National Aeronautics and
Space Administration

DRAFT ENVIRONMENTAL ASSESSMENT FOR NASA GODDARD SPACE FLIGHT CENTER GREENBELT CAMPUS MASTER PLAN

NASA Goddard Space Flight Center
Greenbelt, MD 20771

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DRAFT ENVIRONMENTAL ASSESSMENT FOR NASA GODDARD SPACE FLIGHT CENTER GREENBELT CAMPUS MASTER PLAN

Lead Agency: National Aeronautics and Space Administration (NASA)

Proposed Action: Goddard Space Flight Center (GSFC) Greenbelt Campus Master Plan

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Abstract: NASA proposes to implement the GSFC Greenbelt Campus Master Plan. In accordance with the National Environmental Policy Act, NASA has prepared the GSFC Greenbelt Campus Master Plan Environmental Assessment to evaluate the potential environmental effects of implementing facility demolition, construction, renovation and sustainment; general infrastructure upgrades and maintenance and improvement activities; and divestment of excess buildings and land areas at GSFC, Greenbelt, Maryland. The Proposed Action would support core capabilities, meet existing and future NASA mission requirements, and provide an effective guideline to support sustainable development of the Greenbelt Campus with a focus on reducing real property assets and operating costs over the next 20 years. The potential environmental effects to numerous resource areas resulting from the implementation of NASA's Proposed Action and No Action Alternative are presented.

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EXECUTIVE SUMMARY

The National Aeronautics and Space Administration (NASA) has prepared an Environmental Assessment (EA) that evaluates the potential environmental effects of implementing a phased approach to facility demolition, construction, renovation and sustainment; general infrastructure upgrades and maintenance and improvement activities; and potential divestment (i.e., disposal) of excess buildings and land areas on the Main Campus and off the Main Campus in support of Goddard Space Flight Center (GSFC) Greenbelt Campus Master Plan.

The EA has been prepared as a programmatic document in accordance with the requirements of the National Environmental Policy Act (NEPA) of 1969, as amended (42 United States Code [U.S.C.] 4321 et. seq.), the Council on Environmental Quality (CEQ) Regulations for Implementing the Procedural Provisions of NEPA (40 Code of Federal Regulations [CFR] Parts 1500–1508), NASA's regulations (14 CFR Part 1216 Subpart 1216.3), and NASA Procedural Requirements 8580.1A, "*Implementing the National Environmental Policy Act* and Executive Order (EO) 12114."

The CEQ issued a final rule to update its regulations for Federal agencies to implement NEPA on July 16, 2020 with an effective date of September 14, 2020. While the effective date occurred prior to the release of the Draft EA, this EA had already been underway prior to that effective date. Therefore, in accordance with the new CEQ regulation (1507.3(a)) this EA has been prepared in accordance with the original CEQ regulations promulgated in 1978 and associated CEQ guidance documents.

ES.1 PROPOSED ACTION

The Proposed Action would support existing and future NASA goals and objectives of the Greenbelt Campus with a focus on reducing real property assets and operating costs over a 20-year period. Full implementation of the Proposed Action at GSFC Greenbelt Campus would remove via demolition approximately 647,000 square feet (ft^2 - building footprint) of excess and/or aging and energy inefficient buildings; add via construction approximately 375,000 ft^2 (building footprint) of new Leadership in Energy and Environmental Design (LEED) certified energy efficient buildings; divest of approximately 100,000 ft^2 (building footprint) of excess buildings; avoid annual energy costs by approximately $8.8 million and approximately $10.1 million in operations and maintenance costs; and remove approximately $54 million in deferred maintenance.

Prior to implementation, each of the Master Plan projects would be reviewed via the GSFC Greenbelt Environmental and Safety Review Process to: 1) identify if the project was sufficiently analyzed in the Final EA or if additional environmental analysis and/or NEPA documentation (i.e. categorical exclusion, EA or Environmental Impact Statement) is needed and; 2) identify any additional environmental requirements, permits, mitigation, etc. that may be required for the project to include compliance with the Endangered Species Act Section 7 and the National Historic Preservation Act Section 106.

ES.1.1 No Action Alternative

The No Action Alternative would not implement the GSFC Greenbelt Campus Master Plan. The Center would continue to operate the buildings and infrastructure currently in use on the Main Campus and in the areas off the Main Campus leading to increased aging and energy inefficient building and infrastructure. The No Action Alternative would not meet the purpose and need for the proposed action and it would not comply with EO 13834, *Efficient Federal Operations*.

ES.1.2 Summary of Environmental Impacts

The following resource areas have been evaluated in this EA: air quality; biological resources; water resources; cultural resources; hazardous materials and wastes; land use; and utilities and infrastructure. **Table ES-1** provides a summary of the potential impacts to each resource area analyzed in the GSFC Greenbelt Campus Master Plan EA.

Table ES-1. Summary of Potential Impacts to Resource Areas

Resource Area	No Action Alternative	Action Alternative
Air Quality	The Proposed Action would not occur; minor, long-term impacts to air quality in the region would be anticipated from continued use of excess and/or energy inefficient buildings and infrastructure.	Potential for short-term impacts to air quality during construction activities. However, the projects would occur over a 20-year period and emissions are not anticipated to have significant impacts on regional air quality. Temporary increases in greenhouse gas emissions during the construction phases; however, a slight net decrease in the long-term from demolition of energy inefficient buildings and infrastructure.
Biological Resources	The Proposed Action would not occur; there would be no change to biological resources beyond existing conditions.	Potential for minor, short-term adverse impacts to vegetation and wildlife during construction from trampling and heavy equipment activity and noise, respectively. Approximately 1.0 acres of forested area would be removed representing a long-term impact; however, abundant forested areas are found on GSFC. No impacts to threatened and/or endangered species or critical habitat as none are known to occur on the installation. No significant impacts anticipated during daily operations.
Water Resources	The Proposed Action would not occur; minor, long-term impacts to water resources from continued use of aging and energy inefficient infrastructure would be anticipated. No change to coastal zone resources in and around GSFC Greenbelt would occur.	Proposed projects are not immediately adjacent to surface waters; however, soil disturbance and unintentional release of hazardous materials from equipment during demolition and construction activities have the potential to indirectly impact groundwater, surface water, and wetland resources. Development of an erosion and sedimentation control plan, a site-specific Stormwater Pollution Prevention Plan, and implementation of site-specific best management practices (e.g., vegetative covers, straw bales, and silt fencing) would minimize these potential impacts. Following completion of construction activities, operations would be carried out in accordance with GSFC's water permits and applicable Federal, state, and local laws and regulations for preventing impacts to groundwater and surface water resources. No significant impact to water resources would occur.

Table ES-1. Summary of Potential Impacts to Resource Areas (cont.)		
Resource Area	**No Action Alternative**	**Action Alternative**
Cultural Resources	The Proposed Action would not occur; there would be no change to cultural resources.	Numerous buildings proposed for demolition on the Main Campus and in Area 300 are contributing features to the National Register of Historic Places (NRHP)-eligible GSFC Historic District. GSFC will consult with the Maryland State Historic Preservation Office (SHPO) and Advisory Council on Historic Preservation (ACHP) to identify and resolve any direct, indirect, and cumulative adverse effects that may occur. No known archaeological sites would be affected, and no traditional cultural properties have been identified at GSFC. New building construction would not directly affect architectural resources; however, there is potential for adverse visual effects to the NRHP-eligible GSFC Historic District. GSFC will consult with the Maryland SHPO and ACHP as each project begins its design phase to minimize adverse visual effects and consider the scale, materials, and overall design of the new buildings.
Hazardous Materials and Wastes	The Proposed Action would not occur; there would be no change to hazardous materials and wastes beyond existing conditions.	No significant impacts on the management and use of hazardous materials would be expected. Hazardous materials usage during construction activities would be temporary and managed in accordance with Federal and state regulations and GSFC procedural requirements. New waste streams that may be created in GSFC labs or during the course of operations would be characterized and managed accordingly; no substantial change in hazardous waste operations would be anticipated. Observation of the land use controls established for known environmental sites on the Main Campus would be strictly enforced.
Land Use	The Proposed Action would not occur; there would be no change to land use beyond existing conditions.	Construction of Building J in the forested area would result in a change in land use; however, the impact would not be significant. With this exception, all new construction would occur in the footprints of demolished buildings. Divestment or partnership areas could involve the transfer of excess buildings and land to a non-NASA entity. NASA would place restrictions and/or limitations on construction of new buildings within the partnership areas based on partnership type and vehicle used, existing and anticipated relationship with GSFC, and location relative to the Campus. Future NEPA analysis will be required to address activities within the potential divestment and partnership areas.
Utilities and Infrastructure	The Proposed Action would not occur; minor, long-term impacts from continued use of aging and energy inefficient infrastructure would be anticipated.	Potential for minor, short-term disruption of utilities service connections during the construction phases. Replacement of aging facilities with new Leadership in Energy and Environmental Design (LEED) certified energy efficient buildings would have long-term energy and water savings resulting in long-term beneficial impacts to utilities and infrastructure at GSFC.

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ACRONYMS AND ABBREVIATIONS

ACHP	Advisory Council on Historic Preservation
APE	area of potential effect
AQCR	Air Quality Control Region
BMP	best management practice
CAA	Clean Air Act
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulation
CO	carbon monoxide
CO_2	carbon dioxide
CZMA	Coastal Zone Management Act
CZMP	Coastal Zone Management Program
DFA	debris filled area
DNR	Department of Natural Resources
EA	Environmental Assessment
EO	Executive Order
ERD	Environmental Resources Document
ESA	Endangered Species Act
ft^2	square feet
FONSI	Finding of No Significant Impact
GHG	greenhouse gas
GSA	Government Services Administration
GSF	gross square feet
GSFC	Goddard Space Flight Center
ICRMP	Integrated Cultural Resources Management Plan
IPaC	Information for Planning and Consultation
LEED	Leadership in Energy and Environmental Design
LID	Low Impact Development
LUC	Land Use Control
MDE	Maryland Department of the Environment
MEMD	Medical and Environmental Management Division
M-NCPPC	Maryland-National Capital Park and Planning Commission
$MTCO_2e$	metric tons carbon dioxide equivalent
MS4	municipal separate storm sewer system
NA NSR	Nonattainment New Source Review
NAAQS	National Ambient Air Quality Standards
NASA	National Aeronautics and Space Administration
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NOx	nitrogen oxides
NO_2	nitrogen dioxide
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
NSR	New Source Review
O_3	ozone
Pb	lead
$PM_{2.5}$	particulate matter equal to or less than 2.5 microns in diameter
PM_{10}	particulate matter equal to or less than 10 microns in diameter
ppb	parts per billion
ppm	parts per million
PSD	Prevention of Significant Deterioration
SHPO	State Historic Preservation Officer
SIP	State Implementation Plan
SO_2	sulfur dioxide
tpy	tons per year
U.S.	United States
U.S.C.	U.S. Code
USDA	U.S. Department of Agriculture
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
VOC	volatile organic compound
WSSC	Washington Suburban Sanitary Commission
$\mu g/m^3$	micrograms per cubic meter

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1.0 PURPOSE OF AND NEED FOR PROPOSED ACTION

1.1 INTRODUCTION

The National Aeronautics and Space Administration (NASA) is proposing to implement the Goddard Space Flight Center (GSFC) Greenbelt Campus Master Plan. The NASA GSFC Greenbelt Campus Master Plan Environmental Assessment (EA) evaluates the potential environmental effects of implementing a phased approach to facility demolition, construction, renovation, and sustainment; general infrastructure upgrades and maintenance and improvement activities; and potential divestment (i.e., disposal) of excess buildings and land areas on the Main Campus and off the Main Campus. The Proposed Action would support existing and future NASA goals and objectives of the Greenbelt Campus with a focus on reducing real property assets and operating costs over the next 20 years.

This EA for the NASA GSFC Greenbelt Campus Master Plan has been prepared in accordance with the requirements of the National Environmental Policy Act (NEPA) of 1969, as amended (42 United States Code [U.S.C.] 4321 et. seq.), the Council on Environmental Quality (CEQ) Regulations for Implementing the Procedural Provisions of NEPA (40 Code of Federal Regulations [CFR] Parts 1500–1508), NASA's NEPA regulations (14 CFR Part 1216 Subpart 1216.3), and NASA Procedural Requirements 8580.1A, "*Implementing the National Environmental Policy Act* and Executive Order (EO) 12114." This EA has been prepared as a programmatic document. Both CEQ and NASA NEPA regulations allow the preparation of NEPA programmatic documents that may be followed by more site- or action-specific documents as appropriate. This approach is referred to as tiering. Tiered documents only need to summarize the issues discussed in the programmatic document, incorporate discussions from the programmatic document by reference, and concentrate on the issues specific to the action. As such, tiering will allow NASA to eliminate repetitive discussions of the same issues and focus on the relevant issues.

1.2 BACKGROUND

NASA Procedural Requirement 8810.1A, *Center Master Planning*, establishes the requirement for each NASA Center to develop and maintain a Master Plan in accordance with NASA Policy Directive 8800.2, *Master Planning for Real Property*. As defined in NASA Policy Directive 8810.2, *Master Planning for Real Property*, the Master Plan establishes the Center's concept for the orderly management and future development of the real property assets. The plan ensures that the future real property development effectively and efficiently supports the operational missions in support of the Center's strategic management goals and objectives.

The GSFC Greenbelt Campus Master Plan sought to incorporate sufficient flexibility to address current conditions, planned future needs, and unplanned but predictable changes (e.g., funding adjustments or mission changes). Information on the GSFC Master Plan concept and process can be found at: https://www.nasa.gov/feature/goddard/2019/envision-goddard-modernizing-for-the-future. Since the Proposed Action is a long-range collection of individual projects that would occur over at least 20 years, specific facility requirements could change, especially during the later stages of implementation. It is assumed that minor modifications to the plan or changes to the schedule would not affect the environmental impacts as described in this EA. In the event that major changes are made to the scope of implementing the Proposed Action, the action will be reviewed to assess if changes are relevant to

environmental concerns and if additional environmental analysis and/or NEPA documentation may be required.

1.3 GEOGRAPHICAL SETTING

GSFC Greenbelt is located in Prince George's County, Maryland, about 9 miles northeast of the District of Columbia (**Figure 1.3-1**). Greenbelt covers roughly 1,275 acres across five geographic areas (**Figure 1.3-2**). As shown on **Figure 1.3-2**, these geographic areas include the Main Campus, Area 100, Area 200, Area 300, and Area 400. Most of the property abutting GSFC is owned by the U.S. Department of Agriculture (USDA). The Main Campus, the largest of the five areas, covers more than 820 acres and contains the largest concentration of buildings. The remainder of the campus is largely undeveloped and is forested. The Main Campus consists of numerous facilities and operations that include but are not limited to flight control operations, communications for NASA's space flight programs, and spacecraft operations; laboratories; engineering and technical facilities primarily devoted to the fabrication, testing, and assembly of spacecraft and their components; shops; test facilities; computer spaces; and specialized areas such as clean rooms.

Personnel and visitor access are via the South Gate (main gate) located on ICESat Road. The Goddard Gate, located at the intersection of Goddard Road and Explorer Road and west of the main gate, provides a secondary access point for personnel. Additional personnel access points include the Baltimore/Washington Parkway (Parkway Gate) and North Gate located in the northwest and northcentral sectors of the Main Campus, respectively. The access point for all incoming deliveries to GSFC (shipping and receiving) is in the northeast sector off Soil Conservation Service Road. **Figure 1.3-2** illustrates the locations of these access points.

Areas 100 and 200 are leased from USDA Beltsville Agricultural Research Center. Area 100, comprised of 28 acres, is used by Goddard Employee Welfare Association Softball Club members for playing softball, and by the Radio, Model Airplane, and Flying Clubs. Area 200, is a 120-acre site that houses the Goddard Geophysical and Astronomical Observatory and is the home of pioneering research in many scientific areas. Areas 300 and 400 are owned by NASA. Area 300, the largest of the area sites (152 acres), includes two highly specialized facilities: Magnetic Field Component Test Facility and Spacecraft Magnetic Test Facility, which are used to study the magnetic fields of spacecraft and the environment in which they will travel when in space. Area 400, a 100-acre site houses facilities that are used to develop and test cryogenics.

1.4 PURPOSE OF AND NEED FOR THE PROPOSED ACTION

The purpose of the GSFC Greenbelt Campus Master Plan is to enable Greenbelt to establish a vision strategy for the future, support core capabilities, meet mission requirements, and respond effectively to future mission changes. The GSFC Greenbelt Campus Master Plan is needed to provide an effective guideline to support sustainable development of Greenbelt's real property assets and to support the Center's planning and budgeting processes.

