Surface Water (Section 4.4.2), Wetlands (Section 4.4.4), Floodplains (Section 4.4.5), Greenhouse Gas Emissions (Section 4.8.2), Utilities (Section 4.9), Sustainability (Section 4.10), Wastes, Hazards, and Safety (Section 4.11), or Socioeconomics (Section 4.12). Most of the impacts to these resources would be minor, would cease upon the completion of construction, and would not contribute to issues of significant regional concern. Impacts to Wastes, Hazards, and Safety would be permanent and beneficial, with respect to addressing current safety concerns in the Building 10 garage, but would not contribute to addressing an issue of significant regional concern. Therefore, these resource areas will not be discussed again.

Other resources may be beneficially or adversely impacted as a result of implementation of the Proposed Action. Impacts associated with construction of the Proposed Action, if implemented at the same time as the present or foreseeable actions listed above, could result in temporary, adverse cumulative impacts to Vegetation, Stormwater, Visual Resources, Transportation and Traffic, Noise, Air Quality, and Cultural and Historic Resources. In addition, the existence and operation of the new facilities could contribute to long-term cumulative impacts to Visual Resources and Cultural and Historic Resources. The contributions of the Proposed Action to cumulative impacts to these resources are included in the analyses below.

5.2.1 Vegetation

Temporary Impacts

Construction of the Proposed Action, along with the actions described in the Campus Master Plan, may result in cumulative impacts to vegetation on Campus. As discussed in Section 4.3.1 (Vegetation), construction of the SRLM and PPG/UV buildings would result in a net loss of approximately 125,196 SF (2.9 acres) of vegetated area.

Implementation of the Campus Master Plan would result in 15 acres of new vegetated spaces, 4 acres of which would be within the perimeter buffer. Although it is foreseeable that the full plan may not be implemented, current NIH tree, forest and vegetation policies remain in place requiring ongoing protection, replacement, and enhancement. Tree losses would be determined on an individual project basis but policy prohibiting an overall net loss of vegetative cover or number of trees remains in place. Impacts would be minor, adverse, long-term, and site specific (NIH, 2014a).

As a result of these policies, the cumulative impact to vegetation would be no greater than the impacts that would result from implementation of the Proposed Action.

5.2.2 Stormwater

Temporary Impacts

As discussed in Section 4.4.3 (Stormwater), implementation of the Proposed Action would result in minor long-term impacts to stormwater, due to increased impervious surface. The Proposed Action would increase impervious surface at the Campus by approximately 125,196 SF (2.9 acres), which would increase runoff within the Rock Creek Watershed relative to baseline conditions.

The Campus Master Plan (NIH, 2014) reported that the total existing baseline impervious area on the Campus was 129.2 acres, or approximately 41.8 percent of the 310 acre Campus. Following completion of the Proposed Action, the percentage of total impervious area at the Campus would increase from 41.8 percent to approximately 42.6 percent. In general, implementation of other planned construction actions identified in the Campus Master Plan is expected to result in a benefit to stormwater due to offsetting demolition, net reduction in impervious area, and incorporation of improved stormwater management techniques (e.g., low impact development). The NIH would ensure each individual action would comply with MDE requirements outlined in the Maryland Stormwater Management Guidelines for State and Federal Projects. Long-term stormwater impacts would be expected to be minor.

Each of the off-Campus actions identified in Section 5.1 (Past, Present, and Reasonably Foreseeable Future Actions) has the potential to further impact stormwater quantity and quality. As Bethesda is a developed urban environment, many of these actions are re-development (i.e., demolish an existing building and construct a new building) and therefore would likely result in minor net increase or decrease in impervious area and resulting stormwater runoff. Many of these actions would occur in the same watershed, and would therefore have the potential to have a cumulative impact to Stoney Creek (and Rock Creek).

The MDE regulations outlined in the Maryland Stormwater Management Guidelines for State and Federal Projects and the Energy Independence and Security Act (EISA) have been adopted to ensure that proposed on-site developments would have no impacts to off-site areas downstream. Each individual proposed building would be required to meet both MDE and EISA standards but none of the development scenarios considered in the Master Plan increase the overall Campus impervious area-to-open space ratio typically used for the design of additional storm water management facilities. The state stormwater permitting process would ensure that stormwater impacts associated with other projects are properly mitigated. Also, the existing on-Campus stormwater management facilities would serve to further mitigate the contribution of any Campus projects to any regional impact. The existing regional facilities would be sufficient for all development scenarios and no cumulative effects are anticipated. The cumulative surface water for the regional facilities will be impacted by proposed development at the Walter Reed National Military Medical Center, Suburban Hospital expansion, current and future large development project in the Central Business District of Bethesda.

5.2.3 Visual Resources

Temporary Impacts

As discussed in Section 4.5 (Visual Resources), construction of the Proposed Action would result in minor impacts to viewscapes from outside the Campus, and minor to moderate impacts to viewscapes from inside the Campus, resulting from the presence of large construction equipment and possible additional lighting for construction at night. These impacts would be localized to the specific sites of the Proposed Action, and would not contribute to cumulative impacts associated with other projects.

Long-Term Impacts

As discussed in Section 4.5 (Visual Resources), long-term visual impacts for on-Campus observers are anticipated to be moderate and significant. The PPG/UV project area is currently a surface lot with a large number of large trees. This is significantly different from a six-story parking structure and utility vault. The structure changes the view from a natural area to an urban area. Views of the PPG and UV from Convent Drive would be considerably different than the existing scenery. Landscaping along Convent Drive may ameliorate this slightly, but due to the size and placement of the proposed structure, it cannot be hidden from view. Views from the NRHP-eligible Convent would be altered, with the PPG and UV large enough to be visible from the Convent grounds. Although proposed revegetation involves placing trees in between the Convent and the PPG, it is reasonable to assume the trees would not completely block the view given the scale of the structures, the distances separating them from the Convent, and the eventual height of the trees. The structure would be visible over the garden wall and trees and would contrast with the visual nature of the Convent area. The Convent area has much smaller buildings than the NIH area to the east and the Convent includes extensive open space and natural areas. The appearance of a large institutional structure on the periphery of the more natural scenery would result in a significant change in the viewshed including an impact in the amount of sunlight that reaches the Convent area at certain times of day.

With other buildings along Convent Drive, the Proposed Action would contribute to a cumulative perception of higher density and scale, which could lead to an observer feeling more crowded in comparison to current conditions. Additional actions planned by the NIH, when coupled with the visual impacts that would result from implementation of the Proposed Action, could result in a moderate cumulative impact to lighting and viewscapes. Implementation of the Proposed Action would not detract from NIH's goal to improve the vegetative buffer around the Campus perimeter, which serves to mitigate the combined visual impacts of the listed construction projects.

The off-Campus actions listed in Section 5.1 (Past, Present, and Reasonably Foreseeable Future Actions) would be located sufficiently distant from the Campus that they would not contribute to a cumulative impact to lighting or viewscapes. Therefore, those projects would not combine to present additional cumulative impacts.

5.2.4 Transportation and Traffic

Temporary Impacts

As discussed in Section 4.6 (Transportation and Traffic), implementation of the Proposed Action would result in minor temporary impacts such as increases in traffic due to construction vehicles. Temporary lane closures along Center Drive would impact access to facilities along Center Drive including the Child Care Center, Children's Inn, and emergency vehicles from the fire station. Construction of other Campus projects concurrently with the Proposed Action would also result in modifying traffic patterns, temporary lane closures, and use of access gates, resulting in the potential to contribute to cumulative temporary traffic impacts.

Construction of the Proposed Action would also result in a temporary increase in traffic on the off-Campus roadways due to deliveries and commuting workers. Construction of projects at WRNMMC and the NNMC is expected to continue through 2020, so may overlap with construction of the Proposed Action. Construction of intersections near the Bethesda Naval Center is expected to continue through 2022, and although construction within the Woodmont Triangle is reported to continue through 2022, additional construction projects in this urban area are expected to be proposed. Many of the construction deliveries and commuters for the Proposed Action are expected to access the Campus using the Capital Beltway and I-270, which would contribute traffic to these highways concurrent with the proposed widening projects.

These off-Campus actions, when coupled with the cumulative impacts associated with temporary construction activities at the Campus, could result in a temporary moderate cumulative impact to traffic on off-Campus roadways. Although the cumulative impact would be moderate, the contribution of the Proposed Action to this cumulative impact is relatively minor. The other off-Campus actions are sufficiently distant that they would not be expected to significantly contribute to cumulative traffic impacts adjacent to the Campus.

5.2.5 Noise

Temporary Impacts

As discussed in Section 4.7 (Noise), the Proposed Action would result in temporary minor noise impacts due to construction activities. Construction of other Campus projects concurrently with the Proposed Action may result in a cumulative increase in noise levels in the vicinity of the Convent, Children's Inn, CC, and laboratory and office buildings. Additional actions planned by the NIH, when coupled with the noise impacts that would result from implementation of the Proposed Action, could result in a temporary moderate cumulative impact to noise. It is not anticipated that the cumulative noise levels would exceed state or county requirements for construction noise. Therefore, the cumulative impact to temporary noise would be expected to be not significantly greater than the impacts that would result from implementation of the Proposed Action.

In general, noise levels from on-Campus construction projects, including the Proposed Action, are expected to drop rapidly with distance, especially when surrounded by a buffer area of trees. Therefore, noise from construction of on-Campus projects is not expected to contribute to noise levels associated with off-Campus traffic and construction experienced by nearby residents. Similarly, noise associated with off-Campus traffic and construction is not expected to contribute to cumulative noise impacts on the Campus.

5.2.6 Air Quality

Temporary Impacts

As discussed in Section 4.8 (Air Quality), construction activities associated with the Proposed Action would result in temporary minor emissions of NO_X, VOC, CO, PM, and SO_2 from the use of construction equipment, on-road delivery and commuting vehicles, and fugitive dust emissions from disturbed areas. The air emissions calculation presented in Table 4.8-1 demonstrated that the Proposed Action would have minimal air quality impacts and would not require a formal conformity determination.

Implementation of other planned projects on the Campus would result in additional impacts to air quality, including increased mobile source emissions (vehicles) and stationary source air emissions (primarily due to increased operations at the CUP). The NIH proposes to implement several design mandates by 2020 to ensure new buildings that enter the planning stage achieve zero-net energy by 2030. These ongoing and foreseeable reductions in energy intensity, and the associated reductions in emissions of air pollutants, would help to offset the increased mobile source and stationary source emissions associated with other Campus construction projects. Therefore, implementation of other Campus construction projects would result in minor changes to air emissions and air quality, and would not interfere with regional efforts to meet air quality standards.

Additional off-Campus projects that would contribute construction emissions include projects at WRNMMC and the NNMC (through 2020), construction of intersections near the Bethesda Naval Center (through 2022), construction within the Woodmont Triangle (through 2022, and possibly beyond), and proposed widening projects for the Capital Beltway and I-270. In addition, the various residential and office development projects in Bethesda will tend to increase mobile source (vehicle) emissions and stationary source emissions due to higher demand for electricity.

As a federal facility, the Bethesda Naval Center is also subject to EO 13693 goals related to reducing energy intensity and GHG emissions. This should result in a cumulative benefit to regional air quality.

As discussed in Section 4.8 (Air Quality) and Appendix B, emissions from the Proposed Action would be well below CAA GCR *de minimis* levels and would not interfere with regional efforts to meet air quality standards. This finding, in combination with the broader efforts by the NIH and NSA Bethesda to reduce energy intensity and GHG emissions, support the determination that the Proposed Action would not contribute to adverse cumulative impacts to air quality.

5.2.7 Cultural and Historical Resources

Temporary Impacts

As discussed in Section 4.13.1 (Architectural Resources), construction of the SRLM Building, PPG, and UV would result in direct, temporary construction impacts (e.g., air quality, noise, and visual resources) to the NRHP-eligible Convent. Dust and noise resulting from construction activities would be discernible at the Convent, and viewshed would change from the present conditions to an active construction site. Implementation of other planned projects in the immediate area may contribute additional noise, dust, and visual impact, increasing the cumulative impact to the Convent during construction. However, most other projects on the Campus, and all off-Campus projects, would not be expected to contribute to a cumulative impact to historic properties within the Campus.

Long-Term Impacts

Also as discussed in Section 4.13.1 (Architectural Resources), construction of the PPG and UV would result in permanent impacts to the contributing element consisting of the original perimeter garden wall of the NRHP-eligible Convent (Building 60). The PPG/UV would be as close as seven feet from the perimeter wall in some locations. As shown in Figure 3.13-3, the original Convent and garden wall have already been impacted by past projects. The original Convent building has had an addition, and the original wall has been replaced in three locations. The southeast corner of the perimeter wall was previously modified to install a gate and pedestrian walkway at an angle inconsistent with the rest of the wall. The remaining original portions of the wall are part of the “Preservation Zone” of the Convent, and are a defining feature of the facility. The impact of the Proposed Action would contribute, cumulatively, to the impact from past projects. There are no reasonably foreseeable future projects that would contribute to these cumulative impacts.