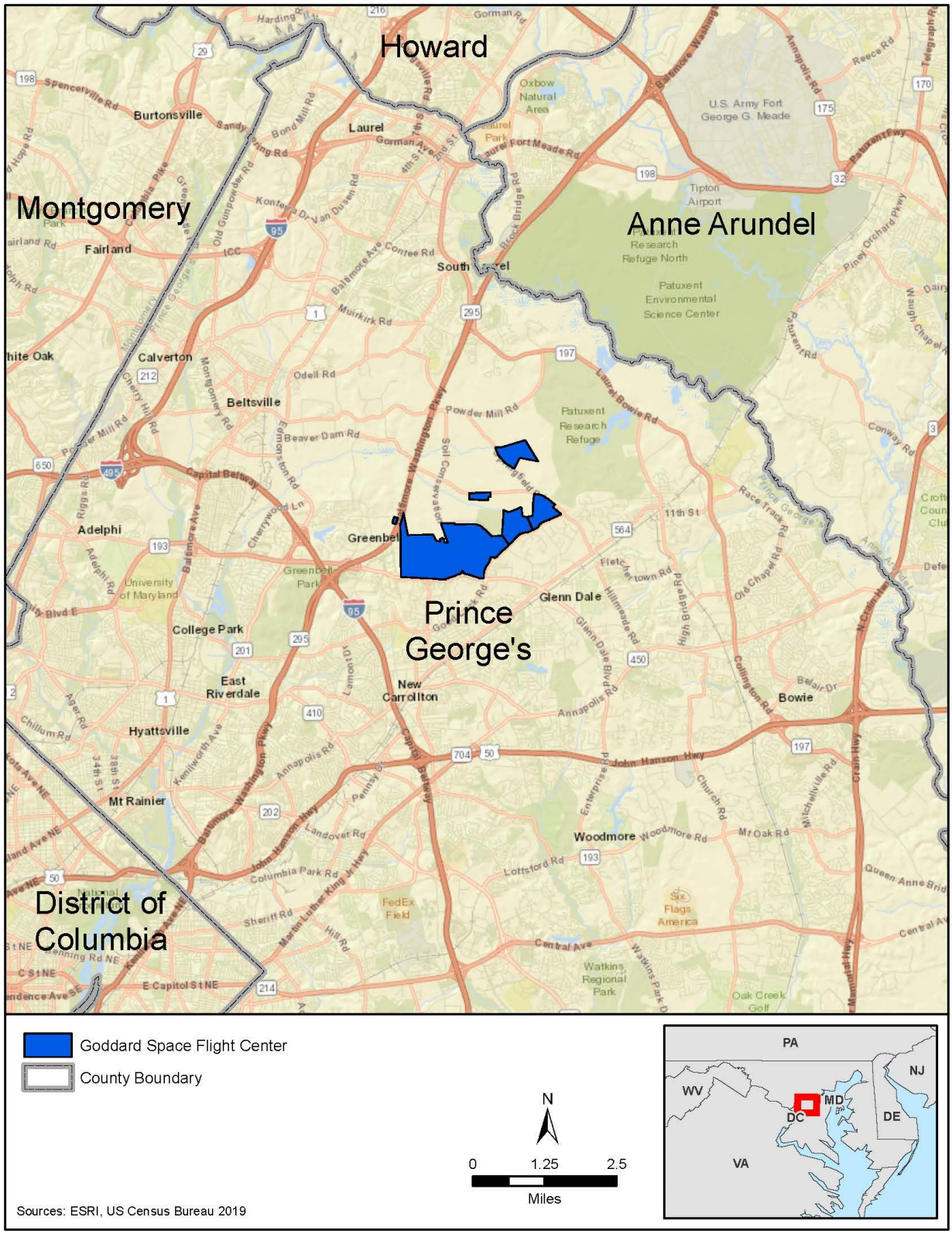

Figure 1.3-1. Regional Location of NASA Goddard Space Flight Center Greenbelt

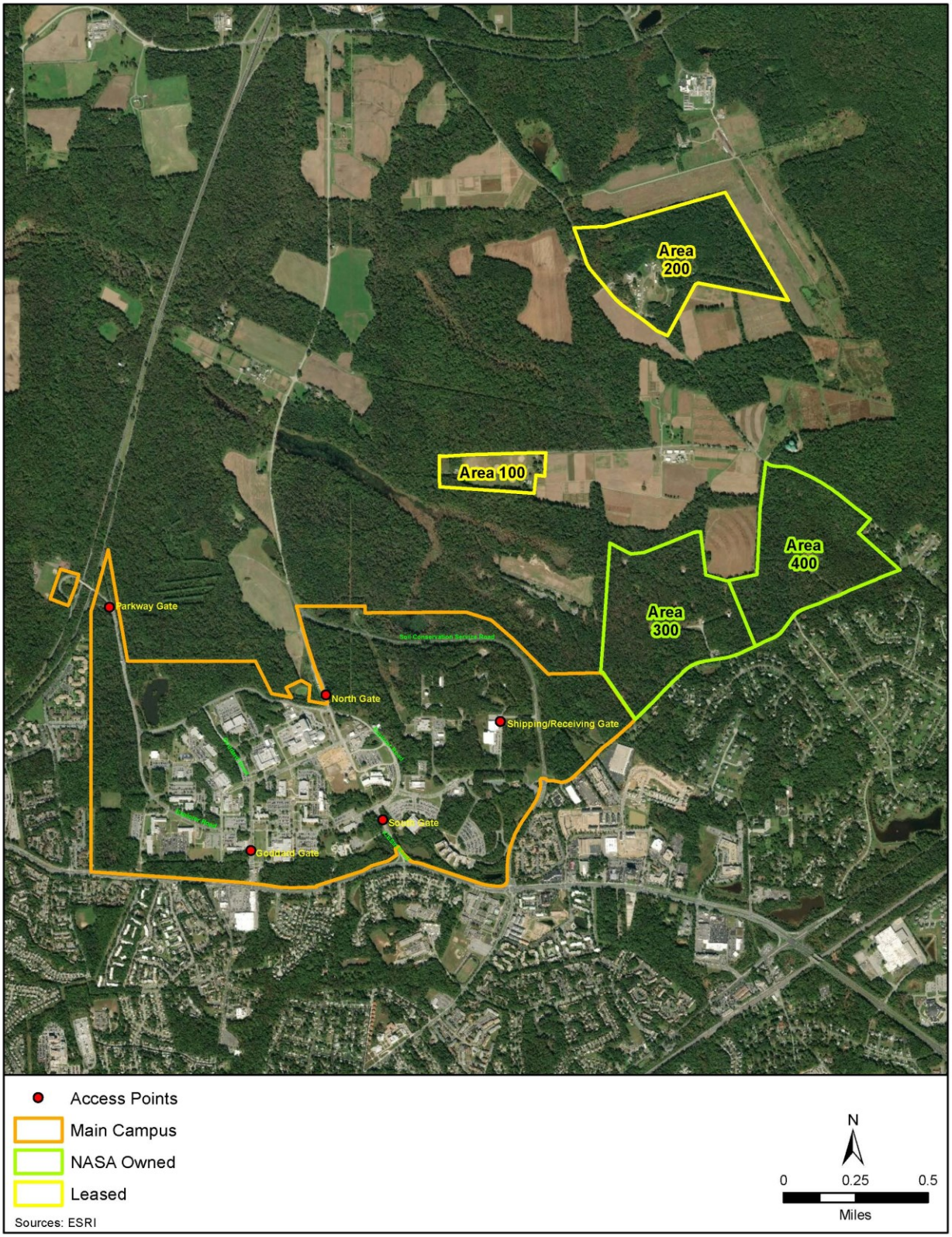

Figure 1.3-2. NASA Goddard Space Flight Center Greenbelt Campus

1.5 SCOPE OF THE EA

This EA provides a framework to address the environmental impacts of implementing the GSFC Greenbelt Campus Master Plan within a 20-year planning horizon. The EA provides stakeholders, the public, and decision makers with information necessary to understand and evaluate the potential environmental consequences of the activities included under the Proposed Action. The environmental resource areas analyzed within this EA include: air quality; biological resources; water resources; cultural resources; hazardous materials and wastes; land use; and utilities and infrastructure.

1.6 RELEVANT LAWS AND REGULATIONS

NASA has prepared this EA based upon federal and state laws, statutes, regulations, and policies pertinent to the implementation of the Proposed Action, including but not limited to the following:

- NEPA (42 U.S.C. sections 4321–4370h)
- CEQ Regulations (1978) for Implementing the Procedural Provisions of NEPA (40 CFR parts 1500–1508)
- NASA Regulations for Implementing NEPA (14 CFR § 1216.3)
- Clean Air Act (42 U.S.C. section 7401 et seq.)
- Clean Water Act (33 U.S.C. section 1251 et seq.)
- Coastal Zone Management Act (16 U.S.C. sections 1451–1465)
- National Historic Preservation Act (54 U.S.C. section 306108 et seq.)
- Endangered Species Act (16 U.S.C. section 1531 et seq.)
- Migratory Bird Treaty Act (16 U.S.C. sections 703–712)
- Bald and Golden Eagle Protection Act (16 U.S.C. sections 668–668d)
- Comprehensive Environmental Response, Compensation, and Liability Act (42 U.S.C. section 9601 et seq.)
- Resource Conservation and Recovery Act (42 U.S.C. section 6901 et seq.)
- Toxic Substances Control Act (15 U.S.C. sections 2601–2629)
- EO 11988, Floodplain Management
- EO 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations
- EO 13045, Protection of Children from Environmental Health Risks and Safety Risks
- EO 13834, Efficient Federal Operations

1.7 PUBLIC AND AGENCY INVOLVEMENT

CEQ regulations direct agencies to involve the public in preparing and implementing their NEPA procedures. The steps taken to involve the public and agencies in the preparation of the GSFC Greenbelt Campus Master Plan EA are outlined below.

- **Scoping** – This is an early and open process for determining the scope of issues and identifying the significant issues related to the Proposed Action. A notice was published in the *Greenbelt News Review* newspaper announcing a 30-day scoping period from July 16 to August 14, 2020. Letters that described the Proposed Action and No Action Alternative were sent via email on that

same date to the following: Advisory Council on Historic Preservation (ACHP); Beltsville Agricultural Research Center; City of Greenbelt; Maryland Department of Natural Resources Wildlife and Heritage Service; Maryland Department of Planning State Clearinghouse; Maryland Historical Trust; Maryland-National Capital Park and Planning Commission (M-NCPPC) Prince George's County Planning Department; M-NCPCC Prince George's County Historic Preservation; and U.S. Fish and Wildlife Service Chesapeake Bay Ecological Services Field Office. The scoping letter and comments received are provided in **Appendix A**.

- **Draft EA Notice of Availability** – The Draft EA analyzes the environmental consequences of the Proposed Action and the No Action Alternative. It includes the purpose and need for the Proposed Action, the description of each of the projects being proposed, the existing conditions, the environmental consequences of implementing the proposed projects, and includes consideration of comments received during the scoping period. Emails will be sent to interested parties, agencies, and organizations and an advertisement will be published in the *Greenbelt News Review* newspaper notifying the public as to the availability of the Draft EA for review on the internet at: https://code200-external.gsfc.nasa.gov/250/node/122.

  Final EA / Finding of No Significant Impact (FONSI) Notice of Availability – The Final EA is a revision (if necessary) of the Draft EA, includes consideration of public and agency comments, and provides the decision maker with a comprehensive review of the proposed action and the potential environmental impacts. A FONSI would be prepared if the analysis supports a finding of no significant impact conclusion. Emails will be sent to interested parties, agencies, and organizations and an advertisement would be published in the *Greenbelt News Review* newspaper notifying the public as to the availability of the Final EA and FONSI for review on the internet at: https://code200-external.gsfc.nasa.gov/250/node/122.

Pursuant to Section 7 under the Endangered Species Act, NASA initiated coordination with the U.S. Fish and Wildlife Service (USFWS) using the Service's Information for Planning and Consultation (IPaC) online review process. Section 7 consultation for the project was completed on November 23, 2020. **Appendix D** provides the USFWS consultation package.

Pursuant to its responsibilities under the Coastal Zone Management Act, NASA prepared a Coastal Consistency Determination (CCD). The Coastal Consistency Request Form and CCD were provided to Maryland Department of the Environment via email on November 12, 2020. The State has 60-days to respond to the request. **Appendix E** provides the CCD and correspondence with the State.

Pursuant to Section 106 of the National Historic Preservation Act, NASA will consult with the Maryland Historical Trust regarding potential effects on historic properties of a near-term project evaluated in this EA.

2.0 DESCRIPTION OF PROPOSED ACTION AND NO ACTION ALTERNATIVES

2.1 PROPOSED ACTION

The NASA proposes to implement the GSFC Greenbelt Campus Master Plan over a 20-year period with a planning horizon of 2037. Under the Proposed Action, numerous buildings would be demolished, constructed, and renovated/sustained along with general infrastructure maintenance and improvement activities that would be implemented throughout the installation. NASA would explore different options for some excess buildings and land areas to include divesting land, divesting buildings, and potential future partnerships with non-NASA entities for use of NASA owned land. Since the Proposed Action addresses long-term planning over 20 years, implementation of specific projects within the Greenbelt Campus Master Plan may change or vary based on future mission needs and funding. **Figure 2.1-1** illustrates an overview of the Proposed Action on the Main Campus. **Figure 2.1-2** and **Figure 2.1-3** provide a more focused view of the proposed demolition and construction projects on the Main Campus, respectively. **Section 2.1.1** provides the description of the actions proposed on the Main Campus; **Section 2.1.2** provides the description of the actions proposed for the areas off the Main Campus.

Full implementation of the Proposed Action at GSFC Greenbelt Campus would:

- Remove via demolition approximately 647,000 square feet (ft^2) (building footprint) of excess and/or energy inefficient buildings;
- Add via construction approximately 375,000 ft^2 (building footprint) of new Leadership in Energy and Environmental Design (LEED) certified energy efficient buildings;
- Divest of approximately 100,000 ft^2 (building footprint) of excess buildings;
- Avoid annual energy costs by approximately $8.8 million;
- Avoid approximately $10.1 million in operations and maintenance costs; and
- Remove approximately $54 million in deferred maintenance.

The following provides a general description of the type of activities associated with the Proposed Action.

Demolition projects typically include identifying hazardous and salvageable/recyclable materials; developing a demolition plan; disconnecting utilities and securing the site; removing and disposing of hazardous chemicals and materials located within the building; draining oil or fluid-filled equipment; removal of artifacts (e.g., air and spacecraft models); salvaging any unique architectural elements for future reuse or display; demolishing/deconstructing structures; and performing final site cleanup, grading, and site re-vegetation. Demolition of buildings and structures would incorporate a sustainability approach whereby materials such as concrete, brick, metals, and other building components would be salvaged for recycling or reuse in accordance with EO 13834, *Efficient Federal Operations* and other Federal, state, and local requirements.

Construction activities associated with new buildings, structures, and infrastructure include site preparation and excavation; construction of the foundation, structural components, and the building shell; completion of the interior spaces, support equipment, and utilities; and final grading and landscaping. New construction would employ sustainable design principles in accordance with EO 13834, *Efficient Federal Operations* and other Federal, state, and local requirements. Newly constructed buildings would be designed to be adaptable, flexible, and able to accommodate a variety of potential uses.