To address these impacts, the NIH plans to restore some of the replaced wall. The terra cotta masonry units of the perimeter wall are in need of repair, particularly along the eastern side of the property adjacent to the proposed PPG/UV site. The non-original gate would be removed as part of the project activities and relocated to the west of its current location or an in-kind replacement would be constructed at the new location. The garden path would be rerouted to emerge into the pedestrian plaza and ramp would connect to the sidewalk along South Drive. These modifications would restore the original southeast corner of the Convent perimeter wall. All work conducted on the original perimeter wall would conform with requirements of the current Secretary of the Interior’s Standards for Historic Preservation. Care would be taken when disassembling the original wall to preserve historic bricks and terracotta masonry units intact. The new gate would be sympathetic to the historic vehicle gate and perimeter wall design while also being clearly distinguishable from the original historic fabric and also being reversible in construction. The restored section of the southeast corner of the perimeter wall would reuse salvaged historic material when possible. New materials would match the historic characteristics to the extent possible, be compatible in appearance, and yet remain distinguishable from original material. These measures would minimize impacts associated with the proposed actions, as well as address cumulative impacts to the wall associated with past projects.

Construction of the SRLM, PPG, and UV would also result in permanent long-term changes to the viewshed of the NRHP-eligible Convent. Each of these sites is visible from the Convent grounds and windows. The change to the viewshed would constitute an impact to Building 60 and would be at least partially mitigated by the planting of additional screening trees in the Convent gardens.

This Page Intentionally Left Blank

6.0 List of Preparers

Name: Robert Dover, P.G.
Position: Project Manager
Firm: AECOM
Items: Overall EIS coordination, analysis, review, and documentation. Stormwater; Utilities; Sustainability; and Wastes, Hazards, and Safety
Experience: B.S. Geology, M.S. Geology; 33 years' experience in environmental impact analysis, compliance, and remediation

Name: Carol Butler Freeman, P.G.
Position: Environmental Scientist
Firm: AECOM
Items: Topography, Geology, and Soils; Transportation and Traffic; and Cultural and Historical Resources
Experience: B.S. Geology, M.S. Space Studies, M.S. Geological Science; 11 years' experience in environmental impact analysis and compliance

Name: Larry Neal
Position: Biologist
Firm: AECOM
Items: Biological Resources
Experience: B.S. Biology, M.S. Oceanography; 44 years of experience in environmental impact analysis and NEPA compliance

Name: Zoe Knesl
Position: Environmental Scientist
Firm: AECOM
Items: Land Use and Zoning; Visual Resources; Water Resources
Experience: B.A. Integrative Biology/Ecology, B.A. Studio Art, M.S. Marine Science; 20 years' experience NEPA, Wetlands delineation, Biological/Visual/Land Use technical evaluations

Name: Anneliesa Barta
Position: Environmental Planner
Firm: AECOM
Items: Noise; Air Quality; Socioeconomics
Experience: B.S. Psychology, M.S. Finance; 12 years' experience in NEPA documentation, Socioeconomic, Environmental Justice, and Land Use Technical Assessments, Public Outreach and Public Meeting Support

Name: Erika Grace
Position: Project Manager
Firm: AECOM
Items: NEPA and QA Review
Experience: B.S. Biological Sciences, M.S. Environmental Toxicology; 12 years' experience in NEPA, environmental impact analysis, and technical review

Name:	Katie Clark
Position:	GIS Specialist
Firm:	AECOM
Items:	Graphics production, metrics calculations
Experience:	B.S. Geology; 12 years' experience in database management, environmental due diligence, and GIS

7.0 List of Agencies and Persons Consulted

Agency: Maryland Department of Planning, Maryland Historical Trust

Reason: Potential impacts to historic resources.

This Page Intentionally Left Blank

8.0 Distribution List

Senator Chris Van Hollen
110 Hart Senate Office Building
Washington, DC 20510

Senator Ben Cardin
509 Hart Senate Office Building
Washington, DC 20510

Congressman Jamie Raskin
412 Cannon House Office Building
Washington, DC 20515

Bethesda Library
7400 Arlington Road
Bethesda, MD 20814

M-NCPPC Department of Parks
9500 Brunett Ave.
Silver Spring, MD 20901

Maryland – National Capital Park and Planning Commission
Montgomery County Planning Department
Planning Area 1
8787 Georgia Avenue
Silver Spring, MD 20910-3760

National Capital Planning Commission
401 9th Street, NW, North Lobby, Suite 500
Washington, DC 20004

USEPA (via eNEPA)

Maryland Department of Environment
1800 Washington Blvd.
Baltimore, MD 21230

Octavia Conerly
13247 Stravinsky Terrace
Silver Spring, MD 20904

Alexandra Gilliland
1011 First Street SE
Washington, DC 20003

Madeline Schaffer
9630 Dewmar Lane
Kensington, MD 20895

This Page Intentionally Left Blank

9.0 References

American Rivers. 2019. Potomac River. Accessed January 31, 2019 at https://www.americanrivers.org/river/potomac-river/.

Bethesda Transit Solutions. 2018. Trails Serving Bethesda. Accessed January 22, 2019 at https://bethesdatransit.org/bethesda/trails-serving-bethesda.

The Children's Inn at NIH. 2019a. #Inn2025 Strategic Plan. Accessed at https://childrensinn.org/inn2025/ on June 12, 2019.

The Children's Inn at NIH. 2019b. The Children's Inn at NIH Hires Grensler to Create the Future "Place Like Home". Accessed at https://childrensinn.org/in-the-news/the-childrens-inn-at-nih-hires-gensler-to-create-the-future-place-like-home/ on June 12, 2019.

Clark Construction. 2019a. Walter Reed National Military Medical Center. Accessed at https://www.clarkconstruction.com/our-work/projects/walter-reed-national-military-medical-center on June 12, 2019.

Clark Construction. 2019b. Suburban Hospital Campus Enhancement Phase 2. Accessed at https://www.clarkconstruction.com/our-work/projects/suburban-hospital-campus-enhancement-phase-2on June 12, 2019.

Chesapeake Bay Program (CBP). 2009. Bay Barometer: A Health and Restoration Assessment of the Chesapeake Bay and Watershed in 2008. Accessed February 20, 2019, at http://www.chesapeakebay.net/content/publications/cbp_34915.pdf.

Colin, Gordon, & Associates. 2007. Environmental Noise Study, National Institutes of Health (NIH), Bethesda, Maryland. 9 July 2007.

Colin, Gordon, & Associates. 2014. Environmental Noise Study, Winter 2013, National Institutes of Health, Bethesda, Maryland. 23 May 2014.

Council on Environmental Quality (CEQ). 2016. Guiding Principles for Sustaibale Federal Buildings and Associated Instructions. Accessed February 18, 2019, at https://www.fedcenter.gov/Documents/index.cfm?id=30813&pge_prg_id=40261&pge_id=4167

District Department of the Environment (DDOE). 2019. District Department of the Environment Ambient Air Quality Monitoring. https://doee.dc.gov/service/ambient-air-quality-monitoring.

FedCenter 2019. EO 13693. Accessed January 2, 2019 at https://www.fedcenter.gov/programs/eo13834/.

Franz, Karl and Thomas Bodor. 2018. Phase I Archaeological Survey, Utility Vault and Patient Parking Garage, National Institute of Health, Bethesda, Montgomery County, Maryland (WR No. C104771). Prepared for OLBN. Prepared by The Ottery Group. August.

Google Earth 2019. Accessed January 21, 2019 at https://www.google.com/earth/.

Greater Greater Washington. 2018. Metrorail is no longer the second-busiest rapid transit system in the country. Accessed January 27, 2019 at https://ggwash.org/view/66466/metrorail-is-no-longer-the-second-busiest-rapid-transit-system-in-the-country.

Illuminating Engineering Society (IES). 2011. Model Lighting Ordinance (MLO) with User's Guide. 15 June 2011.

Intergovernmental Panel on Climate Change (IPCC). 2014. Climate Change 2014: Synthesis Report. Summary for Policy Makers (SPM), p. 4. Accessed January 23, 2019 at https://www.ipcc.ch/site/assets/uploads/2018/02/AR5_SYR_FINAL_SPM.pdf.

International Dark-Sky Association (IDA). 2014. IDA Practical Guide: Introduction to Light Pollution – What's the Problem? Accessed December 31,2014 at www.darksky.org.

Interstate Commission on Potomac River Basin (ICPRB). 2018. Potomac River Basin Comprehensive Water Resources Plan. Accessed February 11, 2019 at https://www.potomacriver.org/wp-content/uploads/2018/06/Potomac_Comprehensive_Plan.pdf.

Maryland Department of the Environment (MDE). 2009. Stormwater Management Act of 2007. Accessed February 20, 2019, at http://www.mde.state.md.us/programs/Water/StormwaterManagementProgram/Documents/www.mde.state.md.us/assets/document/26.17.02.%202009.pdf.

Maryland Department of the Environment (MDE). 2010. Environmental Site Design (ESD) Process and Computations. July 2010. Accessed February 20, 2019, at https://mde.state.md.us/programs/water/StormwaterManagementProgram/Documents/www.mde.state.md.us/assets/document/ESD%20Process%20Computations%20Review.pdf.

Maryland Department of the Environment (MDE). 2011a. Total Maximum Daily Load of Sediment in the Rock Creek Watershed, Montgomery County, Maryland: Final. September 2011. Accessed January 30, 2019 at https://mde.maryland.gov/programs/Water/TMDL/ApprovedFinalTMDLs/Documents/www.mde.state.md.us/assets/document/Rock_Sed_TMDL_092911_Final.pdf.

Maryland Department of the Environment (MDE). 2011b. 2011 Maryland Standards and Specifications for Soil Erosion and Sediment Control. Accessed February 19, 2019, at https://mde.state.md.us/programs/water/StormwaterManagementProgram/Documents/2011%20MD%20Standard%20and%20Specifications%20for%20Soil%20Erosion%20and%20Sediment%20Control.pdf.

Maryland Department of the Environment (MDE). 2013. Total Maximum Daily Load of Phosphorus in the Rock Creek Watershed, Montgomery County, Maryland: Final. September 2013. Accessed February 21, 2019, at https://mde.maryland.gov/programs/Water/TMDL/ApprovedFinalTMDLs/Documents/Rock-Creek/TSS/Rock_Creek_NutTMDL_fa.pdf.

Maryland Department of the Environment (MDE). 2014. General Permit for Stormwater Associated with Construction Activity. Accessed on January 22, 2019 at https://mde.maryland.gov/programs/water/wwp/Pages/gp_construction.aspx.

Maryland Department of the Environment (MDE). 2015. Maryland Stormwater Management Guidelines for State and Federal Projects. April 2010. Accessed February 20, 2019, at https://mde.maryland.gov/programs/Water/StormwaterManagementProgram/Documents/SWM%20and%20ESC%20Guidelines%20for%20State%20and%20Federal%20Projects%20FEB%202015.pdf.

Maryland Department of the Environment (MDE). 2016. Tier II High Quality Waters Map. Accessed January 30, 2019 at https://mde.maryland.gov/programs/Water/TMDL/WaterQualityStandards/Pages/HighQualityWatersMap.aspx.

Maryland Department of the Environment (MDE). 2019a. Designated Use Classes for Maryland’s Surface Waters. GIS viewer. Accessed January 30, 2019 at https://mdewin64.mde.state.md.us/WSA/DesigUse/index.html.

Maryland Department of Environment (MDE). 2019b. Title V Program Fact Sheet. Accessed January 23, 2019 at https://mde.maryland.gov/programs/Permits/AirManagementPermits/Pages/title5factsheet.aspx.

Maryland Department of Environment (MDE). 2019c. 1.03 NEW SOURCE REVIEW APPROVAL. Accessed January 23, 2019 at https://mde.maryland.gov/programs/Permits/Documents/2008permitguide/ARMA/1.03.pdf.

Maryland Department of Environment (MDE). 2019d. 1.04 PREVENTION OF SIGNIFICANT DETERIORATION APPROVAL. Accessed January 23, 2019 at https://mde.maryland.gov/programs/Permits/Documents/2008permitguide/ARMA/1.04.pdf.

Maryland Department of Environment (MDE). 2019e. Ambient Air Monitoring Network. Accessed January 23, 2019 at https://mde.state.md.us/programs/Air/AirQualityMonitoring/Pages/Network.aspx

Maryland Department of Natural Resources (MDNR). 2019a. Forest Interior Dwelling Species. http://dnr.maryland.gov/wildlife/Pages/plants_wildlife/digitaldata.aspx. Accessed 8 July 2019.