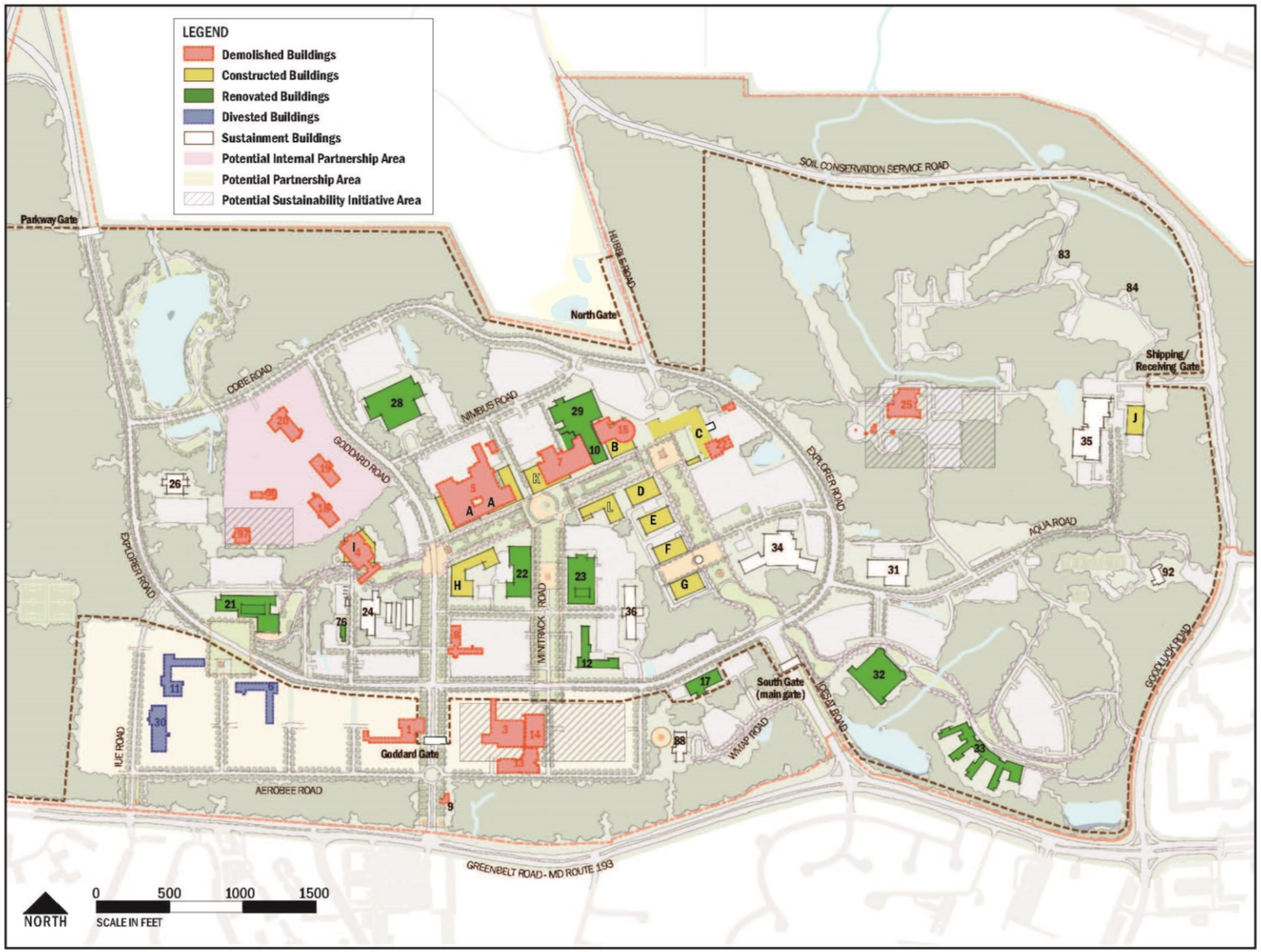

Figure 2.1-1. Overview of the Proposed Action on the Main Campus

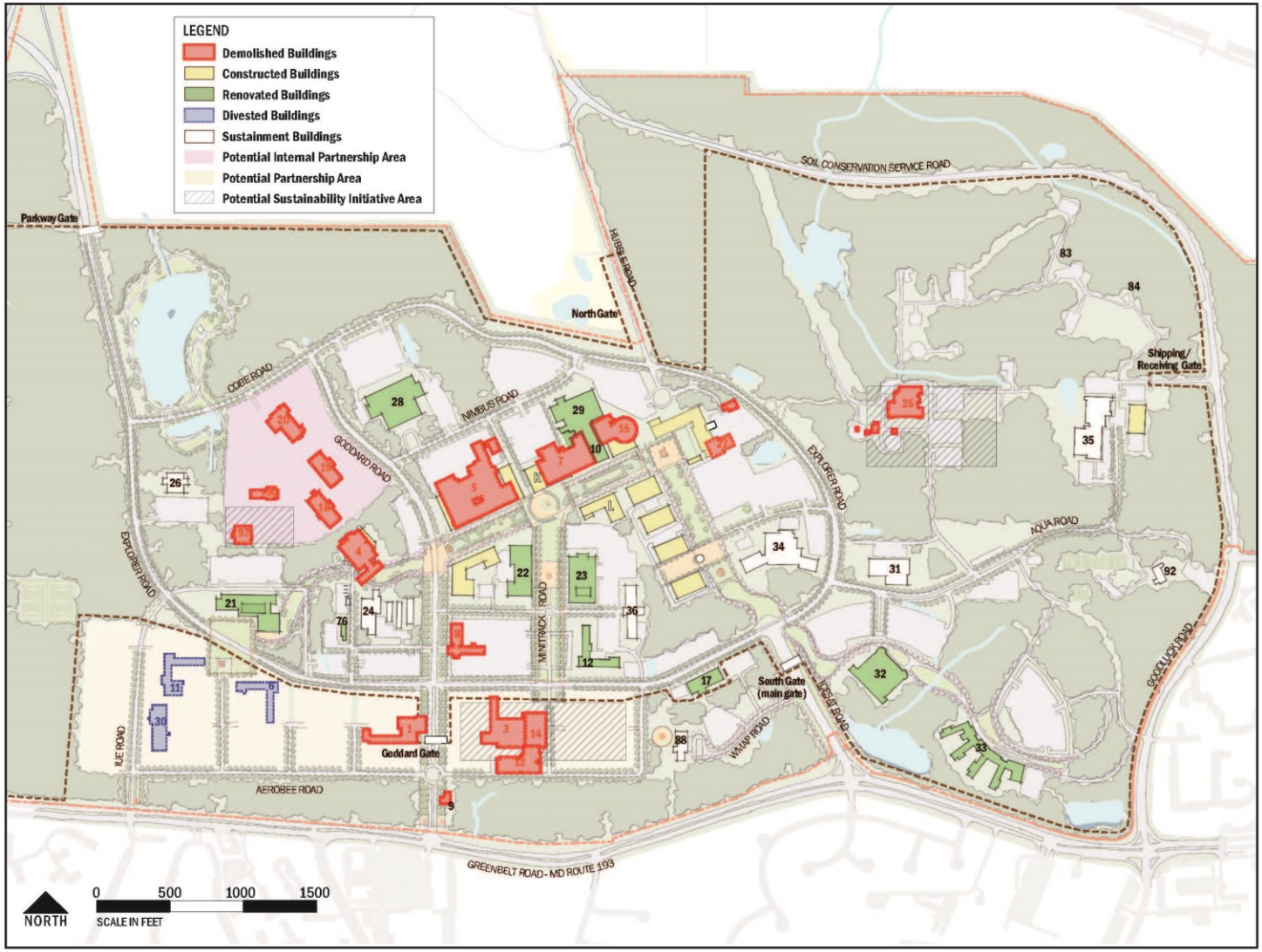

Figure 2.1-2. Proposed Demolition Projects on the Main Campus

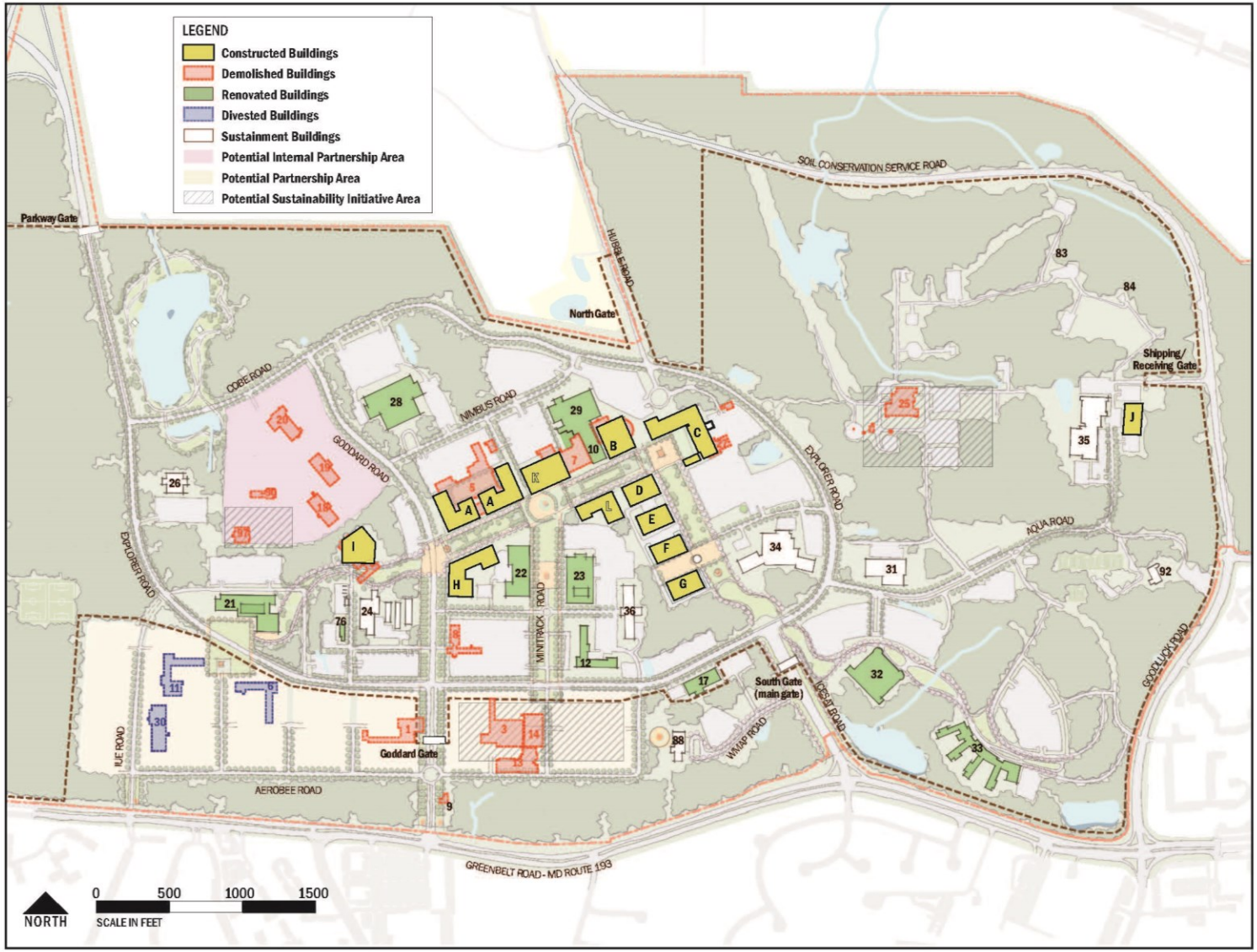

Figure 2.1-3. Proposed Construction Projects on the Main Campus

Renovation and Sustainment could involve some demolition of building interiors and other components followed by construction/installation of new components and equipment. In general, building renovation could include improvements to building envelope and interior spaces; replacement of heating, ventilation and air conditioning systems or equipment; and replacement or upgrades of electrical, plumbing, fire alarm and information technology infrastructure.

Utility and infrastructure upgrades and maintenance would involve water, sanitary and storm sewer systems, heating and cooling systems, chilled water, natural and landfill gas lines, and electric service. Projects include relocation and/or replacement or upgrade of underground utilities either buried or conveyed through tunnels and aboveground electric service and substations. Aboveground utility projects typically include replacing transformers, upgrading substations and electric power supplies, replacing lighting and alarm systems, and installing utility metering. Routine and preventative maintenance typically include regular inspections and maintenance of operational facilities and infrastructure to identify and prevent problems from worsening. Other activities in this category would include removal, repair and installation of roadways, sidewalks and parking lots; and landscaping modifications to include planting or removing trees and vegetation; and modifying the landscape grade.

Divestment or partnerships could involve the transfer of excess buildings and land areas to a non-NASA entity. NASA would consider two different types of partnerships for the excess land areas. The first type of partnership would be with private or public entities and would be outside the fenceline. The second type of partnership would be with other government agencies or institutions that would be inside the fenceline. NASA would implement potential partnerships using NASA enhanced use lease authority and/or declaring property excess to the United States (U.S.) Government Services Administration. As the real estate agency for the federal government, the GSA would then take the lead in determining reuse. **Figure 2.1-1** illustrates the potential partnership areas.

2.1.1 Main Campus

2.1.1.1 Demolition Projects

Table 2.1-1 provides the demolition projects proposed on the Main Campus; **Figures 2.1-1 through 2.1-3** illustrate the location of the proposed projects. The proposed demolition projects would decrease the building footprint on the Main Campus by approximately 624,000 ft^2.

Table 2.1-1. Proposed Demolition Projects on the Main Campus

Building Number	Building Footprint (ft^2)*
1	35,900
1A	2,600
3	52,000
4 (+4A-H)	45,300
5	132,700
7	67,400
8	20,500
9	3,600
13	35,700
14	29,900
15	37,900
18 (+18B)	22,300

Table 2.1-1. Proposed Demolition Projects on the Main Campus (cont.)	
Building Number	**Building Footprint (ft^2)***
19 (+19A)	21,900
20	26,400
25 (+25 A-C, E)	38,900
27 (+27A-E)	22,100
79	4,600
90 (+90A-D)	11,200
95	1,500
97	12,000
Total	**624,400**

Notes: * refer to Appendix B for gross square footage (GSF) of buildings.

2.1.1.2 Construction Projects

Table 2.1-2 provides the construction projects proposed on the Main Campus; **Figures 2.1-1 through 2.1-3** illustrate the location of the proposed projects. New construction would encompass approximately 375,000 ft^2.

Table 2.1-2. Proposed Construction Projects on the Main Campus	
Building Number	**Building Footprint (ft^2)***
A	80,000
B	40,000
C	60,000
D	22,000
E	22,000
F	22,000
G	22,000
H	45,000
I	40,000
J	22,000
K	**
L	**
Total	***375,000***

Notes: * refer to Appendix B for GSF of buildings.
**facility size has not been established.

One of the near-term projects identified for implementation under the Greenbelt Campus Master Plan is the construction of a new logistics and processing facility (Building J in **Figure 2.1-3**). The project would relocate the garage facility and the environmental management facility from its current location to a site near the perimeter of the Center adjacent to Building 35. The project would also include the demolition of multiple buildings in the Building 27 complex (i.e., buildings 27 A-E, see **Table 2.1-1**). Construction of Building J would require the removal of approximately 1.0 acres of forested area.

Several potential sustainability initiatives have been identified where solar or geothermal systems could be implemented (refer to **Figure 2.1-1**); however, no specific projects are known at this time. As such, future projects would be reviewed to determine if additional environmental analysis and/or NEPA documentation would be required.

2.1.1.3 Renovation and Sustainment Projects

Under the Proposed Action, numerous renovation projects are proposed for the Main Campus. The proposed renovation projects, illustrated on **Figures 2.1-1 through 2.1-3**, would be focused on building interiors, and changes to building envelopes would be limited. Numerous buildings throughout the Main Campus would continue to be maintained; these have been identified as sustainment buildings in **Figures 2.1-1 through 2.1-3**. Maintenance of these buildings would be ongoing and done on an as-needed basis.

2.1.1.4 Divestments and Potential Partnerships

NASA would explore different options for some excess buildings and land areas. Options include divesting land, divesting buildings, and potential future partnerships with non-NASA entities for use of NASA owned land. Potential partnership areas both inside and outside the fenceline are illustrated in **Figures 2.1-1 through 2.1-3**. Several buildings in the partnership area outside the future fenceline have been identified for potential divestment (i.e., transfer of ownership). It is unknown at this time if NASA would divest the land and buildings in the outside partnership area and/or demolish the buildings there. NASA would place restrictions and/or limitations on construction of new buildings within the partnership areas based on partnership type and vehicle used, existing and anticipated relationship with GSFC, and location relative to the Campus. As such, future NEPA analysis will be required to address activities within the potential partnership areas.

2.1.2 Areas off the Main Campus

No new construction, renovation projects, or potential partnerships are proposed for the areas off the Main Campus.

2.1.2.1 Demolition Projects

Figure 2.1-4 and **Figure 2.1-5** illustrate the demolition projects proposed in the areas off the Main Campus; the demolition projects are presented in **Table 2.1-3**. The proposed demolition projects would decrease the building footprint in the areas off the Main Campus by approximately 23,000 ft^2.

2.1.2.2 Sustainment Projects

Numerous buildings throughout Areas 100, 200, and 300, as shown in **Figure 2.1-4** and **Figure 2.1-5**, would continue to be maintained (i.e., sustained). Maintenance of the buildings would be ongoing and done on an as-needed basis.

2.1.2.3 Divestment

Area 400 is currently underutilized, and as such, it has been identified for divestment (**Figure 2.1-5**). A portion of Area 400 could be leased out (i.e., enhance use lease) to another agency or it could be excessed to the GSA. Prior to divestment, the functions in Area 400 would be relocated to the Main Campus and the existing buildings would be demolished. Future environmental analysis and/or NEPA documentation will be required to address transfer of the land.

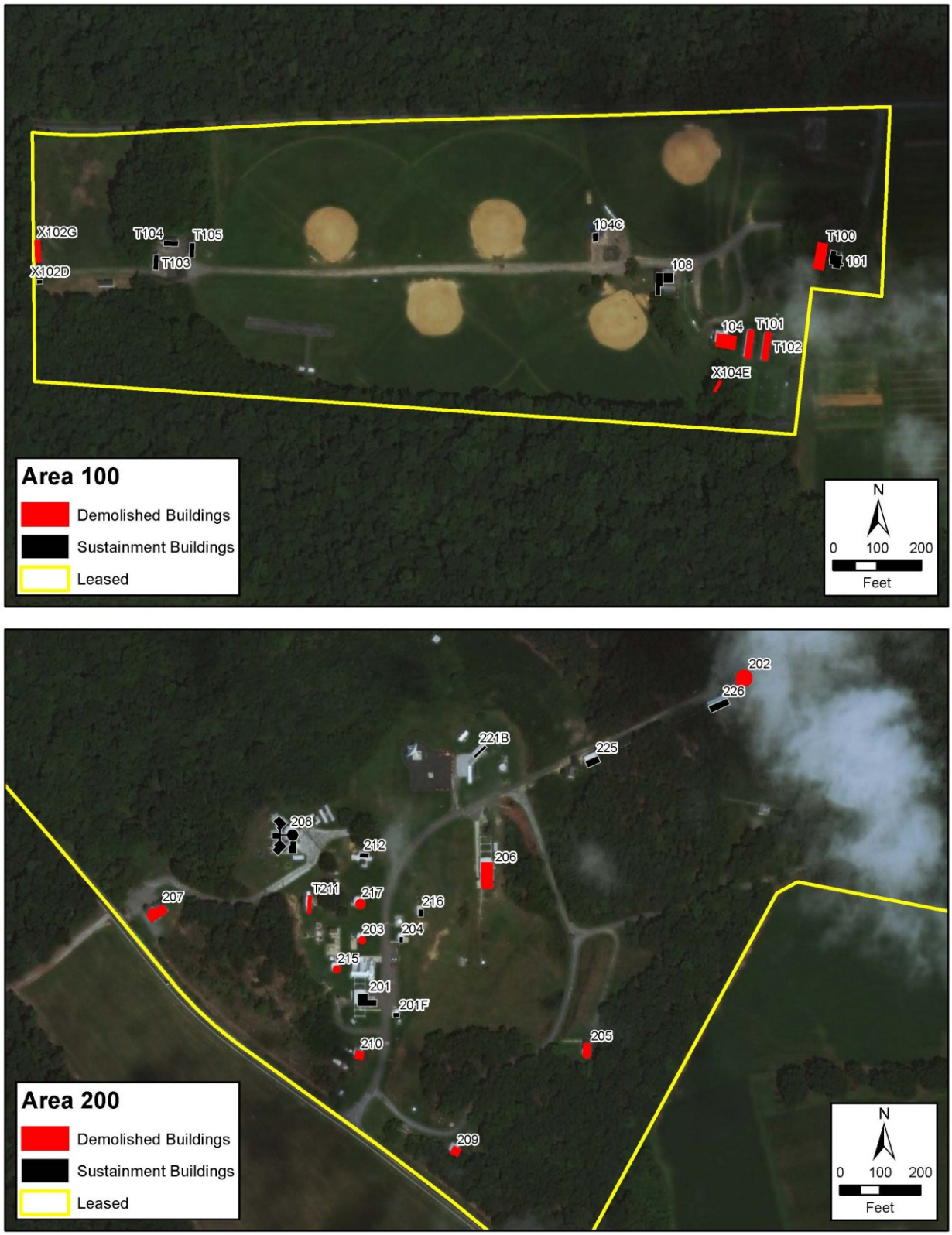

Figure 2.1-4. Proposed Action in Area 100 and Area 200

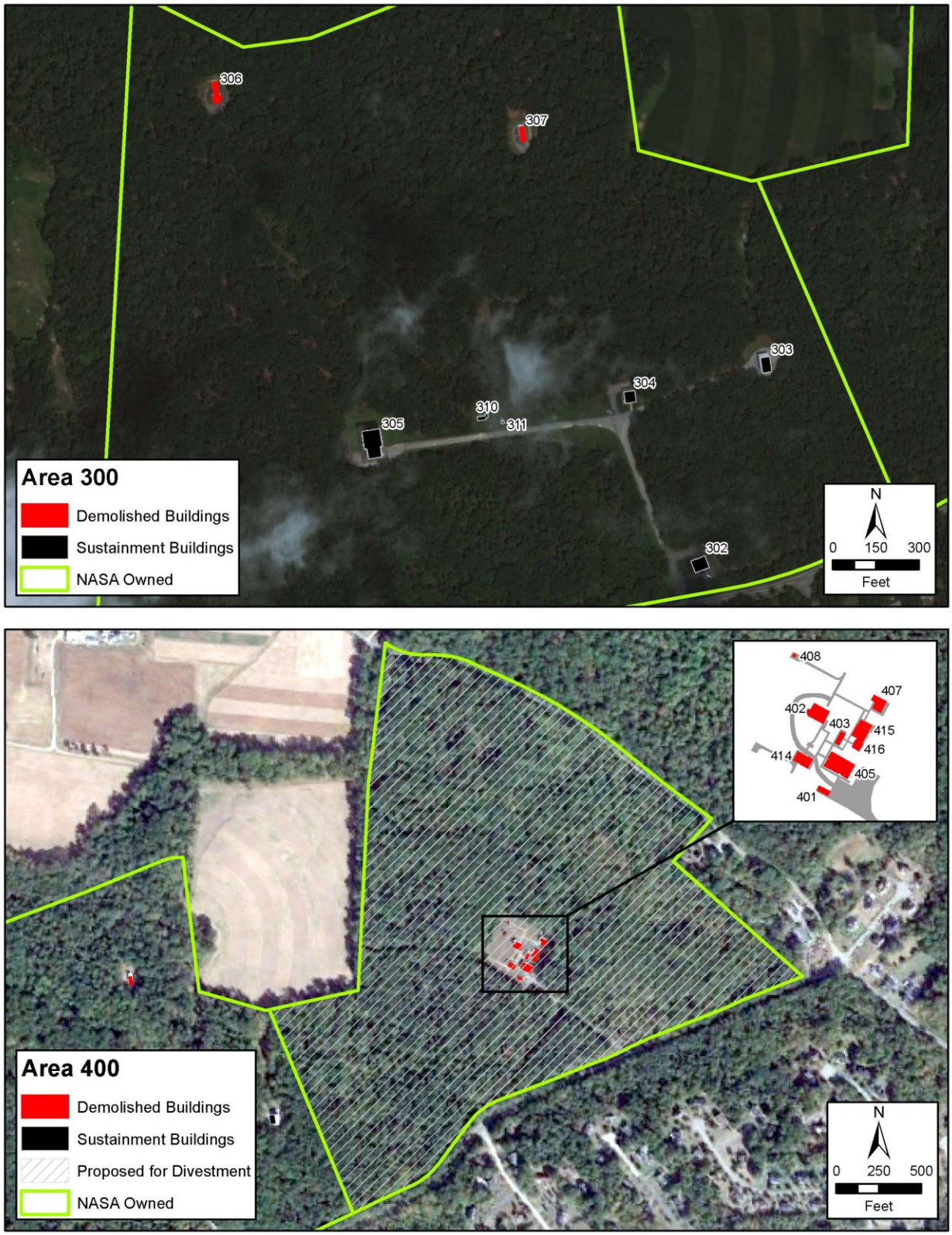

Figure 2.1-5. Proposed Action in Area 300 and Area 400

Table 2.1-3. Proposed Demolition Projects in the Areas off the Main Campus		
Location	**Building Number**	**Building Footprint (ft^2)***
Area 100		
	X102G	600
	104	1,300
	X104E	200
	T100-102	4,200
Area 200		
	202	underground
	203	300
	205	600
	206	1,800
	207	1,100
	209	400
	210	400
	215	300
	217	400
	T211	400
Area 300		
	306	1,600
	307	900
Area 400		
	401	400
	402	1,500
	403	400
	405	2,500
	407	800
	408	100
	414	900
	415	400
	416	1,400
	Total	***22,900***

Note: * refer to Appendix B for GSF of buildings.

2.2 ALTERNATIVES CONSIDERED

The National Environmental Policy Act's implementing regulations provide guidance on the consideration of alternatives to a federally proposed action. Only those alternatives determined to be reasonable and that would meet the purpose and need require detailed analysis. From August to September 2019, an internal campus-wide survey and a two-day workshop were conducted as part of the master planning process. The input and resulting recommendations from these events resulted in three alternative plans. The alternative plans were further refined and resulted in a preferred development plan detailed in the GSFC Greenbelt Campus Master Plan.