Maryland Department of Natural Resources (MDNR). 2019b. Maryland’s Environmental Resources and Land Information Network (MERLIN). Accessed February 11, 2019 at https://gisapps.dnr.state.md.us/MERLIN/index.html.

Maryland Department of Planning. 2017. Maryland Statistical Handbook 2017. Historical and Projected Total Population for Maryland's Jurisdictions. Accessed January 21, 2019 at https://planning.maryland.gov/MSDC/Documents/md-statistical-handbook17.pdf.

Maryland Department of Transportation. 2019a. Upcoming Events – Public Workshops. Accessed at https://495-270-p3.com/your-participation/upcoming-events/ on June 12, 2019.

Maryland Department of Transportation. 2019b. Program Overview. Accessed at https://495-270-p3.com/program-overview/ on June 12, 2019.

Maryland Department of Transportation. 2019c. I-495 I-270 Managed Lanes Study Workshop Handout. Accessed at https://495-270-p3.com/wp-content/uploads/2019/04/I-495_I-270_Workshop_Handout_2019_4_10_Low_Res_FINAL.pdf on June 12, 2019.

Maryland-National Capital Park and Planning Commission (M-NCPPC). 2014. Master Plan Review Bethesda - Chevy Chase. Updated July 2014. Accessed February 21, 2019 at https://www.montgomeryplanning.org/development/zoning/documents/BethesdaChevyChase_000.pdf.

Maryland-National Capital Park and Planning Commission (M-NCPPC). 2017. Bethesda Downtown Plan. Accessed February 21, 2019 at https://montgomeryplanning.org/wp-content/uploads/2017/09/BDP-COUNCIL-ADOPTED-MAY2017_SMALL-FOR-WEB.pdf.

Maryland-National Capital Park and Planning Commission (M-NCPPC). 2019a. About. Accessed February 21, 2019 at http://www.mncppc.org/27/About-Us.

Maryland-National Capital Park and Planning Commission (M-NCPPC). 2019b. Master Plan Highlights. Accessed February 21, 2019 at http://www.montgomeryplanning.org/viewer.shtm#http://www.montgomeryplanning.org/community/plan_areas/bethesda_chevy_chase/master_plans/bethesda_cc90/highlights_beth_cc90.pdf.

Maryland-National Capital Park and Planning Commission (M-NCPPC). 2019c. Montgomery County Zoning Interactive Map. Accessed February 21, 2019, at https://mcatlas.org/zoning/.

Maryland State Highway Administration. 2019. Project Information, Intersections Near Bethesda Naval Center. Accessed at http://apps.roads.maryland.gov/WebProjectLifeCycle/ProjectSchedule.aspx?projectno=MO5932115 on June 12, 2019.

Metropolitan Washington Council of Governments (MWCOG). 2010. Region Forward – A Comprehensive Guide for Regional Planning and Measuring Progress in the 21st Century. Accessed February 21, 2019 at https://www.mwcog.org/file.aspx?D=ih482QFrRPpMBo%2bu9pZG8E1I8VPMcXqbySqkCVmZd%2bo%3d&A=Sojespf4mG6vRAI7x0KKyIXJ%2brIeq4xWy%2fLqyT4oxPA%3d .

Metropolitan Washington Council of Governments (MWCOG). 2014. Draft 2011 Base Year Emissions Inventory for the Washington DC-MD-VA 2008 Ozone NAAQS Nonattainment Area. Prepared by the District Department of the Environment, Maryland Department of the Environment, Virginia Department of Environmental Quality, and Metropolitan Washington Council of Governments on behalf of the MWAQC. 26 February 2014. Accessed February 11, 2019, at https://www.mwcog.org/environment/planning-areas/air-quality/.

Metropolitan Washington Council of Governments (MWCOG). 2018a. Metropolitan Washington Community-Wide Greenhouse Gas Emissions Inventory Summary Accessed January 24, 2019 at https://www.mwcog.org/documents/2016/04/22/metropolitan-washington-community-wide-greenhouse-gas-emissions-inventory-summary--greenhouse-gas/.

Metropolitan Washington Council of Governments (MWCOG). 2018b. Metropolitan Council of Governments. Round 9.1 Growth Trends to 2045: Cooperative Forecasting in Metropolitan Washington . Accessed January 3, 2019 at http://www.mwcog.org .

Montgomery County Department of Environmental Protection (DEP). 2012. Rock Creek Implementation Plan. January 2012. Accessed February 21, 2019, at https://www.montgomerycountymd.gov/DEP/Resources/Files/ReportsandPublications/Water/Watershed%20studies/Rock-creek-watershed-implementation-plan-11.pdf.

Montgomery County Department of Environmental Protection (DEP). 2019. Noise Control. Accessed February 21, 2019 at https://www.montgomerycountymd.gov/DEP/contact/noise.html.

Montgomery County Division of Solid Waste Services. 2015. Solid Waste Management 10 Year Plan, 2012-2023. Accessed February 18, 2019, at https://www.montgomerycountymd.gov/SWS/Resources/Files/swp/complete-plan.pdf.

National Capital Planning Commission (NCPC). 2016. The Comprehensive Plan for the National Capital. Accessed on February 11, 2019, at https://www.ncpc.gov/plans/compplan/.

National Capital Planning Commission (NCPC). 2019. About. Accessed February 21, 2019 at https://www.ncpc.gov/about/.

National Institutes of Health (NIH). 2013. Comprehensive Master Plan. June 14, 2013.

National Institutes of Health (NIH). 2014a. Final Environmental Impact Statement, NIH Bethesda Campus. Final EIS for the Proposed 2013 Master Plan. 6 October 2014.

National Institutes of Health (NIH). 2014b. NIH Waste Disposal Guide 2014. Accessed February 18, 2019, at https://www.orf.od.nih.gov/EnvironmentalProtection/WasteDisposal/Pages/default.aspx.

National Institutes of Health (NIH). 2015. Final Environmental Impact Statement NIH Bethesda Chilled Water System Improvements. Prepared for National Institutes of Health Bethesda, Maryland. Prepared by Eastern Research Group, Inc. July 2015.

National Institutes of Health (NIH). 2017. The NIH Record, January 13, 2017. Accessed on February 11, 2019 at https://nihrecord.nih.gov/newsletters/2017/01_13_2017/briefs.htm

National Institutes of Health (NIH). 2018. Design Requirements Manual, Revision 1.2, December 7, 2018. Accessed on February 18, 2019, at https://www.orf.od.nih.gov/PoliciesAndGuidelines/Documents/DRM/DRM1.2120718.pdf.

National Institutes of Health (NIH). 2019a. Description of Central Utility Plant. Accessed February 18, 2019, at https://www.orf.od.nih.gov/PoliciesAndGuidelines/Pages/Central-Utility-Plant-(CUP).aspx.

National Institutes of Health (NIH). 2019b. FY 2019-2020 Sustainability Implementation Plan. Accessed on February 20,2019 at https://nems.nih.gov/Documents/2019_NIH_SIP_Final.pdf.

National Institutes of Health (NIH). 2019c. Sustainable Buildings at NIH. Accessed on January 22, 2019 at https://nems.nih.gov/Pages/Sustainable-Buildings.aspx.

National Institutes of Health (NIH). 2019d. Campus Wide. Accessed January 22, 2019 at https://nems.nih.gov/Pages/Campus-Wide.aspx.

National Institutes of Health (NIH). 2019e. Passive Design Systems. Accessed January 22, 2019 at https://nems.nih.gov/Pages/Passive-Design-Systems.aspx.

National Institutes of Health (NIH). 2019f. Active Control Systems. Accessed January 22, 2019 at https://nems.nih.gov/Pages/Active-Control-Systems-.aspx.

National Institutes of Health (NIH). 2019g. Third Party Certification. Accessed on January 22, 2019 at https://nems.nih.gov/Pages/Third-Party-Certification.aspx.

National Institutes of Health (NIH). 2019h. Geographic Information System. Accessed on January 22, 2019 at https://nems.nih.gov/Pages/Global-Information-System.aspx.

New Georgia Encyclopedia. 2017. Piedmont Geographic Region. Accessed January 30, 2019 at https://www.georgiaencyclopedia.org/articles/geography-environment/piedmont-geographic-region.

Occupational Safety and Health Administration (OSHA). 2019. 1910.95 - Occupational noise exposure. Accessed February 2, 2019 at https://www.osha.gov/laws-regs/regulations/standardnumber/1910/1910.95.

Richardson, Claire A. 1977. Availability of Ground Water in Montgomery County, Maryland. U.S. Geological Survey (USGS) Open-File Report 76-882. Accessed February 18, 2019, at https://pubs.usgs.gov/of/1976/0882/report.pdf.

Sabra, Wang, & Associates, Inc. 2018. Traffic Impact Study for the Planned Surgery and Radiology Addition and Multi-level Parking Garage, at the National Institutes of Health, Bethesda Campus. February 8.

Schooldigger 2019. Public and Private Schools in Bethesda, MD. Accessed January 22, 2019 at https://www.schooldigger.com/go/MD/city/Bethesda/search.aspx.

Sernovitz, Daniel J. 2015 “One D.C. architecture firm will take on a major overhaul for NIH.” Washington Business Journal. Accessed at https://www.bizjournals.com/washington/breaking_ground/2015/04/one-d-c-architecture-firm-will-take-on-amajor.html?s=print on June 12, 2019.

Tango, Peter J. and Richard A. Batiuk, 2013. Deriving Chesapeake Bay Water Quality Standards. Journal of the American Water Resources Association (JAWRA) 1-18. DOI: 10.1111/jawr.12108. Accessed January 30,2019 at https://www.chesapeakebay.net/documents/Deriving_Chesapeake_Water_Quality_Standards_10-13.pdf.

Thinkmoco 2018. Montgomery County Economic Development Corporation. Accessed January 22, 2019 at https://thinkmoco.com/key-industries/biohealth.

U.S. Census Bureau (USCB). 2014. United States Census Bureau. Geographic Terms and Concepts – Place. Accessed January 21, 2019 at https://www.census.gov/geo/reference/gtc/gtc_place.html.

U.S. Census Bureau (USCB). 2019a. United States Census Bureau. Profile of General Demographic Characteristics: 2017. Table DP-1. Accessed January 3, 2019 at https://factfinder.census.gov.

U.S. Census Bureau (USCB). 2019b. United States Census Bureau. Profile of General Demographic Characteristics: 2010. Table DP-1. Accessed January 3, 2019 at https://factfinder.census.gov.

U.S. Census Bureau (USCB). 2019c. United States Census Bureau. Profile of General Demographic Characteristics: 2000. Table DP-1. Accessed January 3, 2019 at https://factfinder.census.gov.

U.S. Census Bureau (USCB). 2019d. United States Census Bureau. Projected Population Size and Births, Deaths, and Migration. Accessed January 3, 2019 at https://factfinder.census.gov.

U.S. Census Bureau (USCB). 2019e. United States Census Bureau. Poverty Status in the Past 12 Months: 2013-2017 American Community Survey 5-Year Estimates Table S1701. Accessed January 3, 2019 at https://factfinder.census.gov.

U.S. Census Bureau (USCB). 2019f. United States Census Bureau. Profile of Selected Housing Characteristics: 2010 NEW. Table DP-4. Accessed January 3, 2019 at https://factfinder.census.gov.

U.S. Census Bureau (USCB). 2019g. United States Census Bureau. Poverty Status of Individuals In The Past 12 Months By Living Arrangement:2000 Table B17021. Accessed January 3, 2019 at https://factfinder.census.gov.

U.S. Census Bureau (USCB). 2019h. United States Census Bureau. Selected Housing Characteristics. Table DP-04 Accessed January 3, 2019 at https://factfinder.census.gov.

U.S. Census Bureau (USCB). 2019i. United States Census Bureau. Selected Housing Characteristics. Table DP-04. Accessed January 3, 2019 at https://factfinder.census.gov.

U.S. Census Bureau (USCB). 2019j. United States Census Bureau. Selected Housing Characteristics. Table DP-03. Accessed January 3, 2019 at https://factfinder.census.gov.

U.S. Department of the Interior (USDOI), National Park Service. 2015. National Register Bulletin: How to Apply the National Register Criteria for Evaluation. Section II. National Register Criteria for Evaluation. http://www.nps.gov/nr/publications/bulletins/nrb15/nrb15_2.htm. Accessed 3 June 2019.

U.S. Department of Transportation (DOT) Federal Highway Administration (FHWA). 2014. Highway Traffic Noise. Construction Noise Handbook. Accessed July 9, 2019, at https://www.fhwa.dot.gov/environment/noise/construction_noise/handbook/handbook09.cfm

U.S. EPA, January 1995. AP-42 - Compilation of Air Pollutant Emission Factors, Fifth Edition. Office of Air Quality Planning and Standards, Office of Air and Radiation. January.