2.3 ACTION ALTERNATIVE

NASA proposes to implement the GSFC Greenbelt Campus Master Plan as described in **Section 2.1**. Implementing the GSFC Greenbelt Campus Master Plan demolition projects would decrease the Center's building footprint by approximately 624,000 ft^2 on the Main Campus and approximately 23,000 ft^2 in the areas off the Main Campus with the removal of excess and/or aging and energy inefficient buildings and

infrastructure. New construction would add approximately 375,000 ft^2 of new LEED certified energy efficient buildings on the Main Campus. In total, the building footprint at Greenbelt Campus would be reduced by approximately 284,000 ft^2 from the proposed demolition and construction projects.

2.4 NO ACTION ALTERNATIVE

Under the No Action Alternative, NASA would not implement the GSFC Greenbelt Campus Master Plan. The Center would continue to operate the buildings and infrastructure currently in use on the Main Campus and in the areas off the Main Campus leading to increased aging and energy inefficient buildings and infrastructure. The No Action Alternative would not meet the purpose and need for the proposed action and it would not comply with EO 13834, *Efficient Federal Operations*. However, the No Action Alternative is carried forward for analysis in this EA. The No Action Alternative will be used to analyze the consequences of not undertaking the Proposed Action and will serve to establish a comparative baseline.

2.5 SUMMARY OF ENVIRONMENTAL CONSEQUENCES

Table 2.5-1 provides a summary of the potential impacts to each resource area analyzed in this EA. Based on the analysis presented, no significant environmental impacts would result from implementation of the proposed action (i.e., Action Alternative) or the No Action Alternative.

Table 2.5-1. Summary of Potential Impacts to Resource Areas

Resource Area	No Action Alternative	Action Alternative
Air Quality	The Proposed Action would not occur; minor, long-term impacts to air quality in the region would be anticipated from continued use of excess and/or energy inefficient buildings and infrastructure.	Potential for short-term impacts to air quality during construction activities. However, the projects would occur over a 20-year period and emissions are not anticipated to have significant impacts on regional air quality. Temporary increases in GHG emissions during the construction phases; however, a slight net decrease in the long-term from demolition of energy inefficient buildings infrastructure.
Biological Resources	The Proposed Action would not occur; there would be no change to biological resources beyond existing conditions.	Potential for minor, short-term adverse impacts to vegetation and wildlife during construction from trampling and heavy equipment activity and noise, respectively. Approximately 1.0 acres of forested area would be removed representing a long-term impact; however, abundant forested areas are found on GSFC. No impacts to threatened and/or endangered species or critical habitat as none are known to occur on the installation. No significant impacts anticipated during daily operations.

Table 2.5-1. Summary of Potential Impacts to Resource Areas (cont.)		
Resource Area	**No Action Alternative**	**Action Alternative**
Water Resources	The Proposed Action would not occur; minor, long-term impacts to water resources from continue use of aging and energy inefficient infrastructure would be anticipated. No change to coastal zone resources in and around GSFC Greenbelt would occur.	Proposed projects are not immediately adjacent to surface waters; however, soil disturbance and unintentional release of hazardous materials from equipment during demolition and construction activities have the potential to indirectly impact groundwater, surface water, and wetland resources. Development of an erosion and sedimentation control plan, a site-specific Stormwater Pollution Prevention Plan, and implementation of site-specific BMP (e.g., vegetative covers, straw bales, and silt fencing) would minimize these potential impacts. Following completion of construction activities, operations would be carried out in accordance with GSFC's water permits and applicable Federal, state, and local laws and regulations for preventing impacts to groundwater and surface water resources. No significant impact to water resources would occur.
Cultural Resources	The Proposed Action would not occur; there would be no change to cultural resources.	Numerous buildings proposed for demolition on the Main Campus and in Area 300 are contributing features to the National Register of Historic Places (NRHP)-eligible GSFC Historic District. GSFC will consult with the Maryland State Historic Preservation Office (SHPO) and ACHP to identify and resolve any direct, indirect, and cumulative adverse effects that may occur. No known archaeological sites would be affected, and no traditional cultural properties have been identified at GSFC. New building construction would not directly affect architectural resources; however, there is potential for adverse visual effects to the NRHP-eligible GSFC Historic District. GSFC will consult with the Maryland SHPO and ACHP as each project begins its design phase to minimize adverse visual effects and consider the scale, materials, and overall design of the new buildings.
Hazardous Materials and Wastes	The Proposed Action would not occur; there would be no change to hazardous materials and wastes beyond existing conditions.	No significant impacts on the management and use of hazardous materials would be expected. Hazardous materials usage during construction activities would be temporary and managed in accordance with Federal and state regulations and GSFC procedural requirements. New waste streams that may be created in GSFC labs or during the course of operations would be characterized and managed accordingly; no substantial change in hazardous waste operations would be anticipated. Observation of the land use controls established for known environmental sites on the Main Campus would be strictly enforced.
Land Use	The Proposed Action would not occur; there would be no change to land use beyond existing conditions.	Construction of Building J in the forested area would result in a change in land use; however, the impact would not be significant. With this exception, all new construction would occur in the footprints of demolished buildings. Divestment or partnership areas could involve the transfer of excess buildings and land to a non-NASA entity. NASA would place restrictions and/or limitations on construction of new buildings within the partnership areas based on partnership type and vehicle used, existing and anticipated relationship with GSFC, and location relative to the Campus. Future NEPA analysis will be required to address activities within the potential divestment and partnership areas.

Table 2.5-1. Summary of Potential Impacts to Resource Areas (cont.)		
Resource Area	**No Action Alternative**	**Action Alternative**
Utilities and Infrastructure	The Proposed Action would not occur; minor, long-term impacts from continued use of aging and energy inefficient infrastructure would be anticipated.	Potential for minor, short-term disruption of utilities service connections during the construction phases. Replacement of aging facilities with new LEED certified energy efficient buildings would have long-term energy and water savings resulting in long-term beneficial impacts to utilities and infrastructure at GSFC.

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3.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

This chapter provides general information on the existing environmental conditions at the GSFC Greenbelt Campus. The discussion of the affected environment and environmental consequences focuses on those environmental resources potentially subject to impacts. More detailed information on each of GSFC Greenbelt's environmental resource areas is contained in the 2018 GSFC Greenbelt Environmental Resources Document (ERD). The ERD provides a detailed and comprehensive baseline of current environmental conditions at the Center. GSFC Greenbelt's ERD is available at: https://code200-external.gsfc.nasa.gov/250/sites/code250/files/inline-files/20181119_Final_GSFC_ERD.pdf (GSFC 2018).

Prior to implementation, each of the NASA GSFC Greenbelt Campus Master Plan projects would be reviewed via the GSFC Greenbelt Environmental and Safety Review Process to: 1) identify if the project is sufficiently analyzed within the NASA GSFC Greenbelt Campus Master Plan EA or if additional environmental analysis and/or NEPA documentation (i.e. categorical exclusion, EA or Environmental Impact Statement) is needed and; 2) identify any environmental requirements, permits, mitigation, etc. that may be required for the project to include compliance with the Endangered Species Act (ESA) Section 7 and the National Historic Preservation Act (NHPA) Section 106.

For each resource area, the impact assessment is broken into Construction Impacts and Operational Impacts. The term "Construction Impacts" is used as a general descriptor for all infrastructure changes associated with the Proposed Action and includes new construction, demolition, and other general renovations and infrastructure upgrades. The term "Operational Impacts" is used as a general descriptor for assessing impacts from Center operations.

The potential impacts to the following resource areas from implementation of the NASA GSFC Greenbelt Campus Master Plan EA would be negligible or non-existent. As such, they were not analyzed in this EA.

Environmental Justice: EO 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, mandates that federal agencies identify and address, as appropriate, disproportionately high and adverse human health or environmental effects of its programs on minority and low-income populations. EO 13045, *Protection of Children from Environmental Health Risks and Safety Risks*, mandates that federal agencies identify and assess environmental health and safety risks that may disproportionately affect children because of the implementation of federal policies, programs, activities, and standards. Implementing the Proposed Action would not result in significant impacts in any resource area (refer to **Table 2.5-1**). The potential for the Proposed Action to disproportionately affect minority or low-income populations or children would be negligible. As such, this resource was eliminated from further analysis.

Geological Resources: This resource area considers the geology and soils at GSFC. Activities associated with the Proposed Action would involve demolition and construction activities that would occur primarily within previously developed areas. Implementing the Proposed Action would not alter the geology or soils on the installation; therefore, these resources were eliminated from further analysis.

Noise: Noise is often defined as any sound that is undesirable because it interferes with communication, is intense enough to damage hearing, diminishes the quality of the environment, or is otherwise annoying.

Noise from site preparation, demolition, and construction activities would be short-term and intermittent, resulting in no measurable effect to the surrounding area. Noise generated from operations associated with the proposed construction projects at GSFC Greenbelt would be anticipated to produce noise levels consistent with existing conditions. As such, this resource was eliminated from future discussion in this EA.

Public Health and Safety: Demolition and construction activities would be performed by qualified personnel who are trained to safely operate the appropriate equipment; appropriate signage and fencing would be placed to alert pedestrians and motorists of project activities, as well as any changes in traffic patterns. Standard operating procedures would be followed by all personnel and all activities would be conducted in accordance with Federal and state Occupational Safety and Health Administration regulations. Negligible impacts to public health and safety would be anticipated; therefore, this resource was not carried forward for further analysis in this EA.

Socioeconomics: The Proposed Action would support numerous projects over a 20-year period. Expenditures associated with the projects are not fully known at this time; however, the demolition, construction, and renovation activities would be expected to result in short-term economic benefits to the local region. It is anticipated that any short-term benefits as a result of the Proposed Action would be negligible. As such, this resource was eliminated from further analysis.

Transportation: It is anticipated that vehicular ingress/egress of GSFC would not be adversely affected. The volume of construction-related traffic would be anticipated to ebb and flow and not be concentrated in any one area over the 20-year period to implement the Proposed Action. GSFC does not anticipate any increase in the workforce and in the number of employees and visitors on Center from implementation of the Proposed Action. Thus, impacts to operational traffic on the Main Campus or in areas off the Main Campus would be negligible. Therefore, this resource has not been considered for further analysis in this EA.

3.1 AIR QUALITY

3.1.1 Definition of the Resource

In accordance with Federal Clean Air Act (CAA) requirements, the air quality in a given region or area is measured by the concentration of criteria pollutants in the atmosphere. A region's air quality is influenced by many factors, including the type and amount of pollutants emitted into the atmosphere, the size and topography of the air basin, and the prevailing meteorological conditions. Most air pollutants originate from human-made sources, including mobile sources (e.g., cars, trucks, buses) and stationary sources (e.g., factories, refineries, power plants), as well as indoor sources (e.g., some building materials and cleaning solvents).

3.1.1.1 Ambient Air Quality Standards

Under the CAA, the United States (U.S.) Environmental Protection Agency (USEPA) developed the National Ambient Air Quality Standards (NAAQS), for pollutants that have been determined to affect human health and the environment. The NAAQS represent the maximum allowable concentrations for the designated criteria pollutants: carbon monoxide (CO), nitrogen dioxide (NO_2), ozone (O_3), lead (Pb), particulate matter equal to or less than 2.5 microns in diameter ($PM_{2.5}$), particulate matter equal to or less than 10 microns in diameter (PM_{10}), and sulfur dioxide (SO_2) (40 Code of Federal Regulations [CFR] Part 50).

Table 3.1-1 presents the NAAQS. The CAA also gives the authority to states to establish air quality rules and regulations. The State of Maryland has adopted the NAAQS. The USEPA classifies the air quality in an air quality control region (AQCR), or in subareas of an AQCR, according to whether the concentrations of criteria pollutants in ambient air exceed the NAAQS. Areas where ambient air pollutant concentrations are below the NAAQS are designated as "attainment," while areas where ambient air concentrations are above the NAAQS are designated as "nonattainment." Areas previously designated as nonattainment that have subsequently demonstrated compliance with the NAAQS are designated as "maintenance" for a period of time (normally 20 years after the effective date of attainment); this time period assumes that the area remains in compliance with the standard. Areas that lack sufficient data to determine their designation are designated "unclassifiable," and are treated as attainment areas for the purpose of stationary source air permitting.

The USEPA has delegated the authority for ensuring compliance with the NAAQS in Maryland to the Maryland Department of the Environment (MDE). In accordance with the CAA, each state must develop a State Implementation Plan (SIP), which is a compilation of regulations, strategies, schedules, and enforcement actions designed to achieve compliance or keep the state in compliance with all NAAQS.

Table 3.1-1. National Ambient Air Quality Standards

Pollutant	Primary or Secondary	Averaging Time	Level 1	Form
CO	Primary	8-hour	9 ppm	Not to be exceeded more than once per year
		1-hour	35 ppm	
NO_2	Primary	1-hour	100 ppb	98th percentile of 1-hour daily maximum, averaged over three years
	Both	Annual	53 ppb	Annual Mean
O_3	Both	8-hour	0.070 ppm	Annual fourth-highest daily maximum 8-hour concentration, averaged over three years
Pb	Both	Rolling 3-month average	0.15 µg/m^3	Not to be exceeded
$PM_{2.5}$	Primary	Annual	12 µg/m^3	Annual mean, averaged over three years
	Secondary	Annual	15 µg/m^3	Annual mean, averaged over three years
	Both	24-hour	35 µg/m^3	98th percentile, averaged over three years
PM_{10}	Both	24-hour	150 µg/m^3	Not to be exceeded more than once per year on average over three years
SO_2	Primary	1-hour	75 ppb	99th percentile of 1-hour daily maximum concentrations, averaged over three years
	Secondary	3-hour	0.5 ppm	Not to be exceeded more than once per year

Source: USEPA 2016.
Legend: ppm = parts per million; ppb = parts per billion; µg/m^3 = microgram per cubic meter.

3.1.1.2 Air Quality Regulatory Requirements

Air quality construction permitting programs were developed under an overarching CAA program called New Source Review (NSR). NSR air quality construction permitting for major stationary sources or

major modifications to such sources is divided into Nonattainment New Source Review (NA NSR) for nonattainment pollutants and Prevention of Significant Deterioration (PSD) for attainment pollutants.

Nonattainment New Source Review Permitting

Federal NA NSR permitting regulations apply in nonattainment areas to construction of a major stationary source (i.e., source with potential to emit 10 to 100 tons per year [tpy]), depending on the severity of the nonattainment classification of the regional area and the nonattainment pollutant (40 CFR Part 51.165). In addition, NA NSR regulations apply to existing sources making major modifications (i.e., change that adds 10 to 40 tpy to the facility's potential to emit depending on the nonattainment pollutant). Triggering NA NSR requires a permit and implementing the Lowest Achievable Emission Rate through technology and emissions controls, offsetting reductions in emissions at prescribed ratios, alternative sites analysis, and other adjustments.

Prevention of Significant Deterioration Permitting

Federal PSD permitting regulations apply in attainment areas to construction of a major stationary source (i.e., source with the potential to emit 100 tpy of any attainment criteria pollutant) and a significant modification to a major stationary source, (i.e., change that adds 15 to 100 tpy to the facility's potential to emit depending on the attainment pollutant). The 100 tpy PSD major source threshold would be applied instead of 250 tpy because GSFC has greater than 250 million British thermal units per hour in combined heat input capacity for all boilers. Additional PSD major source and significant modification thresholds apply for greenhouse gases (GHGs), as discussed in the Greenhouse Gas Emissions subsection.

State-level construction permits may also be required for the addition of minor sources, minor modifications of a minor source, or minor modifications of a major source. The permits can impose emission limits, work practice controls, emissions monitoring, and recordkeeping and reporting requirements.

3.1.1.3 General Conformity

The General Conformity applies to Federal actions that occur in nonattainment or maintenance areas and states that no department, agency or instrumentality of the Federal government shall engage in, support in any way or provide financial assistance for, license or permit, or approve any activity which does not conform to an applicable SIP. General Conformity is ensured when a Federal action does not cause a new violation of the NAAQS; does not contribute to an increase in the frequency or severity of violations of NAAQS; and does not delay the timely attainment of any NAAQS, interim progress milestones, or other milestones toward achieving compliance with the NAAQS.

A General Conformity applicability analysis is the first step in evaluating whether or not the General Conformity rules apply to a project. Permitted stationary sources are not included in this applicability analysis. For Federal actions, a conformity determination is required for each criteria pollutant or precursor where the total of direct and indirect emissions of the criteria pollutant or precursor in a nonattainment or maintenance area caused by a Federal action would equal or exceed the *de minimis* levels, which are listed in **Table 3.1-2**.

No further analysis is required, and the action is presumed to conform to the SIP if the total direct and indirect emissions are less than the *de minimis* levels. If net emissions exceed the relevant *de minimis* level, a formal CAA Conformity Determination process must be followed.

Table 3.1-2. General Conformity de minimis Levels		
Pollutant	**Area Type**	**Tons Per Year**
O_3 (volatile organic compound [VOC] or nitrogen oxides [NO_x])	Serious nonattainment	50
	Severe nonattainment	25
	Extreme nonattainment	10
	Other areas outside an ozone transport region	100
O_3 (NO_x)	Marginal and moderate nonattainment inside an ozone transport region	100
	Maintenance	100
O_3 (VOC)	Marginal and moderate nonattainment inside an ozone transport region	50
	Maintenance within an ozone transport region	50
	Maintenance outside an ozone transport region	100
CO, SO_2 and, NO_2	All nonattainment & maintenance	100
PM_{10}	Serious nonattainment	70
	Moderate nonattainment & maintenance	100
$PM_{2.5}$ Direct emissions, SO_2, NO_x (unless determined not to be a significant precursor), VOC, or ammonia (if determined to be significant precursors)	All nonattainment & maintenance	100
Pb	All nonattainment & maintenance	25

Source: 40 CFR 93.153.

3.1.1.4 Title V Operating Permit Requirements

Title V of the CAA Amendments of 1990 requires states and local agencies to permit the operation of major stationary sources. A Title V major stationary source has the potential to emit criteria air pollutants and/or hazardous air pollutants at levels equal to or greater than Major Source Thresholds. Major Source Thresholds vary depending on the attainment status of an AQCR. The purpose of the Title V Operating Permit rule is to consolidate all air pollution control requirements into a single, comprehensive operating permit that covers all aspects of a source's year to year air pollution activities. The design of the program is to make it easier for larger sources to comply with emission control requirements but also make them federally enforceable.

GFSC has a Title V Operating Permit (number 24-033-0675) for facility-wide NO_x emissions, as the potential to emit NO_x is greater than the major source threshold of 25 tpy in Prince George's County, Maryland. The initial permit was granted from MDE on October 26, 2000, and the most recent permit renewal was issued on January 1, 2020.

3.1.1.5 Greenhouse Gas Emissions

GHGs are gases that trap heat in the lower atmosphere, warming the earth's surface temperature in a natural process known as the "greenhouse effect." GHGs include carbon dioxide (CO_2), methane, nitrous oxide, perfluorocarbons, hydrofluorocarbons, and sulfur hexafluoride. Human activities have caused a rapid increase in GHG concentrations. This rising level contributes to global climate change, which in turn can contribute to environmental and public health concerns.

On October 30, 2009, USEPA published a regulation (40 CFR Part 98) that requires large GHG emissions sources in the U.S. to report their GHG emissions. The regulation is referred to as the Greenhouse Gas Reporting Program and applies to direct GHG emitters such as GSFC. The threshold for reporting is 25,000 or more metric tons of CO_2 equivalent ($MTCO_2e$) per calendar year. CO_2 emissions from biogenic fuels such as landfill gas are not counted toward the 25,000 $MTCO_2e$ threshold. Facilities are required to report GHG emissions annually (for the previous calendar year) and must self-certify the data. USEPA verifies the data submitted but does not require third party verification.

Since 2008, GSFC reportable GHG emissions under 40 CFR 98 have been less than the 25,000 $MTCO_2e$ threshold. Therefore, GSFC is currently not subject to the GHG reporting requirements. The use of landfill gas, a biogenic fuel, in GSFC boilers has reduced GSFC's reportable GHG emissions because emissions from biogenic fuels are exempt from the requirements of 40 CFR Part 98. The total GHG emissions generated by the facility, which includes the landfill gas that is combusted in boilers onsite was 29,076 tons CO_2e for 2017, which represents a small but steady decline from prior years (MDE 2020a). NASA's 2019 Sustainability Report and Implementation Plan includes strategies for continuing to reduce agency GHG emissions, investing in more efficient building equipment (boilers, generators, furnaces), replacing or renewing inefficient legacy buildings to standards that exceed required levels of efficiency, and reducing facility footprints to maximum extent practical (NASA 2019a). GHG emissions generated in 2019 were 26,678 tons CO_2e (NASA 2019b).

3.1.2 Existing Conditions

GSFC is located in Prince George's County, Maryland and the county are part of the National Capital Interstate AQCR. Currently, Prince George's County is classified as a marginal nonattainment area for the 8-hour O_3 (2015 standard), a maintenance area for 8-hour O_3 (2008 standard), and an attainment area for CO, PM_{10}, $PM_{2.5}$, NO_2, SO_2, and Pb (USEPA 2020a). **Table 3.1-3** shows the actual emissions for GSFC (2017 is the most recent year data is available per the Title V permit) and Prince George's County.

Table 3.1-3. GSFC and Local and Regional Air Emissions Inventories (tpy)

Reporting Group	NO_x	VOC	CO	SO_2	PM_{10}	$PM_{2.5}$
GFSC (2017)	16.17	2.10	20.22	0.43	0.57	<0.57[a]
Prince George's County (2017)	10,523	16,760	72,589	740	7,738	2,715

Source: MDE 2020a; USEPA 2020b.
Notes: [a] Emission inventory data are not available for $PM_{2.5}$ but this pollutant is a subset of PM_{10}.

GSFC stationary sources are regulated under a Title V Operating Permit. Stationary sources at GSFC include five boilers in the Central Heating and Refrigeration Plant, space heating boilers, and fixed and portable emergency power generators. The Title V permit authorizes GSFC to use natural gas and landfill gas as the primary fuels and No. 2 fuel oil as a backup fuel for firing the boilers in the Central Heating and Refrigeration Plant. The space heating boilers use natural gas only and the generators use No. 2 fuel oil only. The Central Heating and Refrigeration Plant, space heating boilers, and emergency generators are monitored or managed using operational controls for particulate matter, SO_2, and NO_x. The emergency generators are also monitored for CO. Other permitted stationary sources at GSFC include electrochemical plating, surface coating operations, fuel storage and dispensing facility, vapor degreasing, clean-room semiconductor development and fabrication, and char-broilers. These emission sources are monitored for particulate matter, hazardous air pollutants, toxic air pollutants, and VOCs (GSFC 2018).

3.1.3 Environmental Consequences

The primary activities associated with implementing the Proposed Action are demolition and construction projects that would occur over the course of 20 years. It is uncertain as to the specific schedule for these activities. As such, each year may require specific analysis in the future as the demolition and construction schedules are set, because General Conformity evaluates emissions in a given calendar year. The impact of future operations is also unclear at this time and could require evaluation for permitting requirements once more information is available regarding operation scope and timing.

For near-term activities, air quality impacts associated with construction would include emissions from fossil fuel fired construction equipment, deliveries, and worker commutes and fugitive dust from ground disturbance.

3.1.3.1 Action Alternative

Construction Impacts

Construction and demolition activities including the use of fossil fuel fired equipment, trucks, and delivery vehicles would cause a slight increase in criteria pollutant and GHG emissions at GFSC; however, the activities would be intermittent and staggered over 20 years. Measures to minimize construction combustion emissions, when practical, include: use of well-maintained vehicles and equipment; increased use of electric vehicles; use of newer model equipment that are equipped with the latest emissions reduction technologies; enforcement of idling limits for construction equipment; use of electric or compressed natural gas/propane equipment where possible; and use of clean diesel through add-on control technologies such as diesel particulate filters and diesel oxidation catalysts.

Compared to GFSC's annual emissions and the overall emissions from the surrounding area, construction activities would have minor short-term adverse impacts on emissions at GSFC. Emissions estimates were prepared for one near-term construction project, the demolition of Building 27 and associated structures (27A-27E) and the construction of Building J. The proposed emissions are presented in **Table 3.1-4**. Additional details can be found in **Appendix C**.

Table 3.1-4. Emissions from Proposed Demolition of Building 27 and Associated Structures and Construction of Building J

	NO_x (tpy)	VOC (tpy)	CO (tpy)	SO_2 (tpy)	PM_{10} (tpy)	$PM_{2.5}$ (tpy)	GHG $MTCO_2e$
Single Year Emissions	1.01	0.10	0.40	0.02	2.59	0.31	98
General Conformity *de minimis* Applicability Thresholds	100	50	NA	NA	NA	NA	NA

Legend: NA = not applicable.

Based on the emissions presented above, emissions from the proposed demolition/construction project would fall well below the *de minimis* thresholds and General Conformity would not apply.

As GFSC is located in an area that is designated as nonattainment for O_3, future projects would also be subject to a General Conformity applicability analysis. The limited amount of emissions for the remaining criteria pollutants are also of short duration and are assessed as not significant relative to regional air quality.

Operational Impacts

Prior to completion of construction activities, any additional GSFC stationary source operations would need to be reviewed, included in as-needed, and managed in accordance with GSFC's air permit. Additionally, any projects and activities that involve installation or modification of equipment and operating systems that may involve air emissions would be reviewed by GSFC Environmental and Safety Review Process to identify if the project is sufficiently analyzed in the Master Plan EA and/or if additional environmental analysis and/or NEPA documentation would be required.

The improved efficiency of new, upgraded, and energy efficient buildings and infrastructure could result in minor long-term beneficial impacts to air quality.

Greenhouse Gases

GHG emissions from the proposed demolition of Building 27 and the associated buildings (27A-27E) and the construction of Building J are presented in **Table 3.1-4**. Implementation of this near-term project would temporarily increase greenhouse gas emissions, primarily due to fuel combustion from construction equipment. The Master Plan actions involve construction, renovation, and modernization activities over a 20-year planning horizon. Implementation of these activities would result in temporary increases in GHG emissions during the construction phases; however, the Master Plan includes demolishing older buildings and constructing new LEED energy efficient buildings, which could result in a slight net decrease to GHG emissions in the long-term. Other common methods to limit GHG emissions include lowering energy consumption and using cleaner energy sources.

3.1.3.2 No Action Alternative

Under the No Action Alternative, NASA would not implement the GSFC Greenbelt Campus Master Plan. As a result, air pollutant emissions created from the excess and/or energy inefficient buildings and infrastructure that would continue to be used may present minor, long-term impacts to air quality in the region.

3.2 BIOLOGICAL RESOURCES

3.2.1 Definition of the Resource

Biological resources include native or naturalized plants and animals and the habitats (e.g., grasslands, forests, and wetlands) in which they exist. Protected and sensitive biological resources include ESA-listed species (threatened or endangered) and those proposed for ESA listing as designated by the U.S. Fish and Wildlife Service (USFWS); state-listed threatened, endangered, or special concern species; migratory birds; and bald and golden eagles. Sensitive habitats include those areas designated by the USFWS as critical habitat protected by the ESA and as sensitive ecological areas designated by state or other Federal rulings. Sensitive habitats also include wetlands, plant communities that are unusual or limited in distribution, and important seasonal use areas for wildlife (e.g., migration routes, breeding areas, crucial summer and winter habitats).

The ESA (16 U.S.C. Section 1531 et seq.) establishes a Federal program to protect and recover imperiled species and the ecosystems upon which they depend. The ESA requires Federal agencies, in consultation with the USFWS, to ensure that actions they authorize, fund, or carry out are not likely to jeopardize the continued existence of any listed species or result in the destruction or adverse modification of designated critical habitat of such species. Under the ESA, "jeopardy" occurs when an action is reasonably expected,

directly or indirectly, to diminish numbers, reproduction, or distribution of a species so that the likelihood of survival and recovery in the wild is appreciably reduced. An "endangered species" is defined by the ESA as any species in danger of extinction throughout all or a significant portion of its range. A "threatened species" is defined by the ESA as any species likely to become an endangered species in the foreseeable future. Candidate species are plants and animals for which the USFWS has sufficient information on their biological status and threats to propose them as threatened or endangered under the ESA, but for which development of a proposed listing regulation is precluded by other higher priority listing activities. The ESA also prohibits any action that causes a "take" of any listed species. "Take" is defined as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect or attempt to engage in any such conduct."

The Migratory Bird Treaty Act (16 U.S.C. Section 703–712), as amended, and EO 13186, *Responsibilities of Federal Agencies to Protect Migratory Birds*, require Federal agencies to minimize or avoid impacts on migratory birds. Unless otherwise permitted by regulations, the EO makes it unlawful to (or attempt to) pursue, hunt, take, capture, or kill any migratory bird, nest, or egg. If design and implementation of a Federal action cannot avoid measurable negative impacts on migratory birds, EO 13186 directs the responsible agency to develop and implement, within 2 years, a Memorandum of Understanding with the USFWS that shall promote the conservation of migratory bird populations.

3.2.2 Existing Conditions

3.2.2.1 Vegetation

A plant survey conducted in 2002 determined there are over 400 different plant species on the Main Campus with approximately 260 species on the western side and approximately 300 on the eastern side; no plant surveys have been conducted in the areas off the Main Campus (Jones 2002). No known rare or endangered plant species have been identified on the Main Campus or in the areas off the Main Campus (i.e., 100, 200, 300, and 400).

The canopy at the Main Campus primarily consists of oak (*Quercus spp*), scrub pine (*Pinus virginiana*), and red maple (*Acer rubrum*); the understory contains black gum (*Nyssa sylvatica*), sweet gum (*Liquidambar styraciflua*), and red maple (*Acer rubrum*). Shrubs and small trees include mountain laurel (*Kalmia latifolia*), blueberry/huckleberry (*Vaccinium/Gaylussacia spp*), and some American holly (*Ilex opaca*). Three habitats of unusual plants are found on the Main Campus. One habitat on the eastern side contains widespread skunk cabbage (*Symplocarpus foetidus*) and fourteen different types of Carex, a type of sedge. Another habitat on the eastern side is a sandy area where Longbranch frostweed (*Helianthemum canadense*), orangegrass (*Hypericum gentianoides*), wild ipecac (*Euphorbia ipecacuanhae*), and foxglove beardtongue (*Penstemon digitalis*) have been found. Longspike tridens (*Tridens strictus*), a unique type of grass normally only found in areas of south and west Maryland, grows on the western side of the Campus where three cypress trees have also been located. Several exotic and invasive species have been identified including Japanese stiltgrass (*Microstegium vimineum*), mile-a-minute weed (*Polygonum perfoliatum*), bull thistle (*Cirsium vulgare*), callery/Bradford pear (*Pyrus calleryana 'Bradford'*), Japanese honeysuckle (*Lonicera japonica*), multiflora rose (*Rosa multiflora*), and phragmites or common reed (*Phragmites australis*). Forested areas on the Main Campus cover approximately 407 acres with another 304 acres covering the areas off the Main Campus (GSFC 2018).

3.2.2.2 Terrestrial Wildlife

A biodiversity survey was conducted in 2004 to survey terrestrial vertebrates and habitats at GSFC (University of Maryland 2004). Nine species of frogs and toads were recorded in the study. The most widely distributed species were the southern leopard frog (*Rana sphenocephalus utricularius*), the eastern American toad (*Bufo americanus americanus*), the gray treefrog (*Hyla chrysoscelis, H. versicolor*), the northern spring peeper (*Pseudacris crucifer*), and the northern green frog (*Rana clamitans melanota*). Seventy species of birds and three species of owls were found during the 2004 study. The barred owl (*Strix varia*) was the most abundant species, with one great horned owl (*Bubo virginianus*) and one eastern screech owl (*Otus asio*) also seen. The owls were restricted to the large, forested tracts at the north ends of both sides of the Campus. GSFC is home to a resident Canada goose (*Branta canadensis*) population.

Small mammals include the white-footed mouse (*Peromyscus leucopus*), house mouse (*Mus musculus*), southern short-tailed shrew (*Blarina carolinensis*), eastern chipmunk (*Tamias striatus*), eastern gray squirrel (*Sciurus carolinensis*), and eastern cottontail (*Sylvilagus floridanus*). Medium sized carnivores-omnivores observed include raccoons (*Procyon lotor*), red fox (*Vulpes vulpes*), gray fox (*Urocyon cinereoargenteus*), Virginia opossum (*Didelphis virginiana*), long-tailed weasel (*Mustela frenata*), striped skunk (*Mephitis mephitis*), and domestic cat (*Felis catus*). Raccoons, red fox, and long-tailed weasel were more commonly found in the large forest fragments while gray fox, Virginia opossum, and domestic cat were found most frequently in the medium and small forested areas. The primary large mammal found on the installation is the white-tailed deer (*Odocoileus virginianus*) (GSFC 2018).

3.2.2.3 Threatened and Endangered Species

No federal threatened, endangered, or rare species are known to be established as resident species on the Greenbelt Campus. The Northern Long-eared bat (*Myotis septentrionalis*), a federally-listed threatened species, is found in Maryland. Suitable habitat for this species could include a broad range of tree species having cracks, crevices, or shag bark, and trunks measuring 3 inches in diameter or greater; however, this species prefers old growth forests and relies on interior forest habitat with lower amounts of edge habitat for foraging, roosting, and pup rearing (NatureServe 2020). No old growth or interior forest habitat occurs on the installation (GSFC 2018).

NASA utilized the USFWS IPaC online review process (USFWS 2020) to obtain information regarding listed species under the purview of the Chesapeake Bay Ecological Services Field Office. The USFWS IPaC results indicate the Northern Long-eared bat has the potential to be present at GSFC; however, critical habitat for the species has not been designated. No other federal threatened or endangered species were identified. Section 7 consultation for the project was completed on November 23, 2020. **Appendix D** provides the USFWS consultation package.

Maryland Department of Natural Resources (DNR) maintains a list of rare, threatened, and endangered species within the state. For Prince George's County, there are 20 animal and 99 plant species on the county list (Maryland DNR 2019). This list also includes species thought to be extirpated from Maryland.

3.2.3 Environmental Consequences

Activities associated with the Proposed Action have the potential to impact biological resources. Impacts could include disturbance, injury, or mortality of individual plants or animals, and habitat removal, damage, or degradation. Impacts would be considered significant if species or habitats of concern were

substantially affected over relatively large areas or habitat disturbances resulted in reductions in the population size or distribution of special status species.

3.2.3.1 Action Alternative

Construction Impacts

Short-term impacts to vegetation could occur during construction activities from heavy equipment and trampling. Approximately 1.0 acres of forested area would be removed for construction of Building J. The forested area removal would represent a permanent loss; however, with the abundance of forested areas found on the Greenbelt Campus, the impact would not be significant.

Minor impacts to terrestrial wildlife could occur during site preparation and construction activities; however, the impacts would be short-term. More mobile species would likely avoid the area during these activities. Smaller, less mobile species could experience direct mortality from site preparation and construction activities. Local wildlife would experience a permanent loss of approximately 1.0 acre of forested habitat; however, this loss would not be considered major given the amount of similar habitat that exists nearby. No long-term adverse impacts to wildlife would be anticipated.

Additional tree clearing may be required on the Main Campus or in areas off the Main Campus during facility and infrastructure demolition (i.e., parking areas, sidewalks); however, there would be no impact to threatened and/or endangered species as none (including critical habitat) are known to occur at GSFC. Non-native and invasive species could become established on disrupted soils during construction activities. To minimize impacts associated with invasive species, cleared areas would be stabilized or re-seeded and replanted with native vegetation. GSFC environmental staff would review design plans for any new landscaping projects to ensure the appropriate native species of plants and trees would be selected.

Operational Impacts

Impacts to vegetation from daily operations would not be expected; landscaped areas around buildings and parking areas would continue to be maintained. Long-term beneficial impacts to wildlife could occur in areas off the Main Campus where natural conditions could resume following building demolitions.

In summary, implementation of the Proposed Action may result in short-term adverse impacts to vegetation and wildlife. Adverse impacts to vegetation from removal of trees and forested area would be long-term, but not significant. The impact would be offset through new plantings of native vegetation. No impact to Federal or state threatened and/or endangered species would be anticipated as none are known to occur on the installation.

3.2.3.2 No Action Alternative

Under the No Action Alternative, NASA would not implement the GSFC Greenbelt Campus Master Plan; there would be no change to biological resources described in **Section 3.2.2**.

3.3 WATER RESOURCES

3.3.1 Definition of the Resource

This discussion of water resources includes groundwater, surface water, wetlands, floodplains, and the coastal zone that exist in and around GSFC Greenbelt. The Clean Water Act of 1972 is the primary

Federal law that protects the nation's waters, including lakes, rivers, aquifers, and coastal areas. The primary objective of the Clean Water Act is to restore and maintain the integrity of the nation's waters.

Groundwater is water that flows or seeps downward and saturates soil or rock, supplying springs and wells. Groundwater is frequently used for water consumption (potable), agricultural irrigation, and industrial applications. Surface water resources generally consist of wetlands, lakes, rivers, and streams. Wetlands are jointly defined by USEPA and U.S. Army Corps of Engineers as "those 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." EO 11990, *Protection of Wetlands,* requires that federal agencies adopt a policy to avoid, to the extent possible, long- and short-term adverse impacts associated with destruction and modification of wetlands and to avoid the direct and indirect support of new construction in wetlands whenever there is a practicable alternative. Floodplains are areas of low-level ground that occur along rivers, stream channels, large wetlands, or coastal waters. EO 11988, *Floodplain Management*, requires federal agencies to avoid to the extent possible the long- and short-term adverse impacts associated with the occupancy and modification of floodplains and to avoid direct and indirect support of floodplain development unless it is the only practicable alternative.

Coastal zone is the border between the land and the ocean and is the zone in which the majority of infrastructure and human activities are directly connected to the ocean waters. Maryland DNR is the lead agency for the Maryland Coastal Zone Management Program (CZMP) which is authorized to administer the Coastal Zone Management Act (CZMA) of 1972. This Act encourages coastal states to properly manage use of their coasts and coastal resources, prepare and implement coastal management programs, and provide for public and governmental participation in decisions affecting the coastal zone. As a federal agency, NASA is required to determine whether its proposed activities would affect the coastal zone. This takes the form of a consistency determination, a negative determination, or a determination that no further action is necessary.

3.3.2 Existing Conditions

Groundwater - Washington Suburban Sanitary Commission (WSSC) is the supplier of fresh drinking water to all buildings at GSFC and areas 200, 300, and 400; the water is sourced from the Patuxent and Potomac rivers (WSSC 2020). Potable water is supplied by Beltsville Agricultural Research Center through groundwater wells to Area 100. GSFC is located above the Patuxent aquifer, which is a regional confined (artesian) aquifer primarily fed from surface water sources. Two onsite production wells, located on the eastern and western sides of GSFC, are used for drawing water only for cooling towers and boilers. Withdrawals from groundwater wells are made under MDE Water Appropriations and Use Permit PG1998G023(04). The permit allows GSFC to withdraw an average of 257,000 gallons per day on a yearly basis, and an average of 375,000 gallons per day for the month of maximum use (GSFC 2018).