U.S. Environmental Protection Agency (USEPA). 2009. Technical Guidance on Implementing the Stormwater Runoff Requirements for Federal Projects under Section 438 of the Energy Independence and Security Act. Accessed February 20, 2019, at https://www.epa.gov/sites/production/files/2015-09/documents/eisa-438-factsheet.pdf.

U.S. Environmental Protection Agency (USEPA). 2015. Motor Vehicle Emission Simulator (MOVES) 2014b User Guide. November 2015.

U.S. Environmental Protection Agency (USEPA). 2016. Federal Register. Vol. 81, No. 164. August 24, 2016. Rules and Regulations. Accessed February 1, 2019 at https://www.govinfo.gov/content/pkg/FR-2016-08-24/pdf/2016-18768.pdf#page=1.

U.S. Environmental Protection Agency (USEPA). 2018a. Carbon Monoxide (1971) Designated Areas by State/County/Area. Accessed January 23, 2019 at https://www3.epa.gov/airquality/greenbook/cbcty.html.

U.S. Environmental Protection Agency (USEPA). 2018b. Advancing Sustainable Materials Management: 2015 Fact Sheet. July, 2018. Accessed February 18, 2019, at https://www.epa.gov/sites/production/files/2018-07/documents/2015_smm_msw_factsheet_07242018_fnl_508_002.pdf

U.S. Environmental Protection Agency (USEPA). 2019a. EPA Map of Radon Zones. Accessed February 20, 2019, at https://www.epa.gov/radon/find-information-about-local-radon-zones-and-state-contact-information#radonmap.

U.S. Environmental Protection Agency (USEPA). 2019b. Chesapeake Bay TMDL Fact Sheet. Accessed January 23, 2019 at https://www.epa.gov/chesapeake-bay-tmdl/chesapeake-bay-tmdl-fact-sheet.

U.S. Environmental Protection Agency (USEPA). 2019c. Criteria Air Pollutants. Accessed January 23, 2019 at https://www.epa.gov/criteria-air-pollutants.

U.S. Environmental Protection Agency (USEPA). 2019d. NAAQS Table. Accessed January 23, 2019 at https://www.epa.gov/criteria-air-pollutants/naaqs-table.

U.S. Environmental Protection Agency (USEPA). 2019e 8-Hour Ozone (2015) Designated Areas by State/County/Area. Accessed January 23, 2019 at https://www3.epa.gov/airquality/greenbook/jbcty.html.

U.S. Environmental Protection Agency (USEPA). 2019f. 8-Hour Ozone (2008) Designated Areas by State/County/Area. Accessed January 23, 2019 at https://www3.epa.gov/airquality/greenbook/hbcty.html.

U.S. Environmental Protection Agency (USEPA). 2019g. De Minimis Tables. Accessed January 23, 2019 at https://www.epa.gov/general-conformity/de-minimis-tables

U.S. Environmental Protection Agency (USEPA). 2019h. Green Book 8-Hour Ozone (1997) Area Information - NAAQS Revoked. Accessed January 23, 2019 at https://www.epa.gov/green-book/green-book-8-hour-ozone-1997-area-information-naaqs-revoked.

U.S. Environmental Protection Agency (USEPA). 2019i. PM-2.5 (1997) Designated Areas by State/County/Area. Accessed January 23, 2019 at https://www3.epa.gov/airquality/greenbook/qbcs.html#DC

U.S. Environmental Protection Agency (EPA). 2019j. AirData Air Quality Monitors. Accessed January 23, 2019 at https://epa.maps.arcgis.com.

U.S. Environmental Protection Agency (EPA). 2019k. United States Environmental Protection Agency EJSCREEN Report. Version 2018. Accessed January 10, 2019 at https://www.epa.gov/environmentaljustice.

U.S. Fish and Wildlife Service (USFWS). 2019a. Migratory Bird Program: Birds of Conservation Concern. https://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php. Accessed 8 July 2019.

U.S. Fish and Wildlife Service (USFWS). 2019b. Information for Planning and Consultation (IPaC) Mapping Tool. Accessed February 11, 2019, at https://ecos.fws.gov/ipac/location/RQV67YBQNBA55BAYE3MVWT542Q/resources.

U.S. Fish and Wildlife Service (USFWS). 2019c. National Wetlands Inventory Mapper. Accessed January 30, 2019 at http://www.fws.gov/wetlands/Data/Mapper.html.

U.S. General Services Administration (GSA). 2019. Good Neighbor Principles. Accessed February 21, 2019, at https://www.gsa.gov/real-estate/design-construction/urban-developmentgood-neighbor-program/good-neighbor-principles.

U.S. Geological Survey (USGS). 2019a. Aquifers and Groundwater. Accessed on January 31, 2019 at https://water.usgs.gov/edu/earthgwaquifer.html.

U.S. Geological Survey (USGS). 2019b. Groundwater Quality. Accessed January 3, 2019 at https://water.usgs.gov/edu/earthgwquality.html.

United States Green Building Council (USGBC). 2009). Leadership in Energy and Environmental Design (LEED) Reference Guide for Green Building Design and Construction.

Walter Reed National Military Medical Center (WRNMMC). 2019. A Vision for the Future of Walter Reed Bethesda. Accessed at https://www.wrnmmc.capmed.mil/About%20Us/SitePages/Construction.aspx on June 12, 2019.

Washington Gas. 2019. Summary of Service Area. Accessed February 18, 2019, at https://www.washingtongas.com/builders-contractors/contractor-services/service-territory.

Washington Metro Area Transit Authority (WMATA). 2019. Accessed January 27, 2019 at https://www.wmata.com/rider-guide/stations/index.cfm?rail=red.

Washington Suburban Sanitary Commission (WSSC). 2019. Overview. Accessed February 18, 2019, at https://www.wsscwater.com/about-us/overview.html.

APPENDIX A

NOTICE OF INTENT

This page intentionally left blank.

2018 (Docket No. FDA–2018–P–2506), under 21 CFR 10.25 and 21 CFR 10.30, requesting that the Agency determine whether AXIRON (testosterone) transdermal metered solution, 30 mg/1.5 mL actuation, was withdrawn from sale for reasons of safety or effectiveness.

After considering the citizen petition and reviewing Agency records and based on the information we have at this time, FDA has determined under § 314.161 that AXIRON (testosterone) transdermal metered solution, 30 mg/1.5 mL actuation, was not withdrawn for reasons of safety or effectiveness. The petitioner has identified no data or other information suggesting that AXIRON (testosterone) transdermal metered solution, 30 mg/1.5 mL actuation, was withdrawn for reasons of safety or effectiveness. We have carefully reviewed our files for records concerning the withdrawal of AXIRON (testosterone) transdermal metered solution, 30 mg/1.5 mL actuation, from sale. We have also independently evaluated relevant literature and data for possible postmarketing adverse events. We have found no information that would indicate that this drug product was withdrawn from sale for reasons of safety or effectiveness.

Accordingly, the Agency will continue to list AXIRON (testosterone) transdermal metered solution, 30 mg/1.5 mL actuation, in the ''Discontinued Drug Product List'' section of the Orange Book. The ''Discontinued Drug Product List'' delineates, among other items, drug products that have been discontinued from marketing for reasons other than safety or effectiveness. FDA will not begin procedures to withdraw approval of approved ANDAs that refer to this drug product. Additional ANDAs that refer to this drug product may also be approved by the Agency as long as they meet all other legal and regulatory requirements for the approval of ANDAs. If FDA determines that labeling for this drug product should be revised to meet current standards, the Agency will advise ANDA applicants to submit such labeling.

Dated: November 5, 2018.

Leslie Kux,

Associate Commissioner for Policy.

[FR Doc. 2018–24604 Filed 11–8–18; 8:45 am]

BILLING CODE 4164–01–P

DEPARTMENT OF HEALTH AND HUMAN SERVICES

National Institutes of Health

Notice of Intent To Prepare an Environmental Impact Statement and Notice of Scoping Meeting

AGENCY: National Institutes of Health, HHS.

ACTION: Notice.

SUMMARY: In accordance with the National Environmental Policy Act, the National Institutes of Health (NIH) is issuing this notice to advise the public that an environmental impact statement will be prepared for the Surgery, Radiology and Lab Medicine Building with associated Utility Vault and Patient Parking Garage project located on the National Institutes of Health, Bethesda Campus, Bethesda, Maryland.

DATES: The Scoping Meeting is planned for November 28, 2018, from 6 p.m.-9 p.m., with the formal presentation to begin at 7 p.m. Scoping comments must be postmarked no later than December 29, 2018, to ensure they are considered.

ADDRESSES: The Scoping Meeting will be held at 6001 Executive Boulevard, Rockville, MD 20852. All comments and questions on the Scoping Meeting and the Environmental Impact Statement should be directed to Valerie Nottingham, Deputy Director, Division of Environmental Protection, Office of Research Facilities, NIH, B13/2S11, 9000 Rockville Pike, Bethesda, Maryland 20892, telephone 301–496–7775; fax 301–480–0204; or email: *nihnepa@mail.nih.gov.*

FOR FURTHER INFORMATION CONTACT: Valerie Nottingham, Deputy Director, Division of Environmental Protection, Office of Research Facilities, NIH, B13/2S11, 9000 Rockville Pike, Bethesda, Maryland 20892, telephone 301–496–7775; fax 301–480–0204; or email: *nihnepa@mail.nih.gov.* For the purpose of National Institutes of Health (NIH) and its National Environmental Policy Act (NEPA) procedures, the delegation of authority to administer, interpret and oversee the applicable environmental laws, Executive Orders and regulations for the NIH including the authority to oversee and manage the NIH NEPA program for assessing environmental impacts and publish final decisions has been given to the Director, Office of Research Facilities Development and Operation, Mr. Daniel G. Wheeland.

SUPPLEMENTARY INFORMATION: The NIH's mission is to seek fundamental knowledge about the nature and behavior of living systems and the application of that knowledge to enhance health, lengthen life, and reduce illness and disability. In order to fulfill and uphold this mission the infrastructure of the NIH Bethesda Campus must be able to support the NIH's biomedical research programs.

The proposed Surgery, Radiology and Lab Medicine Building with associated Utility Vault and Patient Parking Garage project is to house General Radiology and Imaging Services (RADIS), the Department of Perioperative Medicine (DPM), the Department of Laboratory Medicine (DLM) and the relocated functions for the National Cancer Institute (NCI) in a state-of-the-art, safe, functionally efficient, flexible and cost-effective facility. During the study period, NIH expanded the building program to also include space for the National Heart, Lung & Blood Institute's (NHLBI) Cardiovascular Intervention Program (Cath Lab) and for the Interventional Radiology (IR) Program.

The proposed project consists of nine (9) levels above grade (including interstitial floors and a roof penthouse) and two (2) levels below grade. The proposed 505,200 building gross square feet (BGSF) of new construction will be linked to the west lab wing of the existing CRC (Building 10), which will include an additional 82,960 BGSF of interior renovation. The proposed new building addition foot print of 53,270 BGSF will be positioned between the CRC and Convent Drive.

The proposed project scope also includes the relocation of a portion of the existing campus utility tunnel, reconstruction of the displaced children's playground and connection to the new Pedestrian Tunnel that will be constructed with the proposed Patient Parking Garage across Convent Drive. Additionally, the project will include the installation of supporting infrastructure, such as emergency generators and medical gas storage, in the new Utility Vault and Utility Yard that will be constructed across Convent Drive as part of a separate, enabling project.

In accordance with 40 CFR 1500–1508 and Health and Human Services (HHS) environmental procedures, NIH will prepare an Environmental Impact Statement (EIS) for the proposed project. The EIS will evaluate the impacts of the alternatives should development occur as proposed. Among the items the EIS will examine are the implications of the project on community infrastructure, including, but not limited to, utilities, storm water management, traffic and transportation, and other public services.

To ensure that the public is afforded the greatest opportunity to participate in the planning and environmental review process, NIH is inviting oral and written comments on the proposed project and related environmental issues.

The NIH will be sponsoring a public Scoping Meeting to provide individuals an opportunity to share their ideas, including recommended alternatives and environmental issues the EIS should consider. All interested parties are encouraged to attend. NIH has established a 30-day public comment period for the scoping process.

Dated: October 29, 2018.

Lawrence A. Tabak,

Deputy Director, National Institutes of Health.

[FR Doc. 2018–24557 Filed 11–8–18; 8:45 am]

BILLING CODE 4140–01–P

DEPARTMENT OF HOMELAND SECURITY

U.S. Customs and Border Protection

[1651–0096]

Agency Information Collection Activities: Transfer of Cargo to a Container Station

AGENCY: U.S. Customs and Border Protection (CBP), Department of Homeland Security.

ACTION: 30-Day notice and request for comments; Extension of an existing collection of information.

SUMMARY: The Department of Homeland Security, U.S. Customs and Border Protection will be submitting the following information collection request to the Office of Management and Budget (OMB) for review and approval in accordance with the Paperwork Reduction Act of 1995 (PRA). The information collection is published in the **Federal Register** to obtain comments from the public and affected agencies. Comments are encouraged and will be accepted (no later than December 10, 2018) to be assured of consideration.

ADDRESSES: Interested persons are invited to submit written comments on this proposed information collection to the Office of Information and Regulatory Affairs, Office of Management and Budget. Comments should be addressed to the OMB Desk Officer for Customs and Border Protection, Department of Homeland Security, and sent via electronic mail to *dhsdeskofficer@omb.eop.gov.*

FOR FURTHER INFORMATION CONTACT: Requests for additional PRA information should be directed to Seth Renkema, Chief, Economic Impact Analysis Branch, U.S. Customs and Border Protection, Office of Trade, Regulations and Rulings, 90 K Street NE, 10th Floor, Washington, DC 20229–1177, Telephone number (202) 325–0056 or via email *CBP_PRA@cbp.dhs.gov.* Please note that the contact information provided here is solely for questions regarding this notice. Individuals seeking information about other CBP programs should contact the CBP National Customer Service Center at 877–227–5511, (TTY) 1–800–877–8339, or CBP website at *https://www.cbp.gov/.*

SUPPLEMENTARY INFORMATION: CBP invites the general public and other Federal agencies to comment on the proposed and/or continuing information collections pursuant to the Paperwork Reduction Act of 1995 (44 U.S.C. 3501 *et seq.*). This proposed information collection was previously published in the **Federal Register** (Volume 83 FR Page 33233) on July 17, 2018, allowing for a 60-day comment period. This notice allows for an additional 30 days for public comments. This process is conducted in accordance with 5 CFR 1320.8. Written comments and suggestions from the public and affected agencies should address one or more of the following four points: (1) Whether the proposed collection of information is necessary for the proper performance of the functions of the agency, including whether the information will have practical utility; (2) the accuracy of the agency's estimate of the burden of the proposed collection of information, including the validity of the methodology and assumptions used; (3) suggestions to enhance the quality, utility, and clarity of the information to be collected; and (4) suggestions to minimize the burden of the collection of information on those who are to respond, including through the use of appropriate automated, electronic, mechanical, or other technological collection techniques or other forms of information technology, *e.g.,* permitting electronic submission of responses. The comments that are submitted will be summarized and included in the request for approval. All comments will become a matter of public record.

Overview of This Information Collection

Title: Transfer of Cargo to a Container Station.

OMB Number: 1651–0096.

Current Actions: CBP proposes to extend the expiration date of this information collection with no change to the burden hours or to the information collected.

Type of Review: Extension (without change).

Affected Public: Businesses.

Abstract: Before the filing of an entry of merchandise for the purpose of breaking bulk and redelivering cargo, containerized cargo may be moved from the place of unlading to a designated container station or may be received directly at the container station from a bonded carrier after transportation in-bond in accordance with 19 CFR 19.41. This also applies to loose cargo as part of containerized cargo. In accordance with 19 CFR 19.42, the container station operator may make a request for the transfer of a container to the station by submitting to CBP an abstract of the manifest for the transferred containers including the bill of lading number, marks, numbers, description of the contents and consignee.

Estimated Number of Respondents: 14,327.

Estimated Number of Annual Responses per Respondent: 25.

Estimated Total Annual Responses: 358,175.

Estimated Time per Response: 7 minutes.

Estimated Total Annual Burden Hours: 41,548.

Dated: November 6, 2018.

Seth D. Renkema,

Branch Chief, Economic Impact Analysis Branch, U.S. Customs and Border Protection.

[FR Doc. 2018–24595 Filed 11–8–18; 8:45 am]

BILLING CODE 9111–14–P

DEPARTMENT OF HOMELAND SECURITY

Office of the Secretary

[Docket No. DHS–2018–0066]

DHS Data Privacy and Integrity Advisory Committee

AGENCY: Privacy Office, Department of Homeland Security (DHS).

ACTION: Committee Management; notice of Federal Advisory Committee meeting.

SUMMARY: The DHS Data Privacy and Integrity Advisory Committee will meet on Monday, December 10, 2018, in Washington, DC The meeting will be open to the public.

DATES: The DHS Data Privacy and Integrity Advisory Committee will meet on Monday, December 10, 2018, from 1:00 p.m. to 4:00 p.m. Please note that the meeting may end early if the Committee has completed its business.

ADDRESSES: The meeting will be held both in person in Washington, DC at 90 K Street NE, 12th Floor, Room 1204, Washington, DC 20002, and via online forum (URL will be posted on the

APPENDIX B
GENERAL CONFORMITY RULE AND AIR EMISSIONS ANALYSIS

This page intentionally left blank.

APPENDIX B - GENERAL CONFORMITY RULE AND AIR EMISSIONS ANALYSIS

Introduction

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

- Criteria pollutants emissions analysis and Clean Air Act general conformity rule applicability analysis.
- Greenhouse gas analysis.

Clean Air Conformity

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

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

- Transportation projects, which are governed by the "transportation conformity" regulations (40 CFR Parts 51 and 93), effective on December 27, 1993 and revised on August 15, 1997.

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

This general conformity applicability analysis is prepared as an appendix to the environmental impact statement (EIS) for the construction of the proposed Surgery, Radiology and Lab Medicine (SRLM) Building at the National Institutes of Health (NIH) in Bethesda, Montgomery County, Maryland. Since the proposed action is a non-transportation project, only the general conformity rule applies.

General Conformity

Attainment and Nonattainment Areas

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

A criterion pollutant is a pollutant for which an air quality standard has been established under the CAA. The designation of nonattainment is based on the exceedances or violations of the air quality standard. A maintenance plan establishes measures to control emissions to ensure the air quality standard is maintained in areas that have been re-designated as attainment from a previous nonattainment status.

Under the requirements of the 1970 Clean Air Act (CAA), as amended in 1977 and 1990, the USEPA established NAAQS for six criteria pollutants: carbon monoxide (CO), sulfur dioxide (SO_2), nitrogen dioxide (NO_2), ozone (O_3), inhalable particulate matter (PM_{10} and $PM_{2.5}$), and lead (Pb).

Areas that meet the NAAQS for a criteria pollutant are designated as being in "attainment;" an area where a pollutant level exceeds the corresponding NAAQS is designated as being in "nonattainment." O_3 nonattainment areas are subcategorized based on the severity of their pollution problem (marginal, moderate, serious, severe, or extreme). PM_{10} and CO nonattainment areas are classified as moderate or serious. When insufficient data exist to determine an area's attainment status, it is designated unclassifiable (or in attainment).

The SRLM Building construction project would take place in Bethesda, Montgomery County, Maryland, an area that is currently designated as a marginal nonattainment area for 8-hour O_3, a maintenance area for $PM_{2.5}$ and CO, an attainment area for the other criteria pollutants. O_3 is principally formed from nitrogen oxides (NO_x) and volatile organic compounds (VOC) through chemical reactions in the atmosphere.

De Minimis **Emissions Levels**

To focus general conformity requirements on those federal actions with the potential to have significant air quality impacts, threshold (*de minimis*) rates of emissions were established in the final rule. A formal conformity determination is required when the annual net total of direct and indirect emissions from a federal action occurring in a nonattainment or maintenance area for a criterion pollutant would equal or exceed the annual *de minimis* level for that pollutant. Table 1 lists the *de minimis* levels for each pollutant.

For O_3 nonattainment areas, USEPA's conformity rules establish *de minimis* emission levels for both O_3 precursors, VOC and NO_x, on the presumption that VOC and NO_x reductions will contribute to reductions in O_3 formation. Since the project site is located in an O_3 marginal nonattainment area in an O_3 transport region, the *de minimis* levels of 100 tons per year (tpy) of NO_x and 50 tpy of VOC apply. For a $PM_{2.5}$ or CO maintenance area, 100 tpy de minimis level is applicable.

Table 1
***De Minimis* Emission Levels for Criteria Air Pollutants**

Pollutant	Nonattainment Designation	Tons/Year
Ozone*	Serious	50
	Severe	25
	Extreme	10
	Other nonattainment or maintenance areas outside ozone transport region	100
	Marginal and moderate nonattainment areas inside ozone transport region	50/100**
Carbon Monoxide	All	100
Sulfur Dioxide	All	100
Lead	All	25
Nitrogen Dioxide	All	100
Particulate Matter ≤ 10 microns	Moderate	100
	Serious	70
Particulate Matter ≤ 2.5 microns***	All	100

Notes:
* Applies to ozone precursors – volatile organic compounds (VOC) and nitrogen oxides (NO_X).
** VOC/NO_X; *** Applies to PM2.5 and its precursors.

Analysis

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

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

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

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

Increased direct and indirect NO_x, VOC, $PM_{2.5}$ and CO would result from the following potential demolition and construction activities:

- Use of diesel and gas-powered demolition and construction equipment.
- Movement of trucks containing construction and removal materials.
- Commuting of construction workers.

Emissions Determination

The GCR requires that potential emissions generated by any project-related activity and/or increased operational activities be determined on an annual basis and compared to the annual *de minimis* levels for those pollutants (or their precursors) for which the area is classified as nonattainment or maintenance. Emissions attributable to activities related to the proposed action were analyzed for NO_x, VOC, $PM_{2.5}$, and CO. Additionally, for EIS disclosure purposes, CO, SO_2, and PM_{10} emissions and greenhouse gas emissions in terms of carbon dioxide (CO_2) emissions were also estimated based on the construction activity data and emission estimate tools discussed below.

Proposed Activities Resource Data Estimates

Estimates as to construction crew and equipment requirements and productivity are based on data presented in:

- “2003 RSMeans Facilities Construction Cost Data”, R.S. Means Co., Inc., 2002
- “2011 RSMeans Facilities Construction Cost Data”, R.S. Means Co., Inc., 2010

The following major components are considered in developing activity resource inputs for further emissions estimate:

General Clearing and Grading

Over 8.7 acres of disturbed land, activities associated with clearing and grubbing, cutting & chipping light trees, grading subgrade for base course and roadways.

Roadway Construction

Pavement of the new parking area/work yard over a total of 43,560 square feet (SF) including base course and pavement.

New Hospital Building

For construction of the new building, the total gross square footage will be approximately 527,100 SF. The building will have a 55,500 SF footprint, with 2 below grade and 9 above grade levels. The activities would involve construction of foundation, superstructure, interior fit-out including mechanical systems, interior wall assembly, flooring, ceiling and other system installation such as backup generator, elevator, etc.

Parking Structures

Parking garage will have a footprint of 40,000 SF and overall six-floor area of 250,000 SF. The garage construction will involve site preparation, foundation and wall construction for each floor, utility and elevator installation, etc.

Other Construction

In relative terms, aside from the excavation (included within the building construction), construction of the utility vault & tunnel is considered negligible and not estimated further. Likewise, the Service Yard construction is considered negligible.

Equipment Operations and Emissions

The quantity and type of equipment necessary were determined based on the activities necessary to implement the proposed action as described above. All equipment was assumed to be diesel-powered unless otherwise noted. Pieces of equipment to be used include, but are not limited to:

- Backhoes.
- Compressors.
- Cranes.
- Dozer.
- Front end loaders.
- Gas engine vibrators.
- Grader.
- Concrete pumps.
- Hammers.
- Construction trucks.

Estimates of equipment emissions on an annual basis were based on the estimated hours of usage and emission factors for each motorized source for the project. Emission factors for each pollutant related to heavy-duty diesel equipment were obtained from the U.S. EPA's Motor Vehicle Emission Simulator (MOVES) MOVES2014b emission factor model (U.S. EPA, 2015) with the Montgomery County-specific input data provided by Metropolitan Washington Council of Governments (MWCOG, February 8, 2019). The U.S. EPA recommends the following formula to calculate hourly emissions for the ith pollutant from non-road engine sources including tractors:

$$M_i = N \times HP \times EF_i$$

where:

M_i = mass of emissions of ith pollutants during inventory period;
N = source population (units);
HP = average rated horsepower; and

EF_i = average emissions of ith pollutant per unit of use (e.g., grams per horsepower-hour) predicted by MOVES2014b.

Estimated emissions from operation of nonroad equipment during construction period assuming starting from 2020 are presented in Table 2.

Construction Vehicle Exhaust Emissions

Truck and commuting vehicle operations would result in indirect emissions. It is assumed on an average each truck or commuting vehicle trip would take a 20-mile round trip to and from the project site.