Surface water - GSFC is located on the Anacostia-Patuxent River Divide, at the apex of four separate tributary stream basins. Runoff flows into a storm water drainage system via closed storm drains and open channels and swales. Eight main storm water management ponds lie on the periphery of GSFC and receive runoff from the storm water drainage system. Storm water runoff on the northern and western perimeter of the Main Campus and in areas 100, 200, 300, and 400 drains into two tributaries of the Anacostia River watershed (Beck Branch and Beaverdam Creek), and the southern portion drains into two tributaries of the Patuxent River watershed (Bald Hill Branch and Folly Branch) (GSFC 2018). Portions

of the Beaverdam Creek and Bald Hill Branch watersheds are waters of very high quality (Tier II waters) and are protected by Maryland's antidegradation policy.

GSFC maintains various National Pollutant Discharge Elimination System (NPDES) permits issued by MDE. These permits direct discharges of industrial wastewater and stormwater into waters of the State. GSFC also maintains NPDES permits to include an industrial discharge permit and several general permits. GSFC provides oversight for site-specific construction approvals and permits; the contractor performing the work is responsible for maintenance of site-specific approvals/permits. **Figure 3.3-1** illustrates the location of surface waters on the Main Campus; **Figure 3.3-2** illustrates the location of surface waters in areas off the Main Campus.

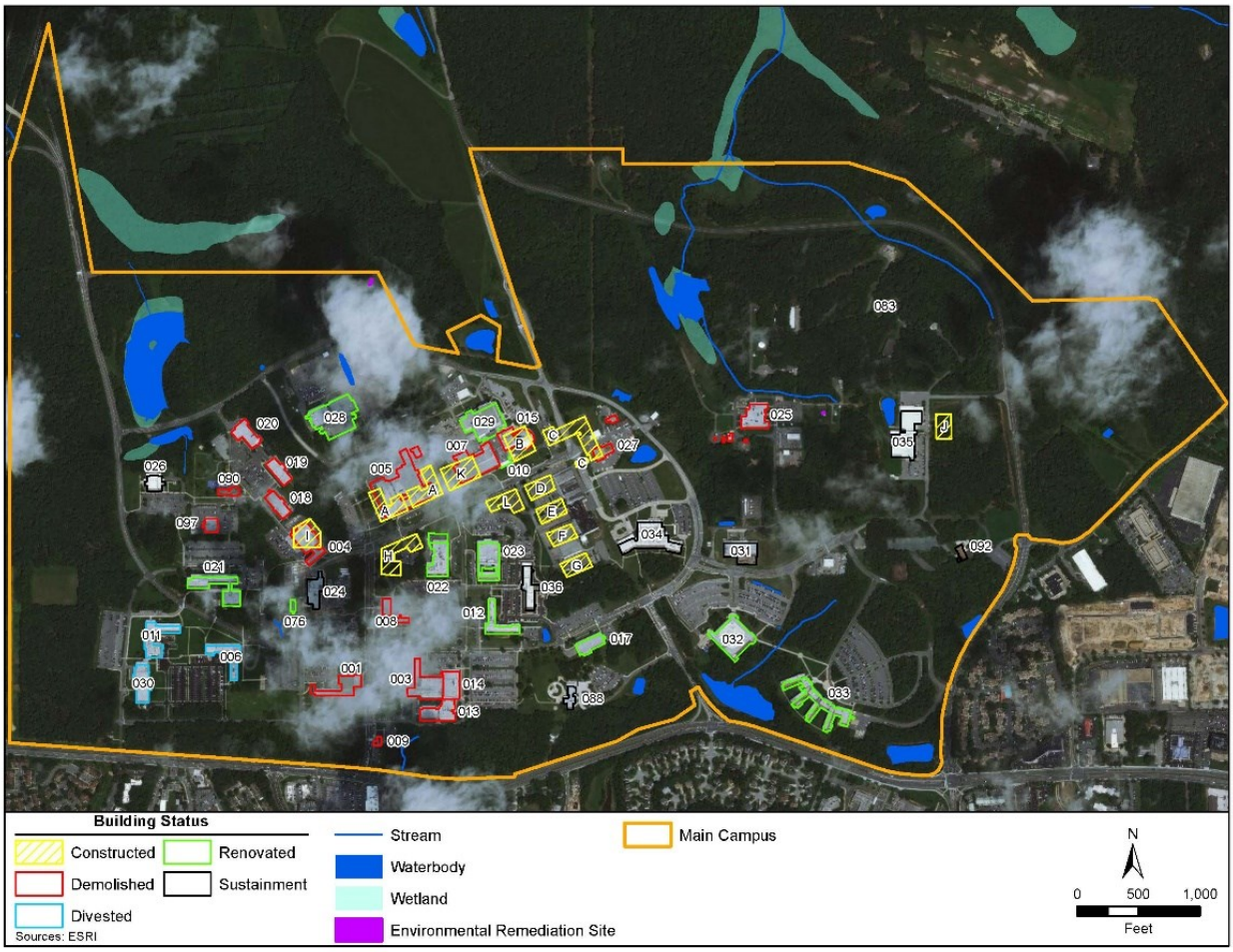


Figure 3.3-1. Location of Surface Waters on the Main Campus

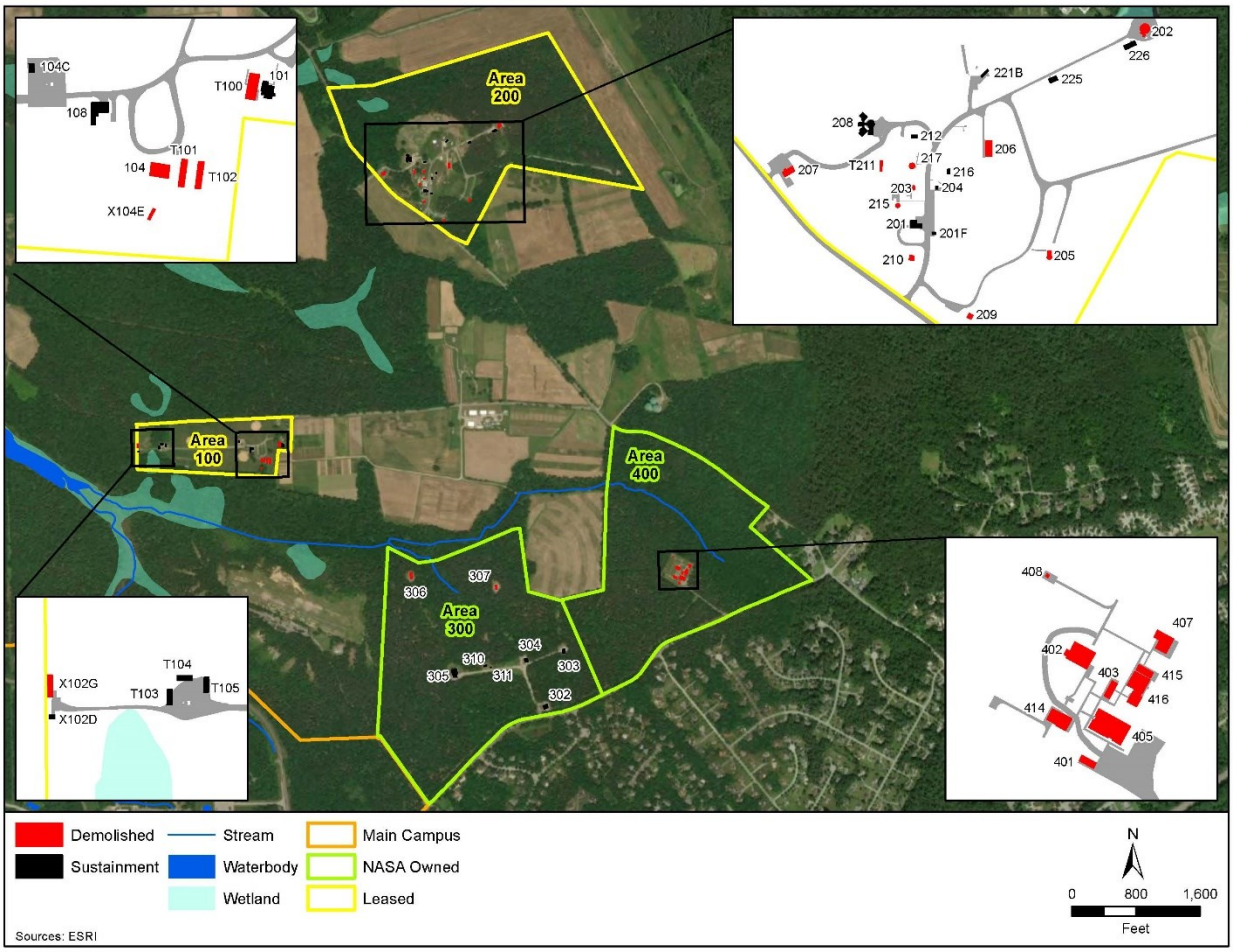


Figure 3.3-2. Location of Surface Waters in Areas off the Main Campus

Wetlands and Floodplains - Wetlands at GSFC are associated with Beck Branch and Beaverdam Creek. With the exception of two riverine wetlands on the eastern side of the Campus, all identified wetlands within GSFC are classified as non-tidal, palustrine wetlands. The entirety of GSFC Greenbelt Campus is not located within a 100-year or 500-year floodplain (GSFC 2018).

Coastal Zone - Maryland has a federally approved CZMP. Maryland's coastal zone is composed of the land, water, and subaqueous land between the territorial limits of Maryland in the Chesapeake Bay, Atlantic Coastal Bays, and the Atlantic Ocean. The Maryland coastal zone extends from 3 miles out in the Atlantic Ocean to the inland boundaries of the 16 counties and Baltimore City that border the Atlantic Ocean, Chesapeake Bay, and the Potomac River up to the District of Columbia (Maryland DNR 2020). GSFC is located approximately 20 miles from the Chesapeake Bay in Prince George's County, which lies within Maryland's coastal zone. GSFC is not located in proximity to any beaches, estuaries, barrier islands, or coral reefs (GSFC 2018).

The CZMA excludes all Federal lands like GSFC from the legal definition of coastal zone (16 U.S.C. Section 1453(1)). However, in accordance with the CZMA, Federal actions undertaken at GSFC that have reasonably foreseeable effects on the coastal zone must be consistent with Maryland's 19 enforceable policies.

3.3.3 Environmental Consequences

Evaluation of impacts on water resources is based on the existence of groundwater, surface waters, wetlands and floodplains in the project area, and associated regulations. A proposed action would be considered significantly adverse if it were to substantially affect water quality; substantially reduce water availability or supply to existing users; threaten or damage hydrologic characteristics; or violate established Federal, state, or local laws and regulations.

The evaluation of impacts on coastal zone resources are based on the potential for the Proposed Action to have a direct, indirect, or secondary change on any of the coastal zone resources under Maryland's CZMP. Impacts would be considered significant if elements of the Proposed Action are not consistent with the enforceable policies of the CZMP. GSFC has determined that the Proposed Action would be conducted in a manner consistent with the enforceable policies of the Maryland CZMP. NASA GSFC's CCD is provided in **Appendix E.**

3.3.3.1 Action Alternative

Construction Impacts

As illustrated in **Figure 3.3-1** and **Figure 3.3-2**, due to the proximity of the proposed demolition and construction projects, the Proposed Action would not be anticipated to have a direct impact to surface waters on the Main Campus or areas off the Main Campus. However, soil disturbance and unintentional release of hazardous materials from equipment during demolition and construction activities have the potential to indirectly impact groundwater, surface water, and wetland resources. To minimize potential impacts, NASA would implement mitigation measures such as development of an erosion and sedimentation control plan, a site-specific Stormwater Pollution Prevention Plan, and implement site-specific best management practices (BMPs). The Stormwater Pollution Prevention Plan would identify all stormwater discharges at the site, actual and potential sources of stormwater contamination, and would require the implementation of BMPs to reduce the impact of stormwater runoff on nearby receiving waters. BMPs would include using vegetative and structural protective covers (e.g., permanent seeding, groundcover), sediment barriers (e.g., straw bales, silt fencing, brush), and quickly repairing bare and slightly eroded areas. BMPs would be applied in areas where demolition and construction activities would occur under the Proposed Action.

A Maryland Tier II Antidegradation Review would be completed for all construction activities. Satisfactory completion of the two step alternatives analysis process (avoidance and minimization) would be required to obtain a general construction permit and other state approvals. Minimization would include considerations for erosion and sediment controls (MDE 2020b).

GSFC would comply with Section 438 of the *Energy Independence and Security Act of 2007*. This Act requires that any development or redevelopment project involving a Federal facility with a footprint exceeding 5,000 ft^2 shall use site planning, design, construction, and maintenance strategies to maintain or restore the predevelopment hydrology of the property with regards to temperature, rate, volume, and duration of flow. Compliance with this requirement could be met through the implementation of low impact development (LID) that would be incorporated as appropriate to minimize stormwater runoff. In addition, LID guidelines requiring an approach of "quantity reduction and quality improvement" for stormwater runoff would be observed. Techniques and examples that could be used to maintain or restore natural hydrologic functions of a site and achieve natural resource protection include, but are not limited to minimizing and/or removing impervious surfaces, directing building drainage to vegetative buffers,

bioswales, biofiltration, using permeable pavements where practical, and breaking up flow directions from large paved surfaces.

GSFC's NPDES Municipal Separate Storm Sewer Systems (MS4) permit imposes a requirement to restore 20 percent of existing developed lands (impervious surfaces) that have little or no stormwater management by 2025. Future development and redevelopment would address the requirement through stormwater BMP that allow infiltration or through removal of impervious surfaces. During construction activities, the contractor's performance, and adherence to the regulatory permits (e.g., NPDES) and plans would be monitored by GSFC environmental staff.

Any new systems or equipment that consume water and/or generate wastewater would be evaluated prior to their installation and would ensure that all new water discharge sources would be compliant with applicable regulations and permits. LEED certification encourages the use of innovative measures to reduce storm water runoff, including installation of collection systems and enhanced infiltration measures (e.g., LID for new parking areas).

One of the near-term projects is the demolition of the Building 27 complex and construction of a new logistics and processing facility (Building J). The increase in pervious surfaces associated with demolition of the Building 27 complex would be offset by the addition of impervious surfaces associated with construction of Building J. A minor increase in stormwater runoff would be anticipated during demolition and construction activities; however, NASA would implement mitigation measures such as development of an erosion and sedimentation control plan, a site-specific Stormwater Pollution Prevention Plan, and BMPs that would include but not limited to using vegetative and structural protective covers.

GSFC Greenbelt Campus is not located within a 100-year or 500-year floodplain; as such, no impact to 100- or 500-year floodplains would occur.

Operational Impacts

Following completion of construction activities (including the near-term project), operations would be carried out in accordance with GSFC's water permits and applicable Federal, state, and local laws and regulations for preventing impacts to groundwater and surface water resources. The overall reduction in impervious surfaces throughout the Greenbelt Campus, and the LEED and LID design of new and renovated infrastructure, would result in a minor long-term beneficial impact due to a reduction in stormwater runoff. GSFC environmental staff would continue to review water usage and discharge operations to identify opportunities for conserving water and minimizing wastewater pollutants. It is anticipated that implementation of the Proposed Action would result in moderate long-term beneficial impacts to water resources.

3.3.3.2 No Action Alternative

Under the No Action Alternative, NASA would not implement the GSFC Greenbelt Campus Master Plan. Minor, long-term impacts to water resources from continue use of aging and energy inefficient infrastructure would be anticipated. There would be no change to coastal zone resources in and around GSFC Greenbelt as described in **Section 3.3.2**.

3.4 CULTURAL RESOURCES

3.4.1 Definition of the Resource

Cultural resources are historic properties as defined by the NHPA, cultural items as defined by the Native American Graves Protection and Repatriation Act, archaeological resources as defined by the Archaeological Resources Protection Act, sacred sites as defined by EO 13007 to which access is afforded under the American Indian Religious Freedom Act, and collections and associated records as defined by 36 CFR 79.

Cultural resources can be divided into three major categories: archaeological resources (prehistoric and historic), architectural resources, and traditional cultural properties.

Archaeological resources are locations where human activity measurably altered the earth or left deposits of physical remains (e.g., tools, arrowheads, or bottles). "Prehistoric" refers to resources that predate the advent of written records in a region. These resources can range from a scatter composed of a few artifacts to village sites and rock art. "Historic" refers to resources that postdate the advent of written records in a region. Archaeological resources can include campsites, roads, fences, trails, dumps, battlegrounds, mines, and a variety of other features.

Architectural resources include standing buildings, dams, canals, bridges, designed landscapes, and other structures of historic or aesthetic significance. Architectural resources generally must be more than 50 years old to be considered for protection under existing cultural resources laws. However, more recent buildings and structures, such as Cold War-era military buildings, may warrant protection if they are of exceptional importance or are part of a historic district in which the majority of properties and the most important period of significance are less than fifty years old. These properties are evaluated under National Register of Historic Places (NRHP) Criteria Consideration G, which includes properties that have achieved significance within the past 50 years. Architectural resources must also possess integrity (i.e., important historic features must be present and recognizable in order to convey its significance).

Traditional cultural properties can include archaeological resources, buildings, neighborhoods, prominent topographic features, habitats, plants, animals, and minerals that American Indians or other groups consider essential for the continuance of traditional cultures.

Resources found significant under criteria established in the NHPA are considered eligible for listing in the NRHP. These are termed "historic properties" and are protected under the NHPA. Only cultural resources considered to be significant, known or unknown, warrant consideration under the NHPA with regards to adverse impacts resulting from a proposed action. To be considered significant, archaeological or architectural resources must meet one or more criteria as defined in 36 CFR 60.4 for inclusion in the NRHP. The quality of significance in American history, architecture, archaeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and:

a. that are associated with events that have made a significant contribution to the broad patterns of our history; or
b. that are associated with the lives of persons significant in our past; or
c. that embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or

d. that have yielded, or may be likely to yield, information important in prehistory or history.

The EA process requires assessment of the potential impact of a Federal action on cultural resources. Under Section 106 of the NHPA, Federal agencies must take into account the effect of their undertakings on historic properties, consult with the State Historic Preservation Officer (SHPO) and other consulting parties, and allow the ACHP a reasonable opportunity to comment. The Federal agency evaluates the NRHP eligibility of resources within the proposed undertaking's Area of Potential Effects (APE) and assesses the possible effects of the proposed undertaking on historic properties in consultation with the SHPO and other parties.

The APE is defined as the geographic area(s) "within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist." The APE for this project encompasses the entirety of GSFC Greenbelt Campus, which includes the Main Campus and Areas 100, 200, 300, and 400.

3.4.2 Existing Conditions

GSFC was established in 1959 as NASA's first space research facility. Located in Greenbelt, Maryland, it was named after Dr. Robert Hutchings Goddard, who is widely considered the father of modern rocketry. GSFC was dedicated on March 16, 1961, on the 35th anniversary of Dr. Goddard's first liquid-propelled rocket launch. GSFC was responsible for unmanned spacecraft and sounding rocket experiments in basic and applied research. The worldwide Space Tracking and Data Acquisition Network, later renamed the Spaceflight Tracking and Data Network, was operated from GSFC. The development and launch of the Thor-Delta launch vehicle and the development of the Landsat program and the Hubble Space Telescope were also completed at GSFC (R. Christopher Goodwin and Associates [hereafter cited as Goodwin] 2018). GSFC's scientists and engineers have participated in nearly every aspect of space exploration, including human space flight projects, aeronautics research, remote-sensing earth satellites, the development of communications satellites, and the Space Shuttle program (Goodwin 2012). A more detailed history of GSFC is provided in the 2018 Integrated Cultural Resources Management Plan (ICRMP) (Goodwin 2018).