MOVES 2014b program was used to predict both truck and commuter vehicle emission factors for both criteria and greenhouse gas emissions in terms of CO_2. Estimated emissions from operation of trucks and commuter vehicles during construction period are presented in Table 3.

Surface Disturbance Fugitive Dust Emissions by Moving Vehicles

In addition to construction vehicle and equipment exhaust emissions as discussed above, the on-paved road surface fugitive dust emissions from delivery truck and commuter vehicles and the on-unpaved surface within the construction site from other trucks such as water trucks and nonroad equipment, would also be generated. The U.S. EPA AP-42, *Compilation of Air Pollution Emission Factors* (U.S. EPA, 1995), was used to predict fugitive dust emissions from vehicles traveling on paved and non-paved surfaces. Emissions factors derived from AP-42 Sections 13.2.1 and 11.9 were used to calculate fugitive emissions in terms of $PM_{2.5}$ and PM_{10} emissions associated with surface disturbance.

On-paved Road PM Emissions

The on-paved road dust emission rates per vehicle mile travelled (VMT) driving to and from the site were estimated per below equation with 0.00784 pounds (lbs)/VMT for $PM_{2.5}$ and 0.0319 lbs/VMT for PM_{10} for commuter vehicles 0.0543 lbs/VMT for $PM_{2.5}$ and 0.22 lbs/VMT for PM_{10}.

$$E= k (sL)^{0.91} (W)^{1.02}$$

Where: E = particulate emission factor (lb/VMT).
k = particle size multiplier (lb/VMT) value equals to 0.00054 for $PM_{2.5}$, and 0.0022 for PM_{10}.
sL = road surface silt loading (g/m^2) value of 12.
W = mean vehicle weight (tons) values of 1.5 for cars and 10 for trucks.

The on-unpaved road dust emission rates per VMT for trucks running on site were estimated per below equation and they are 0.19 lb/VMT for $PM_{2.5}$ and 1.89lb/VMT for PM_{10} assuming trucks would travel 1,000 feet per round trip.

$$E= k (s/12)^{a} (W/3)^{b}$$

Where: E = size-specific emission factor (lb/VMT).
s = surface material silt content (percent) value of 8.5.
W = mean vehicle weight (tons) value of 10.
k = empirical constant of 0.15 for $PM_{2.5}$ and 1.5 for PM_{10}.
a = empirical constant of 0.90.
b = empirical constant of 0.45.

On-site Disturbed Surface PM Emissions

Material handling and load emission rates of 0.000061 lbs/ton for of $PM_{2.5}$, and 0.00041 lbs/ton for PM_{10} were calculated using below equation:

$$E=k (0.0032) (U/5)^{1.3}/(M/2)^{1.4}$$

Where: E = particulate emission factor (lb/ton)
k = particle size multiplier of 0.053 for $PM_{2.5}$, and 0.35 for PM_{10}
U= mean wind speed (mph) value of 10
M = material moisture content (percent) value of 7.9

Bulldozer operational emission rates of 0.41 lbs/hr of $PM_{2.5}$ and 0.51 lbs/hr for PM_{10} were calculated using below:

$$E=k (s)^{a}/M^{b}$$

Where: E = particulate emission factor (lb/hr)
s = surface material silt content (percent) value of 6.9
M = material moisture content (percent) value of 7.9
k = empirical constant equal to 0.105*5.7 for $PM_{2.5}$, and 0.75*1 for PM_{10}
a = empirical constant equal to 1.2 for $PM_{2.5}$, and 1.5 for PM_{10}
b = empirical constant equal to 1.3 for $PM_{2.5}$, and 1.4 for PM_{10}

Grading operation emission rates of 0.0589 lbs/VMT for $PM_{2.5}$ and 0.084 lbs/VMT for PM_{10} based on below equation:

$$E=k\,(S)^{a}$$

Where: E = particulate emission factor (lb/VMT)
S = mean vehicle speed (mph) value equal to 5
k = empirical constant equal to 0.031*0.034 for $PM_{2.5}$, and 0.6*0.056 for PM_{10}
a = empirical constant equal to 2.5 for $PM_{2.5}$, and 2.0 for PM_{10}

PM emissions from earth disturbance due to construction equipment and vehicle operation are summarized in Table 4.

Table 2
Construction Equipment Exhaust Emissions

Equipment Type	Number of Units	Days	Hours	Horsepower (hp)	Emission Factor (grams/hp-hour)							Emission Rate (tons)						
					VOC	NOx	CO	$PM_{2.5}$	PM_{10}	SO_2	CO_2	VOC	NOx	CO	$PM_{2.5}$	PM_{10}	SO_2	CO_2
Asphalt paver, 130 HP	1	17	102	130	0.06	1.09	0.32	0.07	0.07	0.00	536.66	0.00	0.02	0.00	0.00	0.00	0.00	7.84
Centrif. water pump, 6"	1	18	108	33	0.29	3.51	1.05	0.18	0.19	0.00	589.53	0.00	0.01	0.00	0.00	0.00	0.00	2.31
Chain saws, 36"	1	20	120	9	73.05	1.53	266.03	8.97	9.75	0.00	686.00	0.09	0.00	0.32	0.01	0.01	0.00	0.82
Chipping machine	1	10	60	85	0.42	4.05	1.98	0.37	0.38	0.00	589.15	0.00	0.02	0.01	0.00	0.00	0.00	3.31
Compressor, 250 cfm	1	185	1110	74	0.19	3.24	0.95	0.14	0.14	0.00	589.82	0.02	0.29	0.09	0.01	0.01	0.00	53.36
Concrete pump, small	1	336	2016	58	0.45	4.48	1.94	0.35	0.36	0.00	589.07	0.06	0.58	0.25	0.05	0.05	0.00	75.86
Crane, 90-ton	1	172	1032	158	0.07	1.14	0.23	0.06	0.06	0.00	530.85	0.01	0.20	0.04	0.01	0.01	0.00	95.33
Crane, SP, 5 ton	1	22	132	49	0.12	2.69	0.40	0.05	0.05	0.00	590.01	0.00	0.02	0.00	0.00	0.00	0.00	4.20
Crane, 40 ton	1	33	198	152	0.07	1.14	0.23	0.06	0.06	0.00	530.85	0.00	0.04	0.01	0.00	0.00	0.00	17.60
Vibratory hammer and generator	1	33	198	54	0.66	5.93	2.88	0.58	0.60	0.01	588.44	0.01	0.07	0.03	0.01	0.01	0.00	6.93
Diesel hammer, 41k ft-lb	1	18	108	54	0.66	5.93	2.88	0.58	0.60	0.01	588.44	0.00	0.04	0.02	0.00	0.00	0.00	3.78
Drill rig & augers	1	18	108	270	0.42	5.62	1.27	0.29	0.30	0.00	529.83	0.01	0.18	0.04	0.01	0.01	0.00	17.02
Dozer, 300 HP	1	13	78	300	0.06	1.06	0.40	0.06	0.06	0.00	536.67	0.00	0.03	0.01	0.00	0.00	0.00	13.83
Front end loader, 1.5 cy, crl	1	13	78	95	1.04	4.72	5.15	0.82	0.85	0.01	692.98	0.01	0.04	0.04	0.01	0.01	0.00	5.66
Front end loader, TM, 2.5cy	1	10	60	154	0.73	4.45	2.36	0.47	0.48	0.01	624.42	0.01	0.05	0.02	0.00	0.00	0.00	6.35
Gas engine vibrator	1	82	492	6	7.52	2.08	185.09	0.29	0.32	0.01	1229.31	0.02	0.01	0.60	0.00	0.00	0.00	4.00
Grader, 30,000 lb	1	31	186	200	0.04	0.65	0.21	0.04	0.04	0.00	536.72	0.00	0.03	0.01	0.00	0.00	0.00	21.99
Hydraulic excavator, 3.5 cy	1	32	192	417	0.05	0.81	0.31	0.05	0.05	0.00	536.70	0.00	0.07	0.03	0.00	0.00	0.00	47.32
Pneumatic wheel roller	1	17	102	110	0.06	1.08	0.31	0.07	0.07	0.00	536.65	0.00	0.01	0.00	0.00	0.00	0.00	6.63
Roller, vibratory	1	13	78	108	0.06	1.08	0.31	0.07	0.07	0.00	536.65	0.00	0.01	0.00	0.00	0.00	0.00	4.98
Rollers, steel wheel	1	12	72	101	0.06	1.08	0.31	0.07	0.07	0.00	536.65	0.00	0.01	0.00	0.00	0.00	0.00	4.30
Tandem roller, 10 ton	1	11	66	101	0.06	1.08	0.31	0.07	0.07	0.00	536.65	0.00	0.01	0.00	0.00	0.00	0.00	3.94
Total Emissions												0.26	1.73	1.54	0.13	0.13	0.00	407.34

Table 3
Construction Vehicle Exhaust Emissions – On-Road Vehicle

Off Site Vehicle	Milleage	Emission Factor (lb/mi)							Emission Factor (tons)						
		VOC	NOX	CO	PM2.5	PM10	SO2	CO2	VOC	NOX	CO	PM2.5	PM10	SO2	CO2
Trucks	4949	0.0001	0.0002	0.0039	0.0000	0.0002	0.0000	0.8217	0.00	0.00	0.01	0.00	0.00	0.00	2.03
Cars	26762	0.0006	0.0054	0.0023	0.0003	0.0008	0.0000	3.0517	0.01	0.07	0.03	0.00	0.01	0.00	40.83
Total Emissions									0.01	0.07	0.04	0.00	0.01	0.00	42.87

Assumption:
1. Offsite vehicles speed: 25 mph
2. Roadway type: Urban unrestricted
3. Off-site trucks includes material delivery trucks, concrete trucks and dump trucks running 20 miles per round trip
4. Passenger car running 20 miles per round trip

Table 4
Earth Disturbance Fugitive Dust Emissions

Mobile Category	$PM_{2.5}$ (tons)	PM_{10} (tons)
On-Road	4.78	19.5
Off-Road	0.57	5.2
Total Emissions	5.35	24.7

Compliance Analysis

Based on this analysis of NO_x, VOC, CO and $PM_{2.5}$ emissions performed in conjunction with the Final Rule of *Determining Conformity of Federal Actions to State or Federal Implementation Plans* (USEPA, November 30, 1993) and *Revisions to the General Conformity Regulations* (USEPA, March 24, 2010), the proposed action would not require a formal conformity determination. The conservative results, assuming the total emissions over approximately six construction years predicted from demolition and construction activities would occur only within one year, and presented in Table 5, show no exceedance of the applicable *de minimis* criteria of 100 tpy for NO_x, 50 tpy of VOC, and 100 tpy of CO and $PM_{2.5}$. Therefore, the proposed action would have minimal air quality impacts and would not require a formal conformity determination.

Table 5
Total Construction Emissions

Activity	VOC (ton)	NOx (ton)	CO (ton)	$PM_{2.5}$ (ton)	PM_{10} (ton)	SO_2 (ton)	CO_2 (ton)
Non-Road Construction Equipment Exhaust Emissions	0.26	1.73	1.54	0.13	0.13	0.00	407.34
On-Road Vehicle Exhaust Emissions	0.01	0.07	0.04	0.00	0.01	0.00	42.87
Earth Disturbance Fugitive Dust Emissions	--	--	--	5.35	24.7	--	--
Total Emission	0.3	1.8	1.6	5.5	24.8	0.00	450.2
De minimis Threshold	*50*	*100*	*100*	*100*	*n/a*	*n/a*	*n/a*

Attainment Pollutant Emissions

The incremental attainment pollutant emissions estimated are summarized in Tables 2 through 5. These incremental emissions would be well below the Prevention of Significant Deterioration (PSD) major source threshold of 250 tpy. The PSD program is applicable to the attainment area. Therefore, it is anticipated that the attainment pollutant emissions under the proposed action would be minimal resulting in no significant air quality impacts.

Greenhouse Gas Emissions

The demolition- and construction-related greenhouse gas emissions in terms of CO_2 levels were estimated for the NEPA disclosure purposes in the same way as used for predicting criteria pollutant emissions and are summarized in Tables 2 through 5.

References

Metropolitan Washington Council of Governments, February 8, 2019. MOVES2014a Excel Input Based on the Visualize 2045 Long Range Transportation Plan.

R.S. Means Co., 2002. 2003 RS Means Facilities Construction Cost Data.

R.S. Means Co., 2010. 2011 RS Means Facilities Construction Cost Data.

U.S. Environmental Protection Agency (USEPA). November 30, 1993. 40 CFR Parts 6, 51, and 93. Determining Conformity of Federal Actions to State or Federal Implementation Plans. Final Rule.

U.S. Environmental Protection Agency (USEPA). March 24, 2010. 40 CFR Parts 51 and 93. Revisions to the General Conformity Regulations.