The GSFC campus was generally developed in three phases: 1959 to 1965, 1966 to 1969, and 1970 to the present. The first phase of construction occurred on the Main Campus and included the completion of Buildings 1 through 20 and Building 24. Despite the number of facilities constructed, there was still insufficient space to accommodate all the programs and activities at GSFC. As soon as construction on the initial buildings was complete, several additions were constructed on the newly erected buildings. The second phase of construction completed buildings that began in the first phase, those identified in the installation's Master Plan, and additions to existing buildings to support the Apollo program. The third phase of construction includes the 12 buildings constructed since 1970, and updating, renovating, and adapting existing buildings and facilities in response to changing missions and programs (Goodwin 2018).

More than 10 cultural resources investigations have been completed at GSFC over the past three decades. An installation-wide architectural survey was completed in 2012 (Goodwin 2012). As a result of the survey and evaluation, the Main Campus and Area 300 were determined eligible for the NRHP as a discontiguous historic district. GSFC also has one National Historic Landmark, the Spacecraft Magnetic Test Facility, Building 305, listed in 1985 (Goodwin 2018).

3.4.2.1 Archaeological Resources

Six archaeological investigations have been completed at GSFC since 1991. A GSFC campus-wide survey was conducted in 1996, which indicated areas of low, moderate, and high sensitivity for prehistoric archaeological sites. The survey indicated that the majority of the GSFC has a moderate or low sensitivity for prehistoric archaeological sites. The areas that were found to have high sensitivity for archaeological resources included the eastern end of the Main Campus, the southwest edge of Area 100, the northwest corner of Area 200, and the northwest corner of Area 300. GSFC has one NRHP-eligible archaeological site, Site 18PR548, which is located at the Main Campus. The site consists of a small prehistoric camp utilized during the Late Archaic period (Goodwin 2018).

3.4.2.2 Architectural Resources

GSFC contains several historic properties, including one National Historic Landmark (Building 305) and one NRHP-eligible historic district (GSFC Historic District). The NRHP-eligible GSFC Historic District, which has a period of significance from 1960 to 1969, is comprised of resources located at the Main Campus and Area 300. The NRHP-eligible GSFC Historic District contains 67 resources, of which 43 are contributing resources and 24 are non-contributing elements. The discontiguous district, shown as the purple outlined areas in **Figure 3.4-1**, includes most of the Main Campus, generally defined by Aerobee Road to the south, IUE and Explorer Roads to the west, Cobe Road to the north, Hubble/ICESAT Road to the east, and most of Area 300. The NRHP-eligible GSFC Historic District consists of a concentration of administrative, laboratory, communications, testing and evaluation, and support facilities that exhibit similar architectural designs. The buildings are typically brick construction with flat roofs and are one to four stories in height. Typical of mid-century buildings, ornamentation is minimal and is generally limited to spandrels or decorative paneling between window bays (Goodwin 2018).

3.4.2.3 Traditional Cultural Properties and Tribal Consultation

To date, no traditional cultural properties or Native American sacred places have been identified at GSFC (Goodwin 2018). No federally recognized Native American Tribes that may be historically, culturally, or linguistically affiliated with the Goddard Greenbelt area have been identified.

3.4.2.4 Paleontological Resources

Paleontological resources were recently discovered at GSFC on the Main Campus. Paleontological resources have been discovered near Buildings 12, 16/16W (demolished), and 36. Paleontological resources are any fossilized remains, traces, or imprints of organisms, preserved in or on the earth's crust, that are of paleontological interest and that provide information about the history of life on earth. Localities, locations, and sites could be as small as a single point on the ground or as large as the area of an outcrop of a formation in which paleontological resources are found. Although paleontological resources are not considered cultural resources under the NHPA, these resources are protected by the Paleontological Resources Protection Act of 2009. Ground disturbing activities at GSFC could have the potential to uncover paleontological resources (Goodwin 2018).

A dinosaur footprint was discovered on the GSFC campus in August 2012 near Building 36 on the GSFC Main Campus. The 12-inch wide footprint was identified as a nodosaur (armored dinosaur), a large herbivore. The footprint was authenticated by an expert in fossilized footprints and extracted by a Certified Professional Paleontologist via current standards and practices (Goodwin 2018).

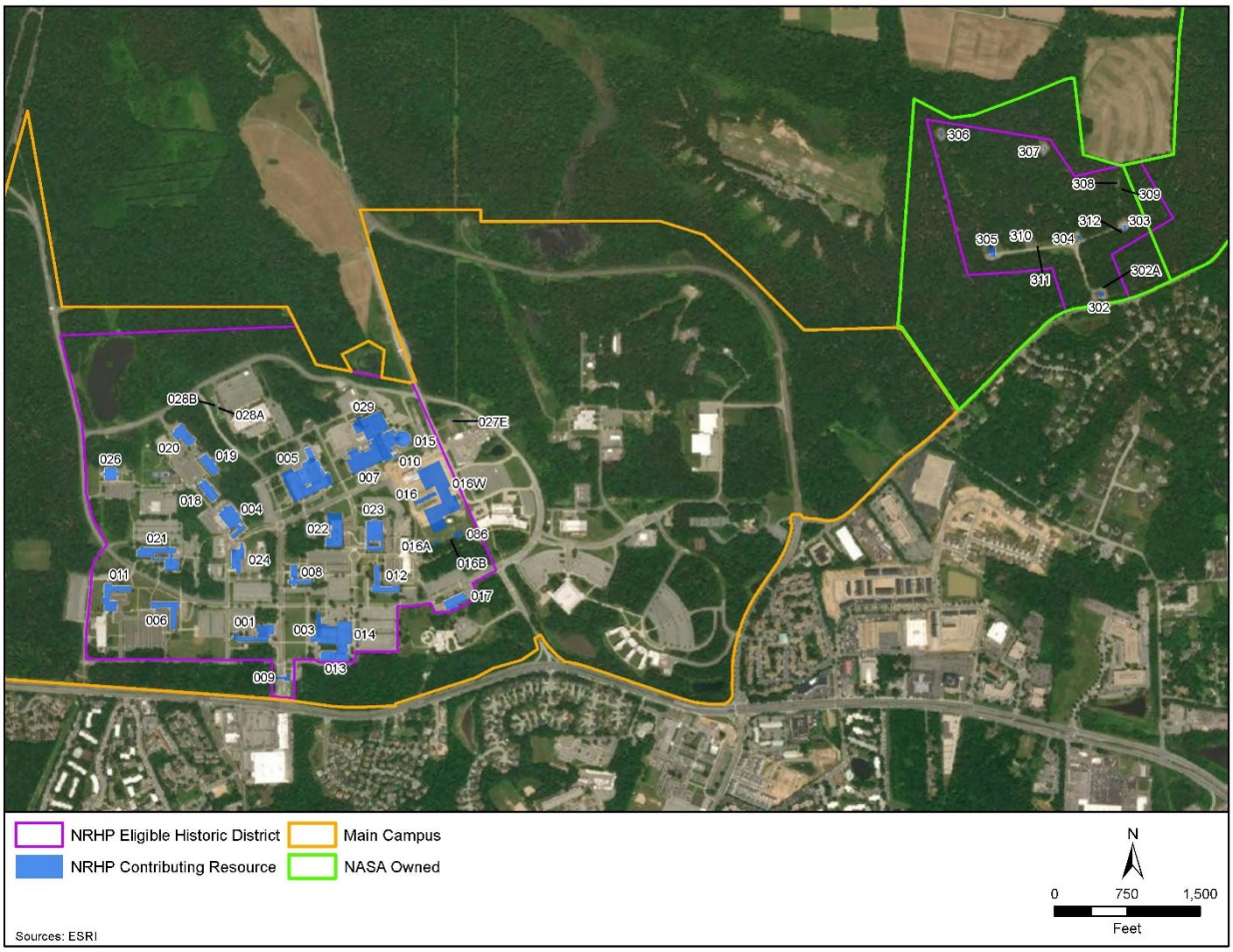


Figure 3.4-1. NRHP-eligible GSFC Historic District

3.4.3 Environmental Consequences

Analysis of potential impacts on cultural resources considers direct and indirect effects. Direct effects may occur by: (1) physically altering, damaging, or destroying all or part of a resource; (2) altering characteristics of the surrounding environment that contribute to resource significance; (3) introducing visual, audible, or atmospheric elements that are out of character with the property or alter its setting; (4) neglecting the resource to the extent that it deteriorates or is destroyed; or (5) selling, transferring, or leasing the property out of agency ownership (or control) without adequate legally enforceable restrictions or conditions to ensure preservation of the property's historic significance [36 CFR § 800.5(a)(2)]. Direct effects can be assessed by identifying the type and location of the activities under the Proposed Action and by determining the exact locations of cultural resources that could be affected. Indirect effects primarily result from the effects of the use and operation of the facilities, which could disturb, damage, or destroy cultural resources.

3.4.3.1 Action Alternative

Construction Impacts

Archaeological Resources

The construction activities outlined in this EA would be in areas of previous major disturbance and in areas of low or moderate sensitivity for prehistoric archaeological sites; therefore, the discovery of undisturbed archaeological resources is not anticipated (KCI Technologies 1999). None of the proposed projects are in the vicinity of the NRHP-eligible archaeological site, Site 18PR548, and no significant impact is anticipated. In the event of an inadvertent discovery during ground disturbing activities, the project manager would cease work immediately and the discovery would be reported to the GSFC Cultural Resources Manager. The Cultural Resources Manager would secure the location and ensure that all cultural items are left in place. The Cultural Resources Manager would then follow the procedures outlined in Standard Operating Procedure 3: Inadvertent Discoveries of Archaeological Deposits, as described in the GSFC ICRMP (Goodwin 2018).

Under these conditions, there would be no significant impacts to archaeological resources with implementation of the Action Alternative.

Architectural Resources

The Action Alternative calls for the demolition of 43 buildings in the Main Campus, all of which have been inventoried and evaluated for NRHP eligibility. Of the 43 buildings to be demolished, 22 are contributing features to the NRHP-eligible GSFC Historic District: Buildings 1, 3, 4, 4A through 4H, 5, 7, 8, 9, 14, 15, 18, 18B, 19, 19A, and 20. Eight buildings are non-contributing features, and 13 buildings are outside the boundaries of the NRHP-eligible GSFC Historic District and are considered not eligible (Goodwin 2012).

The Action Alternative also calls for the demolition of 25 buildings outside of the Main Campus. These include six buildings in Area 100, 10 buildings in Area 200, two buildings in Area 300, and nine buildings in Area 400. The buildings in Areas 100 and 400 were evaluated and determined not eligible for listing to the NRHP, while the two buildings in Area 300 (Buildings 306 and 307) were identified as contributing features to the NRHP-eligible GSFC Historic District. The buildings in Area 200 have been surveyed but none have been evaluated for NRHP eligibility because they are located on land leased from the U.S. Department of Agriculture (Goodwin 2012). The Area 200 buildings are within the period of significance for the historic district and would be evaluated for NRHP eligibility prior to demolition. The demolition of contributing buildings in the Main Campus and Area 300 would be considered an adverse effect on the NRHP-eligible GSFC Historic District. Prior to demolition GSFC will implement the Section 106 process and consult with the Maryland Historical Trust (i.e., SHPO) and ACHP to resolve the adverse effects on the historic property.

In addition to building demolitions, the Action Alternative calls for the renovation and sustainment of 11 buildings in the Main Campus. Of these 11 buildings, seven buildings are contributing features to the NRHP-eligible GSFC Historic District (Buildings 10, 12, 17, 21, 22, 23, and 29). Two buildings were determined to be non-contributing and two buildings are outside of the boundaries of the proposed district and are not individually eligible. Proposed renovation projects would be focused on building interiors and changes to building envelopes would be limited. Renovation projects could include replacement of heating, ventilation, and air conditioning systems or equipment, and replacement or upgrades of electrical,

plumbing, fire alarm and information technology infrastructure. These projects would have limited potential to adversely affect historic properties. Once the final design plans of the buildings have been completed, GSFC will consult the Maryland SHPO and will invite the ACHP to consult regarding potential adverse effects to exteriors of any of the buildings that are contributing elements to the NRHP-eligible GSFC Historic District.

The new construction projects outlined in this EA would not directly affect architectural resources; however, there is potential for adverse visual effects to the historic district. GSFC will consult with the Maryland SHPO and ACHP as each project begins its design phase to minimize adverse visual effects and consider the scale, materials, and overall design of the new buildings.

One of the near-term projects outlined in this EA is the construction of a new logistics and processing facility (Building J in **Figure 2.1-3**). The new facility will be located outside of the NRHP-eligible GSFC Historic District and will provide no visual impact from the road or the historic district. The project would include the demolition of multiple buildings in the Building 27 complex (i.e., Buildings 27 A-E, see **Table 2.1-1**). Building 27 is the only building to be demolished that is over 50 years old; Building 27 is located outside the boundary of the NRHP-eligible GSFC Historic District. GSFC will consult the Maryland SHPO.

NASA would explore different options for some excess buildings and land areas to include divesting land, divesting buildings, and potential future partnerships with non-NASA entities for use of NASA owned land. GSFC will consult with the Maryland SHPO at such time as when each divestment or partnership is identified and the potential effects to historic properties are understood.

In conclusion, the construction and renovation projects would potentially cause adverse effects on the integrity of the NRHP-eligible GSFC Historic District. Demolition activities would adversely affect individual properties and the district. NASA GSFC would minimize the adverse effects by consulting with the SHPO and ACHP and completing agreed upon mitigation measures in compliance with NHPA Section 106. Additionally, all projects will be reviewed via NASA GSFC Environmental and Safety Review Process to identify if the project is sufficiently analyzed in the Master Plan EA or if additional environmental analysis and/or NEPA documentation is needed.

Traditional Cultural Properties and Tribal Consultation

No traditional cultural properties or federally recognized Native American Tribes have been identified within the project areas and thus no impacts are anticipated.

Paleontological Resources

Because paleontological resources have been discovered on the campus, GSFC developed a Paleontological Resources Mitigation and Monitoring Plan in accordance with U.S. Department of the Interior Bureau of Land Management Guidelines for Assessment and Mitigation of Potential Impacts to Paleontological Resources for site excavation activities. This plan will guide site excavation activities and the treatment of fossil resources, if encountered. If any paleontological resources are unearthed during ground disturbing activities (i.e., demolition, construction, grading), work in the immediate vicinity of the discovery would be halted until the resources are identified, documented, and appropriate treatment is developed in accordance with the GSFC Paleontological Resources Mitigation and Monitoring Plan.

Overall, implementation of the Action Alternative would result in less than significant impacts to cultural resources.

Operational Impacts

Upon completion of the construction activities outlined in this EA, vehicular traffic would be moved to the perimeter of the Main Campus, which would allow for additional pedestrian traffic in the interior. Reducing the amount of vehicular traffic around the Main Campus would result in a beneficial impact to architectural resources and for the historic district as a whole by reducing noise, physical disturbances, and visual impacts.

GSFC Greenbelt Campus operations would be carried out in accordance with the ICRMP (Goodwin 2018). The GSFC Cultural Resources Manager would be included in the environmental project planning review process for the proposed projects to ensure that GSFC's cultural resources are managed in compliance with the NHPA. As such, it is anticipated that operations of the proposed projects would not impact GSFC's cultural resources.

3.4.3.2 No Action Alternative

Under the No Action Alternative, NASA would not implement the GSFC Greenbelt Campus Master Plan. Cultural resources would be expected to remain as described under the affected environment in **Section 3.3.2.** Therefore, there would be no significant impacts to cultural resources under the No Action Alternative.

3.5 HAZARDOUS MATERIALS AND WASTES

3.5.1 Definition of the Resource

Hazardous materials are defined by 49 CFR Part 171.8 as "hazardous substances, hazardous wastes, marine pollutants, elevated temperature materials, materials designated as hazardous in the Hazardous Materials Table (49 CFR 172.101), and materials that meet the defining criteria for hazard classes and divisions" in 49 CFR Part 173. Hazardous wastes are defined by the Resource Conservation and Recovery Act at 42 U.S.C. Section 6903(5), as amended by the Hazardous and Solid Waste Amendments, as: "a solid waste, or combination of solid wastes, which because of its quantity, concentration, or physical, chemical, or infectious characteristics may (A) cause, or significantly contribute to an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness; or (B) pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, or disposed of, or otherwise managed."

Special hazards include asbestos-containing material, polychlorinated biphenyls, and lead-based paint. USEPA is given authority to regulate these special hazard substances by the Toxic Substances Control Act Title 15 U.S.C. Chapter 53. USEPA has established regulations regarding asbestos abatement and worker safety under 40 CFR Part 763 with additional regulation concerning emissions (40 CFR Part 61). Whether from lead abatement or other activities, depending on the quantity or concentration, the disposal of the lead-based paint waste is regulated by the Resource Conservation and Recovery Act at 40 CFR Part 260. The disposal of polychlorinated biphenyls is addressed in 40 CFR Parts 750 and 761.

3.5.2 Existing Conditions

GSFC uses various types of hazardous materials and generates various types of hazardous waste to support the Center's mission. The Center tracks hazardous materials use and storage. Hazardous waste is managed and disposed of in accordance with established policies and procedures.

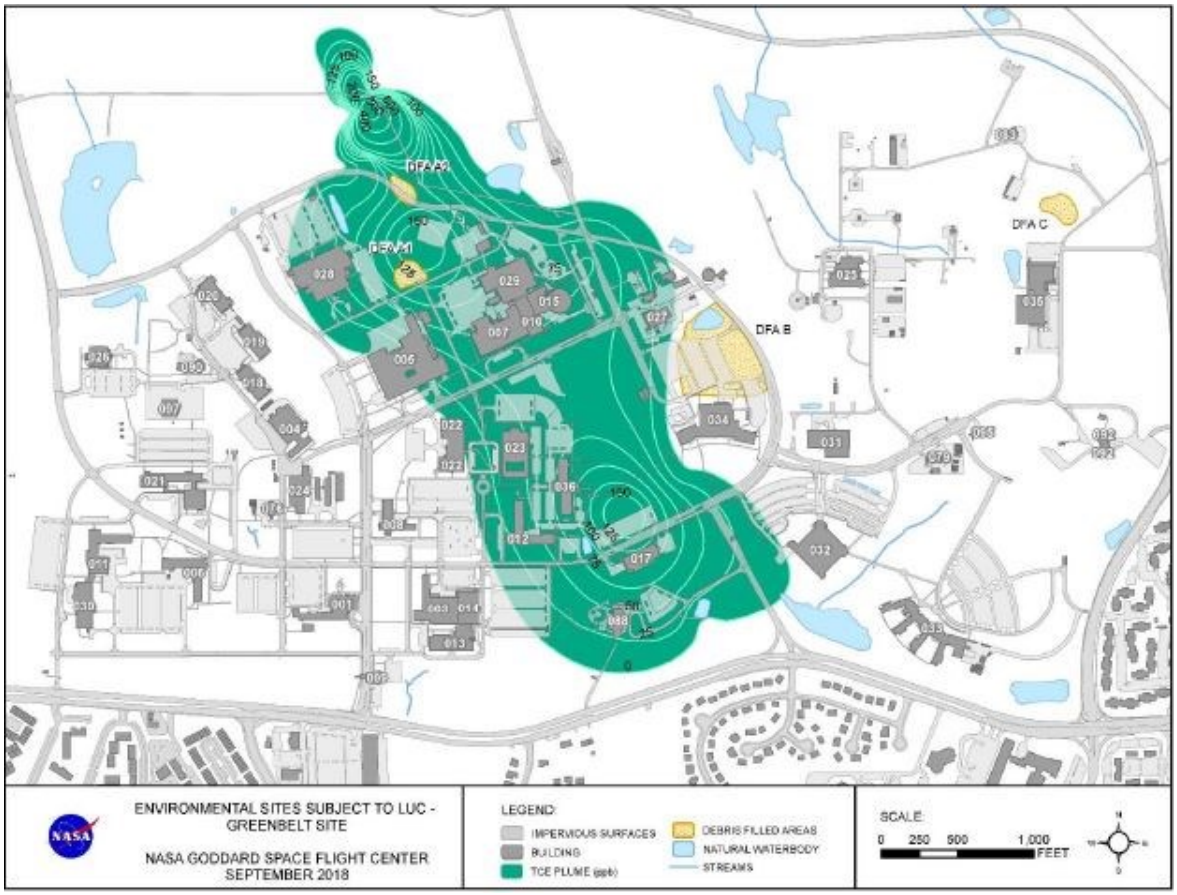
GSFC's Medical and Environmental Management Division (MEMD) manages all environmental activities, including hazardous waste and pollution prevention. GSFC operates under USEPA Large Quantity Generator status and has three sites that operate under Very Small Quantity Generator Status.