U.S. Environmental Protection Agency (USEPA). January 1995. AP-42 - Compilation of Air Pollutant Emission Factors, Fifth Edition. Office of Air Quality Planning and Standards, Office of Air and Radiation. January.

U.S. Environmental Protection Agency (USEPA). November 2015. Motor Vehicle Emission Simulator (MOVES) 2014a User Guide.

This page intentionally left blank.

APPENDIX C

CORRESPONDENCE

This page intentionally left blank.

DEPARTMENT OF HEALTH & HUMAN SERVICES

Public Health Service

National Institutes of Health
Division of Facilities Planning
Building 13, Room 1325
Bethesda, MD 20892

March 27, 2019

Natalie Loukianoff
Maryland Historical Trust
100 Community Place
Crownsville, MD 21032

LETTER OF TRANSMITTAL

The National Institutes of Health (NIH) is requesting guidance from MHT on buildings to be constructed in the northwest quadrant of the NIH Bethesda Campus. A Utility Vault and Patient Parking Garage (UVPPG) is proposed for the site of an existing surface parking lot. This project precedes and enables construction of a Surgery, Radiology, and Lab Medicine (SRLM) addition to the existing Building 10 Clinical Center Complex.

Due to the topography, surrounding buildings, and the size and function of the facility, the Area of Potential Effect can be established as including the Convent to the west, the adjacent Convent Drive to the east, the adjacent South Drive to the south, Center Drive to the North, and the buildings across those streets (Buildings 22, 37, 40, 49, MLP-9, and Building 10. One historic property was identified within the APE: the Convent (MIHP M: 35-9-6), also known as Building 60. Completed in 1923, the property is eligible for listing in the National Register of Historic Places under Criteria A and C with national significance. It was constructed as a cloistered monastery for the Catholic Order of the Sisters of the Visitation, and it served in its religious function until 1981 when the NIH assumed ownership. Within the property, the NIH constructed a compatible addition in the 1980s. Just beyond the property, the campus has built up from the 1950s through to the present. The UVPPG has the potential to affect this historic property.

The NIH is coordinating the Section 106 process with NEPA process. The NIH is currently in the process of preparing an Environmental Impact Statement (EIS) for the proposed UVPPG and SRLM addition. A NEPA scoping meeting was held with the public on November 28, 2018. The proposed project will also be presented to the Community Liaison Council in an upcoming regular meeting as well as another NEPA Public Meeting when the Draft EIS is completed. The NIH community will be kept informed through

National Institutes of Health
Division of Facilities Planning
Building 13, Room 1325
Bethesda, MD 20892

internal communications (newsletters, emails). The UVPPG was favorably reviewed by the NIH Architectural Design Review Board (ADRB). The SRLM addition will be reviewed at an upcoming ADRB meeting.

This initial submittal provides information on the proposed buildings and treatment of the Convent wall and grounds. The following materials are enclosed:

- MHT's project review form;
- UVPPG Report prepared by OLBN, Inc. for the NIH. Includes location, project description, photos of existing conditions, proposed site plan, solar study, summary of archeological study, conceptual renderings, schematic elevations and sections, and discussion of measures intended to avoid adverse effects to the setting of the Convent property.
- CD with "Building 60 Character-Defining Features", 2013, prepared for NIH by Robinson & Associates and O'Neil & Manion Architects.
- Site plan and conceptual massing study for the SRLM addition.

Subsequent submittals will include the Draft EIS, a full set of architectural plans, and more detailed information about the UVPPG and SRLM addition. Please contact me at 301-435-1775 or david.derenick@nih.gov with any questions or Valerie Nottingham at 301-496-7775, nihnepa@mail.nih.gov for question on the NEPA process.

Sincerely,

Dave Derenick, RA
NIH Historic Preservation Officer

MARYLAND DEPARTMENT OF
PLANNING
MARYLAND HISTORICAL TRUST

Larry Hogan, Governor
Boyd Rutherford, Lt. Governor

Robert S. McCord, Secretary
Sandy Schrader, Deputy Secretary

May 29, 2019

Dave Derenick, RA
National Institutes of Health
Division of Facilities Planning
Building 13, Room 1325
Bethesda, MD 20892

Re: MHT Review of Proposed Utility Vault and Patient Parking Garage (UVPPG) at National Institutes of Health
Montgomery County, Maryland

Dear Mr. Derenick:

Thank you for contacting the Maryland Historical Trust (Trust), Maryland's State Historic Preservation Office, in regard to the above-reference undertaking. The Trust is reviewing the project to assess its effects on historic properties, pursuant to Section 106 of the National Historic Preservation Act of 1966. We are requesting that we be provided with additional information so that we can provide meaningful comments regarding the undertaking's effects on historic properties, as noted below.

Project Description: We understand the National Institutes of Health (NIH) is proposing to construct a utility vault and patient parking garage (UVPPG) to enable the construction of a Surgery, Radiology, and Lab Medicine (SRLM) addition to the existing Building 10 Clinical Center Complex. We are writing to express our comments regarding the effect this proposed construction might have on historic properties, including the National Register-eligible Convent of the Sisters of the Visitation of Washington (Convent), Maryland Inventory of Historic Properties No. M:35-9-6. The materials received on March 28, 2019 included the planning overview of the Surgery, Radiology, and Lab Medicine (SRLM) addition, plans and background information on the utility vault and patient parking garage, and the character defining features for the Convent.

Historic Built Environment: As noted within the submittal, the Convent is eligible for listing on the National Register of Historic Places. The original portions of the perimeter wall, the layout of the perimeter wall, and the Convent garden have been determined to be character-defining features of the Convent. Although the gates to the garden are not original and portions of the perimeter wall have been altered, this undertaking would impact portions of the original wall and proposes to alter the original configuration. Additional details regarding the proposed construction and alteration of the perimeter wall are needed in order to make an informed assessment of the project's effects on the historic property.

Archeology: MHT files indicate that a portion of the proposed project area and adjacent areas have been previously surveyed for archeological resources (see Comer 1997 and Comer 1999). There are no known archeological sites located within the proposed project area, and it is clear that the area has experienced significant ground-disturbing activities associated with the construction of the NIH campus, the realignment of Center Drive, and the installation of the current parking area located along Convent Drive. A 1951 aerial image, in fact, indicates that the proposed site for the SRLM addition was heavily graded during the mid-20th century. Following our review of the earlier archeological survey results and aerial imagery, it is our opinion that the project area has a relatively low potential for containing archeological resources that would be eligible for listing in the National Register of Historic Places. Therefore, archeological investigations are not warranted for this particular undertaking.

Section 106 Review: In order to continue our review of the proposed undertaking and provide an informed assessment of the project's effects on historic properties, we request the following information:

- Plans for how the perimeter wall will be protected during construction;

- Architectural drawings showing for the proposed new design of the perimeter wall and new gate;
- Landscaping plan within the Convent garden to minimize visual impact; and
- Landscaping plan for area between garage and the perimeter wall.

Once we have received the additional information requested in this letter, the Trust will continue its review of the undertaking and provide appropriate comments and recommendations.

The Trust understands that architectural design services are an ongoing process and we look forward to continuing to work with NIH to successfully resolve the current design challenges and complete the Section 106 requirements for this undertaking. If you have any questions or require further information, please do not hesitate to contact Natalie Loukianoff (regarding built environment and landscapes) at natalie.loukianoff@maryland.gov / 410-697-9587 or Dixie Henry (regarding archeology) at dixie.henry@maryland.gov / 410-697-9553. Thank you for the opportunity to comment.

Sincerely,

Dixie Henry
Preservation Officer
Maryland Historical Trust

NSL/DLH / 201901583-84

APPENDIX D

RESPONSE TO COMMENTS

This page intentionally left blank.

1. Matthew Coughlin (NIH) Email

From: Matthew Coughlin
Sent: Monday, June 8, 2020 9:20 PM
To: Derenick, David (NIH/OD/ORF) [E] <david.derenick@nih.gov>
Subject: Submission of Commentary - NIH Bethesda Surgery, Radiology, And Lab Medicine Building

Hello,

My name is Matthew Coughlin. I am submitting commentary for the NIH Bethesda Surgery, Radiology, And Lab Medicine Building Environmental Impact statement.

Thank you.

Introduction

The National Institute of Health (NIH) in Bethesda, Maryland has released a Final Environmental Impact Statement regarding its plan to construct a Surgery, Radiology, and Lab Medicine (SRLM) Building and Patient Parking Garage (PPG). Table S-1 outlines the necessary mitigation practices for the proposed action well and adherence to state and federal policy are duly noted throughout the document. There are however several instances where issues pertaining to water pollution post-construction merit further consideration as well as a need for best management practices to be utilized in order to minimize any and all environmental impacts.

Comments

1. In section 3.4.3 relating to stormwater, it is noted that NIH is required to comply with state and federal stormwater management requirements for land-disturbing projects. While table S-1 outlining the proposed action's planned approach for containing sediment pollution seems to be sufficient, Maryland's Stormwater Act of 2007 states that stormwater must be managed post-construction using Environmental Site Design to reduce stream channel erosion, pollution, siltation, sedimentation, and local flooding, and to use appropriate structural best management practices (BMPs). Aside from mechanical barriers used to contain sediment pollution, how might this project be modified to mitigate post-construction pollution? What BMPs could be built into this project? ①
2. In section 3.4.2 relating to surface water, figure 3.4-1 is referenced to show only a small part of the project's drainage land overlapping with the North Branch stream. It is noted in section 3.3.1 pertaining to vegetation that all trees removed during construction would either be replanted elsewhere on the campus or replaced if possible. The construction of this project will no doubt increase the amount of impervious surfaces near the North Branch stream resulting in runoff. What can be done to replicate the vegetative buffer effect of the trees that will have been removed? What structures can be integrated to mitigate the impacts of high precipitation? ②
3. In section 3.8.2 relating to greenhouse gas emissions, transportation and commercial energy purchase are listed as considerable sources of energy expenditure. It is also stated that "Executive Order 13693 also required OPDIVS to reduce the fleetwide per mile GHG emissions by 20 percent by FY2025. The NIH strategy to meet this requirement includes purchasing electric and hybrid vehicles". How might the parking garage and ③

Coughlin Response 1: The BMP specification has not been finalized. This project is subject to Maryland Department of the Environment's both Soil Erosion and Sediment Control, and Stormwater Management Programs requirements. In designing BMP's, the Maryland Stormwater Management Design Manual, will be strictly followed to meet the stormwater management requirement.

Coughlin Response 2: Under the current NIH Forest Conservation Plan, trees will be replaced per this plan and in agreement with Maryland Department of Natural Resources. Any increased run-off due to the increased impervious areas will be addressed through MDE's Stormwater Management Programs requirements.

Coughlin Response 3: NIH currently has several electric vehicles in their fleet. Charging stations are used for NIH government vehicles only. Solar panels are currently not in the budget for this project; however, the current scope of work requires the project to be 'Renewable-ready' by including the necessary infrastructure to incorporate Solar Photovoltaic Panels in the future.

SRLM building be outfitted to address these needs? What level of success would charging stations have in the parking garage and how might solar panels be integrated in the construction of the SRLM building? ③

Sincerely,

Matthew Coughlin

Coughlin Response 3: see previous page

2. Department of the Interior (DOI) – Office of Environmental Policy and Compliance

United States Department of the Interior

OFFICE OF THE SECRETARY
Office of Environmental Policy and Compliance
Custom House, Room 244
200 Chestnut Street
Philadelphia, Pennsylvania 19106-2904

IN REPLY REFER TO:

June 5, 2020

9043.1
ER 20/0168

Valerie Nottingham
National Institutes of Health, ORF
B13/2S11, 9000 Rockville Pike
Bethesda, MD 20892

Dear Ms. Nottingham:

The Department of the Interior (Department) does not have comments at this time on the Draft Environmental Impact Statement for the NIH Bethesda Surgery, Radiology, and Lab Medicine Building at the National Institutes of Health in Bethesda, Maryland.

We appreciate the opportunity to provide these comments.

Sincerely,

Lindy Nelson
Regional Environmental Officer

Note: No comments on this page require response.

3. National Capital Planning Commission (NCPC)

National Capital Planning Commission 401 9th Street, NW North Lobby, Suite 500 Washington, DC 20004 Tel: 202.482.7200 Fax: 202.482.7272 www.ncpc.gov

IN REPLY REFER TO:
NCPC FILE No. MP02

June 8, 2020

Ms. Valerie Nottingham
National Institutes of Health
B13/2S11
MSC 5746
9000 Rockville Pike
Bethesda, Maryland 20892

Re: NIH Bethesda Surgery, Radiology, and Lab Medicine Building Environmental Impact Statement

Dear Ms. Nottingham:

Thank you for the opportunity to comment on the Draft Environmental Impact Statement for the proposed Surgery, Radiology, and Lab Medicine (SRLM) Building at the National Institutes of Health (NIH) Bethesda Campus on behalf of the National Capital Planning Commission (NCPC). As the federal government's planning agency in the National Capital Region, NCPC has advisory review authority over NIH projects under the National Capital Planning Act (40 USC § 8722 (b)(1)). The DEIS analyzes three inter-related projects – a new SRLM Building addition, new Multi-Level Parking 15 (MLP 15) garage, and new utility vault. These projects will enable the Clinical Center Complex (CCC) to continue its function as a state-of-the-art medical research facility.

Staff reviewed the DEIS utilizing the policies set forth in the federal elements of the *Comprehensive Plan for the National Capital*, as well as the 2013 NIH Master Plan as approved by NCPC in January 2016. While the projects appear to conform to many of the master plan planning principles, including the landscaped campus perimeter buffer; tapered CCC height limit; and NIH's desire to cluster development, the projects would constitute a major change in character and intensity of development in the northwestern area of campus. As such, an amendment to the master plan is necessary to reflect the proposed projects within the context of the long-term campus build out.

NIH previously submitted the SRLM addition, MLP-15 parking garage, and utility vault as a combined amendment submission to NCPC for concept review in February 2020; however, the Commission deferred action based on its need to understand how NIH will attain its 1:3 parking goal with the addition of the proposed garage and considering the campus does not meet the ratio today. NCPC staff appreciates the coordination by NIH throughout the process as we collectively work to address this issue. The following staff comments address planning issues that should be reflected in the final EIS, Record of Decision (ROD), and next master plan amendment submission.

Note: No comments on this page require response.

Ms. Valerie Nottingham
Page Two

Parking

In accordance with the Comprehensive Plan, the parking ratio for the NIH campus is 1:3 due to its proximity to Metrorail. The draft EIS incorrectly states the parking ratio for NIH as 1:2 and this should be corrected. We recognize that the location of the proposed garage near the Clinical Center Complex offers significant benefits to patients; however, any employee parking associated with the garage would need to be reduced elsewhere to meet the 1:3 ratio. The Commission has previously noted (at its February 2020 review) that other parking garages (MLP-12, MLP-13, and/or MLP-14) proposed for future master plan phases, could be eliminated for NIH to meet the parking goal. NIH should also consider not including employee parking in the new garage given the impact on the campus parking ratio and visual impacts of the 6-story structure. It is our understanding that since the Commission's last review, NIH (Division of Facilities Planning) has been developing an employee parking reduction plan to show how the campus will attain the 1:3 goal. This will need to be submitted with the master plan amendment and should be reflected in the DEIS. ①

Visual Impacts

The proposed six level (55-foot) garage and 30-foot high utility vault (as measured from the adjacent Convent property), would be set back only seven feet from the perimeter garden wall in some locations, with potential impacts to eastward-looking views toward the CCC. Even with planned revegetation, additional landscaping, and potential design strategies, the new development would continue to visually intrude on the Convent grounds, permanently altering its park-like setting. Additional evaluation of MLP-15 capacity and planned scale of the project would help reduce adverse impacts, in addition to other mitigation, should the size and heights of the project remain as proposed in the draft EIS. ② NIH should also work to minimize the industrial appearance of the new service yard (adjacent to the northside of the garage) with its proximity to the SLRM addition, Convent building, and Center Drive entrance. ③ We recommend additional refinement to the project design, with at least one concept submission to NCPC for review and comment. ④ NIH should consider the latest visual reduction techniques through landscaping, building design, and lighting, with additional consideration given to reducing or eliminating MLP-15 altogether within the context of future parking reduction efforts. ⑤

NCPC Response 1: NCPC approved the 2013 Bethesda Campus Master Plan with an NIH/NCPC agreement that NIH would stay within the 9,045-employee parking space cap documented in the 2013 Comprehensive Master Plan Errata. NIH continues to respect this bilateral agreement. NIH is evaluating strategies to meet the NCPC Comprehensive Plan Parking Ratio of 1:3. Due to the importance of maintaining some parking in close proximity to the CRC for visitors and essential staff, NIH has determined that the spaces in the Utility Vault and Patient Parking Garage (UVPPG) are necessary to support the mission. The draft parking reduction plan maintains the UVPPG. It proposes eliminating MLP-14. Information on page 4-14 of the DEIS was found to be outdated and now reflects the current numbers above.

NCPC Response 2: The proposed vehicle capacity of MLP-15 is based on the phased closure of the ACRF Parking Garage (NOTE: NIH will not deactivate all the spaces in the ACRF until an equal number are replaced. MLP-15 will allow deactivation of a portion of the ACRF parking. When funded and built, MLP-12, shown in the Master Plan, will deactivate the remainder of the ACRF parking garage spaces.) The parking garage design has been submitted to Maryland Department of the Environment (MDE) for their Erosion and Sediment Control / Stormwater Management review. At this time NIH does not plan on reevaluating the garage design. NIH will use all resources available to minimize any adverse impacts to the Convent and its viewshed.

NCPC Response 3: The new service yard will house the relocated Data Center Emergency Generator and the relocated Carbon Dioxide (CO_2) storage tank. This equipment will be within a painted, louvered fence enclosure and be surrounded by landscaping, similar to the current configuration on the east side of Convent Drive. NIH will continue to work with the designers to minimize the industrial look of the service yard, given its prominent location at the intersection of Convent and Center Drive.

NCPC Response 4: NIH submitted the UVPPG project package for preliminary review on October 3, 2019.

NCPC Response 5: NIH will work with their design team to minimize the visual impact on the surrounding landscape.

Historic Resources

We understand that NIH has initiated the required Section 106 process with the Maryland Historic Trust (MHT) pursuant to the National Historic Preservation Act. According to the draft EIS, the project may have an adverse effect on the Convent, which was completed in 1923 and is eligible for listing on the National Register of Historic Places. However, we remain unclear how NIH undertook avoidance and minimization measures prior to selecting the current location for the new MLP-15/utility vault. ⑥ The FEIS and ROD should include this information to demonstrate these

Ms. Valerie Nottingham
Page Three

considerations as part of the Section 106 process, and we wish to participate as a Section 106 consulting party considering the magnitude of the SRLM, MLP-15, and utility vault projects. ⑦

We appreciate the opportunity to comment on the draft EIS for the new SRLM addition, MLP-15, and utility vault (master plan amendment), and we look forward to future submissions to NCPC for review. If you have any questions, please contact Michael Weil at (240) 575-0212 / michael.weil@ncpc.gov, or consult our Agency website (www.ncpc.gov/) for information regarding our Comprehensive Plan policies, review process, and/or submission guidelines.

Sincerely,

Diane Sullivan

Diane Sullivan
Director, Urban Design and Plan Review Division

NCPC Response 6: As stated above, the site was strategically selected based on proximity to the Clinical Center, for both the garage (patients, visitors, staff convenience) and for the utility vault (due to the energy efficiency of having the electrical equipment close to the sources being fed). Numerous studies were undertaken by NIH/specialty consultants to site the project (both SRLM and MLP-15/Utility Vault), with the result being the proposed location being the optimal location, given the numerous constraints posed by the lack of available campus open land.

NCPC Response 7: The NIH is currently in consultation with the Maryland State Historic Preservation Office (Maryland Historical Trust, MD SHPO). NIH has provided the NCPC with all formal correspondence between the NIH and the MD SHPO. The NIH will continue to solicit the views and concerns of all consulting parties and the public as part of the Section 106 process.

4. Environmental Protection Agency (EPA)

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
1650 Arch Street
Philadelphia, Pennsylvania 19103-2029

June 4, 2020

Ms. Valerie Nottingham
National Institutes of Health, ORF
B13/2S11, 9000 Rockville Pike
Bethesda, MD 20892

RE: National Institutes of Health Bethesda Surgery, Radiology and Lab Medicine Building, Draft Environmental Impact Statement, Montgomery County, MD (CEQ # 20200092)

Dear Ms. Nottingham:

In accordance with the National Environmental Policy Act of 1969 (NEPA), Section 309 of the Clean Air Act and the Council on Environmental Quality regulations implementing NEPA (40 CFR 1500-1508), the U.S. Environmental Protection Agency (EPA) has reviewed the National Institutes of Health (NIH) Bethesda Surgery, Radiology and Lab Medicine Building Study Draft Environmental Impact Statement (DEIS). The NIH is contemplating the construction and operation of a Surgery, Radiology, and Lab Medicine (SRLM) Building as an addition to the West Laboratory Wing of the Clinical Research Center at the NIH Bethesda Campus. In addition to the SRLM Building, NIH is considering the construction of a new Patient Parking Garage, a new Utility Vault and a Service Yard which will house laboratory and clinic gas storage tanks. The study area is within the boundaries of the NIH campus in Bethesda, Maryland. The purpose of this study is to maintain and improve performance of the NIH fundamental mission of clinical research by addressing deficiencies in the current facilities.

Overall, we found the analysis to be complete and we have no objections to the project moving forward as presented. EPA has identified a few areas where additional information and clarification would be helpful in the final EIS, regarding continued public notification and discharge permit status. Enclosed are our comments for NIH to consider. Thank you for providing EPA with the opportunity to review this project. If you have questions regarding these comments, the staff contact for this project is Joy Gillespie; she can be reached at 215-814-2793 or gillespie.joy@epa.gov.

Sincerely,

BARBARA RUDNICK Digitally signed by BARBARA RUDNICK Date: 2020.06.04 11:08:55 -04'00'

Barbara Rudnick
NEPA Program Coordinator
Office of Communities, Tribes and Environmental Assessment

Enclosure

Note: No comments on this page require response.

Enclosure
National Institutes of Health Bethesda Surgery, Radiology and Lab Medicine Building
Draft Environmental Impact Statement
Detailed Technical Comments

Surface Water Discharge Permits

On page 3-2, the study states NIH holds stormwater discharge permits; however, as described, the NPDES permit (MD0029496) appears to be an industrial wastewater permit, not a stormwater permit and there is limited detail on the scope of the state permit (016-DP-2520) provided. Our records indicate NIH Bethesda campus has an active general permit (MDG675159) that was not cited in the study. We recommend the final EIS (FEIS) provide clarification to current discharge permitting status. ①

Stormwater

We suggest NIH consider resiliency for extreme weather events in any future design planning. ②

Air

EPA recommends that the project document and consider best practices for diesel machinery that may be deployed and/or operated during the project (e.g., "clean" diesel, anti-idling measures, etc.). EPA's online GIS tools indicate that this area exceeds the 90th percentile nationally for diesel particulate matter (EJSCREEN, 2020). ③

Noise

While it is understood that a noise survey occurred in 2013, EPA suggests that an additional noise survey (in accordance with 55 dBa residential nighttime limits) would be valuable following construction in order to establish and verify that final noise levels remain within permissible limits. ④

Construction Waste Generation

We suggest the FEIS include a more detailed discussion and estimate of likely waste generation as a result of this project, how waste will be handled and public coordination as waste is hauled from one location to another. ⑤

Public Participation

The study states a public meeting was held in November 2018; it would be helpful if information on the number of participants and public feedback was summarized in the EIS. On May 6, 2020, a virtual public meeting was held. Please consider updating the study with the results of the meeting. Additionally, to continue to inform the public on the project, please consider providing the public with status updates as the project progresses, allowing NIH to address any public concerns that may arise in a timely manner. ⑥

EPA Response 1: NPDES (MD0029496) / 016-DP-2520 – these are permit numbers for one discharge permit. The state issues two identifiers: one for the Federal and one for the state. This permit allows the NIH Power Plant to discharge non-contact cooling water to on-campus stream. There is a Stormwater Pollution Prevention Plan requirement as part of this permit that addresses campus activities that can have an impact on our stormwater discharges.

General Permit MDG675159 is a discharge permit for the NIH DFM annual fire hydrant testing.

EPA Response 2: NIH will consider resiliency on future design planning. NIH will continue to follow all MDE requirements for stormwater management and sediment erosion control.

EPA Response 3: NIH will ensure the construction contracts require the contractors to comply with environmental regulations and to minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects. We will specifically add BMPs regarding the use of 'clean' (ultra-low sulphur) diesel, anti-idling measures, consolidated deliveries, and use of mass transit and carpooling for workers, etc.

EPA Response 4: NIH agrees that another noise survey would be valuable and will consider performing additional surveys once construction is complete.

EPA Response 5: NIH has a goal to recycle 100% of construction debris created during construction. Waste that cannot be recycled will be transported following all local, state and federal guidelines and transported to a licensed facility based on the type of waste being transported.

EPA Response 6: NIH received one comment from the general public following the meeting. NIH also has a NEPA website that has information on the current NEPA actions. This can be found at nems.nih.gov/NEPA.