Land Use Controls (LUCs) have been established on the Main Campus to manage the potential risk to workers at five environmental sites. The first environmental site is a trichloroethylene groundwater plume located 70 to 80 feet below the ground surface in the center of the Main Campus. The plume was delineated and determined to be confined to a shallow, unconfined aquifer underlying the Campus. A 2004 risk assessment indicated there is no potential excess risk from dermal and/or inhalation exposure to the most likely human receptors at GSFC (workers) and no complete pathway exists for worker exposure. Four other environmental sites are associated with former debris filled areas (DFAs). **Figure 3.5-1** illustrates the location of the five environmental sites with LUCs. Remediation efforts have eliminated risks associated with both groundwater and soil pollution.

The following LUCs are implemented for the five environmental sites:

- Use of groundwater from the shallow unconfined aquifer at GSFC is restricted to investigative and monitoring purposes.
- Prior to commencing with intrusive activities (i.e., activities requiring penetration/excavation to the subsurface of the land area) at land comprising DFA A1, DFA A2, DFA B, and/or DFA C, or requiring contact with the trichloroethylene -contaminated portion of the shallow, unconfined aquifer, the activity will be required to implement actions to assure appropriate personal protective measures are implemented through site/project health and safety plans instituted through the Center's dig permit process.
- Land comprising DFA A1, DFA A2, DFA B, and/or DFA C will not be used for residential uses or for daycare facilities (GSFC 2018).

No LUCs have been identified for areas off the Main Campus.



Source: GSFC 2018.

Figure 3.5-1. Location of Environmental Sites with Land Use Controls on the Main Campus

3.5.3 Environmental Consequences

Impacts would be considered adverse if hazardous materials, hazardous waste, or interaction with environmental sites substantially increase the human health risk or environmental exposure through storage, use, transportation, or disposal of these substances. For environmental sites, impacts would be adverse if the site were disturbed such that the extent and/or degree of contamination would increase.

3.5.3.1 Action Alternative

Construction Impacts

As listed in **Table 2.1-1** and **Table 2.1-3**, numerous buildings are proposed for demolition under the Proposed Action. It is likely the demolition projects may include the removal of asbestos-containing material, polychlorinated biphenyls, and lead-based paint. All buildings considered for demolition would be evaluated for toxic substances prior to demolition; removal and proper disposal of these materials would be completed in accordance with Goddard Procedural Requirement 8500.3H, *Waste Management.*

Ground disturbing activities have the greatest potential to interact with the environmental sites. Observation of the LUCs established by GSFC would be strictly enforced. Demolition of buildings under the Proposed Action would be conducted in consultation with the GSFC MEMD and Safety Division to ensure compliance with established environmental and safety procedures and regulatory requirements.

Construction activities would require the use of certain hazardous materials (e.g., paints, welding gases, solvents, preservatives, sealants). Hazardous materials usage during construction activities would be temporary and would be managed in accordance with Federal and state regulations. All hazardous waste generated during construction activities would be managed in accordance with the procedures found in Goddard Procedural Requirement 8500.3H, *Waste Management*.

Operational Impacts

Hazardous materials have the potential to be released during operational activities from an accidental spill or discharge from parked privately owned vehicles. Procedures for the control and minimization of hazardous waste releases are covered under the GSFC Storm Water Pollution Prevention Plan and Integrated Contingency Plan. New waste streams that may be created in GSFC labs or during the course of operations would be characterized and managed accordingly. All hazardous materials would be stored, and hazardous wastes would be disposed of, in accordance with all applicable Federal, state, and local regulations. No impacts on the management of hazardous materials and hazardous wastes would be expected as no substantial change in hazardous waste operations would be anticipated.

3.5.3.2 No Action Alternative

Under the No Action Alternative, NASA would not implement the GSFC Greenbelt Campus Master Plan. There would be no change to the current levels of hazardous materials used or waste generated and stored at GSFC.

3.6 LAND USE

3.6.1 Definition of the Resource

The term land use refers to real property classifications that indicate either natural conditions or the types of human activity occurring on a parcel. Two main objectives of land use planning are to ensure orderly growth and compatible uses among adjacent property parcels or areas. The foremost factor affecting a proposed action in terms of land use is its compliance with any applicable land use or zoning regulations.

3.6.2 Existing Conditions

NASA GSFC is located in Prince George's County, Maryland, which is divided into 35 separate planning areas, each with their own County-approved Master Plan. GSFC lies primarily within Planning Area 64, also known as the Agriculture Research Center Planning Area of Prince George's County. Portions of GSFC are also situated within Planning Areas 67 (Greenbelt) and 70 (Glenn Dale-Seabrook-Lanham). GSFC, however, is a Federal entity with its own Master Plan and ERD and is not required to abide by Prince George's County land use regulations (GSFC 2018). Refer to **Section 1.3** for the geographic description of the land areas within GSFC.

3.6.3 Environmental Consequences

The evaluation of impacts on land use is based on the degree of land use sensitivity in areas affected by a proposed action and compatibility of proposed actions with existing conditions.

3.6.3.1 Action Alternative

Construction Impacts

Most of the new construction would occur primarily within the footprint of demolished buildings. The administrative functions and operations would be similar to existing functions and operations resulting in

no change to land use (refer to **Figure 2.1-1**). However, construction of Building J would require the removal of approximately 1.0 acres of forested area resulting in a long-term change in land use at the site. Forested areas on the Main Campus cover over 400 acres. The loss of the forested area under the Proposed Action would be long-term and adverse, but not significant.

In areas 100, 200, and 300 no change in land use would be expected. All the buildings in Area 400 would be demolished with the potential for the area to return to a natural, vegetative state. No change in land use would be anticipated for areas with buildings slated for renovation or sustainment activities.

Operational Impacts

Operations within the proposed new buildings would be similar to existing operations and are not expected to represent a change in land use. As discussed in **Section 2.1**, divestment or partnerships could involve the transfer of excess buildings and land areas to a non-NASA entity. NASA would consider partnerships with private or public entities outside the fenceline and partnerships with other government agencies or institutions inside the fenceline. NASA would work with potential partners to maintain similar use of these areas to avoid adverse land use impacts. Restrictions and/or limitations would be placed on construction of new buildings within the partnership areas based on partnership type and vehicle used, existing and anticipated relationship with GSFC, and location relative to the Campus. Future NEPA analysis will be required to address activities within the potential divestment and partnership areas. No significant impact to land use on GSFC would be anticipated.

3.6.3.2 No Action Alternative

Under the No Action Alternative, NASA would not implement the GSFC Greenbelt Campus Master Plan. Land uses on the Main Campus and in areas off the Main Campus at GSFC would remain unchanged.

3.7 UTILITIES AND INFRASTRUCTURE

3.7.1 Definition of the Resource

Utilities and infrastructure for this EA include water, sanitary and storm sewer systems, heating and cooling systems, natural and landfill gas, electric service, and communications service. Refer to the GSFC ERD for more detailed information for the Center's utilities (GSFC 2018).

3.7.2 Existing Conditions

3.7.2.1 Potable Water System

Potable water is supplied by WSSC to all buildings at GSFC and Areas 200, 300, and 400. Potable water is supplied by Beltsville Agricultural Research Center through groundwater wells to Area 100. GSFC's water distribution system is sized for fire protection flows, which are much greater than normal peak usage.

3.7.2.2 Wastewater System

Sanitary sewage collection at GSFC is handled by a combination of three separate sewer pipe networks that discharge to the WSSC sanitary sewer system. The areas off the Main Campus are serviced by septic tanks or fields. GSFC monitors industrial wastewater effluent on a quarterly basis under WSSC Permit 00449. A general condition of the permit is the requirement to properly operate and maintain all pretreatment systems.

3.7.2.3 Storm Water System

GSFC maintains a NPDES Industrial Discharge permit (No. MD0067482), a NPDES MS4 general permit (General Discharge Permit No. 13-SF-5501, General NPDES No. MDR055501) and a general permit for discharges from tanks, pipes, and other liquid containment structures, including fire control systems flushing and water distribution lines. GSFC is required to obtain a stormwater construction permit for each construction activity that disturbs more than one acre of land. For construction projects that disturb 5,000 square feet (ft^2) or 100 cubic yards of land or more, GSFC must submit an erosion and sediment control/stormwater management plan to the State. Plans must be approved prior to breaking ground.

3.7.2.4 Heating and Cooling Systems

Steam is used throughout the year for hot water, laboratory and cleaning processes, and building temperature and humidity control. Central refrigeration is used to cool buildings and in its industrial processes. Water is cooled by chillers and cooling towers, then pumped and circulated to buildings through a distribution system. After capturing heat from the buildings in air handling units, the water is returned to the plant through parallel piping. At the plants, chillers cool the water and transfer the heat to cooling towers, which release the heat to the atmosphere.

3.7.2.5 Natural and Landfill Gas

The Washington Gas Company–Maryland Division distribution system delivers natural gas to GSFC. GSFC purchases natural gas from Washington Gas, or when economic savings can be realized, from the Defense Energy Supply Center, a Department of Defense agency which makes natural gas purchased at fixed rates available to other federal agencies around the country. Since 2003, GSFC has been burning landfill gas in three of the five boilers in its Central Heating and Refrigeration Plant. Through a contract with TORO Energy of Dallas, landfill gas is delivered to GSFC and used as an alternative fuel supply for the Central Heating and Refrigeration Plant boilers.

3.7.2.6 Electric Service

Electricity for buildings, exterior lighting, and fixed equipment is provided by Potomac Electric Power. System components include Pepco primary feeders, onsite substations, power distribution via underground duct banks, and building equipment.

3.7.2.7 Communications Service

Voice (i.e., phone, land mobile radio, and base intercom) and data (i.e., network) communication services to GSFC are provided by commercial providers via communication duct banks.

3.7.3 Environmental Consequences

The impact analysis for infrastructure and utilities compares existing capacity and demand on a utility to a projected capacity and demand. Changes in facility usage or new facility construction may contribute to the total projected demand. A determination of significance is made when the projected increase in demand for a utility would exceed the planned capacity for that utility such that the utility provider would not be able to service additional demands while maintaining the same level of service for existing customers.

3.7.3.1 Action Alternative

Construction Impacts

Under the Proposed Action, demolition, construction, and renovation/sustainment projects would result in both temporary and long-term impacts to utilities and infrastructure. The Proposed Action would include the demolition of approximately 645,000 ft^2 of excess and/or energy inefficient buildings, construction of 375,000 ft^2 of new LEED certified energy efficient buildings, divestment of approximately 100,000 ft^2 of excess buildings, additional building renovation and sustainment, and utility and infrastructure upgrades and maintenance.

During construction, demolition, renovation/sustainment projects and utility and infrastructure upgrades, there would be minor, short-term impacts to the water, sanitary and storm sewer systems, heating and cooling systems, chilled water, natural and landfill gas lines, and electric service systems from temporary disruptions needed to connect new distribution lines to the existing system or complete repairs on existing lines. Over the long-term, the Proposed Action would decrease utility usage at GSFC. The replacement of aging facilities with new LEED certified energy efficient buildings would create long-term energy and water savings. Removal of excess facilities and utility and infrastructure upgrades would also create greater energy and water efficiency and reduce utility usage at GSFC. The Proposed Action would be expected to reduce annual energy costs at GSFC by $8.8 million. Therefore, the Proposed Action would have long-term beneficial impacts to utilities and infrastructure at GSFC.

Operational Impacts

The Proposed Action would not increase personnel loading at GSFC or alter the installation's operations; therefore, increased utility usage would not be expected because of facility operations. Over the long-term, operations at GSFC would be expected to require less utility usage due to the increased efficiency that would result from the construction, demolition, renovation/sustainment, and utility and infrastructure upgrades under the Proposed Action. The overall reduction in impervious surfaces throughout the Greenbelt Campus and the LEED and LID design of new and renovated infrastructure would result in reduced stormwater runoff thereby reducing the impact to stormwater systems. As such, the Proposed Action would have long-term beneficial impacts to utilities and infrastructure at GSFC.

3.7.3.2 No Action Alternative

Under the No Action Alternative, NASA would not implement the GSFC Greenbelt Campus Master Plan. Upgrades and enhancements to the existing utilities and infrastructure and a reduction in the amount of impervious surfaces would not occur. Routine and preventative maintenance on the aging infrastructure would continue; however, the potential savings in water and energy, operations and maintenance, and deferred maintenance as presented in **Section 2.1** would not be realized. Minor, long-term impacts to utilities and infrastructure from continued use of aging and energy inefficient infrastructure would be anticipated.

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4.0 CUMULATIVE EFFECTS AND MITIGATION MEASURES

4.1 CUMULATIVE EFFECTS

CEQ regulations require that all Federal agencies include an analysis of potential cumulative effects on the environment from the incremental effect of a proposed action when added to the other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-federal) or person undertakes such other actions. Cumulative effects can result from "individually minor but collectively significant actions taking place over a period of time."

Cumulative effects are most likely to arise when a relationship or synergism exists between a proposed action and other actions expected to occur in a similar location or during a similar time period. Actions overlapping with or in close proximity to a proposed action would be expected to have more potential for a relationship than those more geographically separated.

The following transportation projects were reviewed to assess the potential for cumulative effects:

- Washington, D.C. to Baltimore Loop Project: https://www.dcbaltimoreloop.com/DraftLoopEA.pdf
- Baltimore-Washington Superconducting Magnetic Levitation Project: https://www.bwmaglev.info/index.php/project-documents/reports

The Baltimore Loop Project would construct a pair of parallel, twin underground tunnels from Washington D.C. to Baltimore, Maryland. The tunnels would run beneath public right-of-way and beneath private land owned or leased by the Boring Company. A Draft EA was released in April 2019; no further documents have been released.

The Baltimore-Washington Superconducting Magnetic Levitation Project would construct and operate a high-speed superconducting magnetic levitation train system that would operate between downtown Washington D.C. and downtown Baltimore, Maryland. The Project would include construction of a guideway (track) and three stations, a rolling stock storage depot, maintenance facility, power substations, vent plants, and an operations facility. A report released in November 2018 describes the various alternatives to be evaluated. Two alternative actions (train alignment and location of a maintenance yard) could affect GSFC-owned and leased property. If chosen, the actions could remove up to 34.0 acres of forested land, resulting in a minor cumulative effect when combined with the proposed removal of 1.0 acres of forested land proposed for the Center's near-term project. NASA GSFC is serving as a cooperating agency and will consult regarding impacts to the property and operations. The draft environmental impact statement was released for public review and comment on January 22, 2021.

Cultural resources have been evaluated for potential cumulative effects. Twenty two buildings on the Main Campus and two buildings in Area 300 have been identified as contributing features to the NRHP-eligible GSFC Historic District. The demolition of contributing features, individually and collectively, could decrease the cohesiveness and integrity of the historic district to the point that it is no longer NRHP-eligible. GSFC will implement the Section 106 process and consult with the Maryland Historical Trust (i.e., SHPO) and ACHP to resolve potential adverse cumulative effects on the NRHP-eligible GSFC Historic District.

The GSFC Greenbelt Campus Master Plan is a long-term, 20-year project. Other plans, projects and programs outside of GSFC Greenbelt Campus could be implemented during this timeframe; but their

timing is unknown and their effects cannot be accurately determined or quantified at this time. As such, NASA has concluded that at this time, no significant cumulative effects would be anticipated with adopting the Greenbelt Campus Master Plan.

4.2 MITIGATION MEASURES

Mitigation refers to additional action taken to avoid, minimize, rectify, reduce, eliminate, or provide compensation for an adverse impact. Specifically, CEQ regulations (40 CFR 1508.20) define mitigation to include 1) avoiding the impact altogether by not taking a certain action or parts of an action; 2) minimizing impacts by limiting the degree or magnitude of the action and its implementation; 3) rectifying the impact by repairing, rehabilitating, or restoring the affected environment; 4) reducing or eliminating the impact over time by preservation and maintenance operations during the lifetime of the action; and 5) compensating for the impact by replacing or providing substitute resources or environments. Mitigation measures can be short- or long-term and include operational measures and/or technology based methods designed to avoid, minimize, remediate, or compensate for environmental impacts.

Once implementation of a proposed action is underway, a Federal agency has a responsibility to continually monitor that implementation to ensure that mitigation or other protective measures are being employed. NASA would ensure implementation of the measures mentioned in Chapter 3 to avoid and minimize impacts to the extent practicable as part of BMP, compliance with permit requirements, and adherence to various environmental requirements identified through the GSFC Greenbelt Environmental and Safety Review Process. Mitigation measures may include but would not be limited to development of an erosion and sedimentation control plan, a site-specific Stormwater Pollution Prevention Plan, and agreed upon mitigation measures in compliance with NHPA Section 106.

No project-specific mitigation measures have been determined for the Proposed Action.

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6.0 LIST OF PREPARERS AND CONTRIBUTORS

NAME	TITLE/AREA OF RESPONSIBILITY	EDUCATION AND EXPERIENCE
Cardno GS, Inc.		
Andersen, Stephen	Hazardous Materials and Wastes, Land Use, Utilities and Infrastructure	B.A. in Environmental Science Years of Experience: 10
Banwart, Dana	Quality Assurance/Quality Control	B.S. in Biology Years of Experience: 21
Briscoe, Katie	Cultural Resources	M.A. in Archaeology M.S. in Historic Preservation Years of Experience: 6
Hamilton, Lesley	Air Quality	B.S. in Environmental Engineering B.S. in Biology Years of Experience: 31
Harrison, Michael	Biological Resources, Water Resources	M.S. in Environmental Science Years of Experience: 13
Hoffman, Chareé	Project Manager	B.S. in Biology Years of Experience: 21
Jafolla, Caitlin	Air Quality	B.A. in Urban Studies and Planning Years of Experience: 8
Shoff, Abigail	GIS	B.S. in Geographical Information Systems Years of Experience: 9
Simpson, Sharon	Production Coordinator	A.S. in Science Years of Experience: 17
Thursby, Lori	Cultural Resources	B.S. Environmental Design in Architecture M.S. in Architectural History Years of Experience: 23

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Appendix A
Public and Agency Involvement

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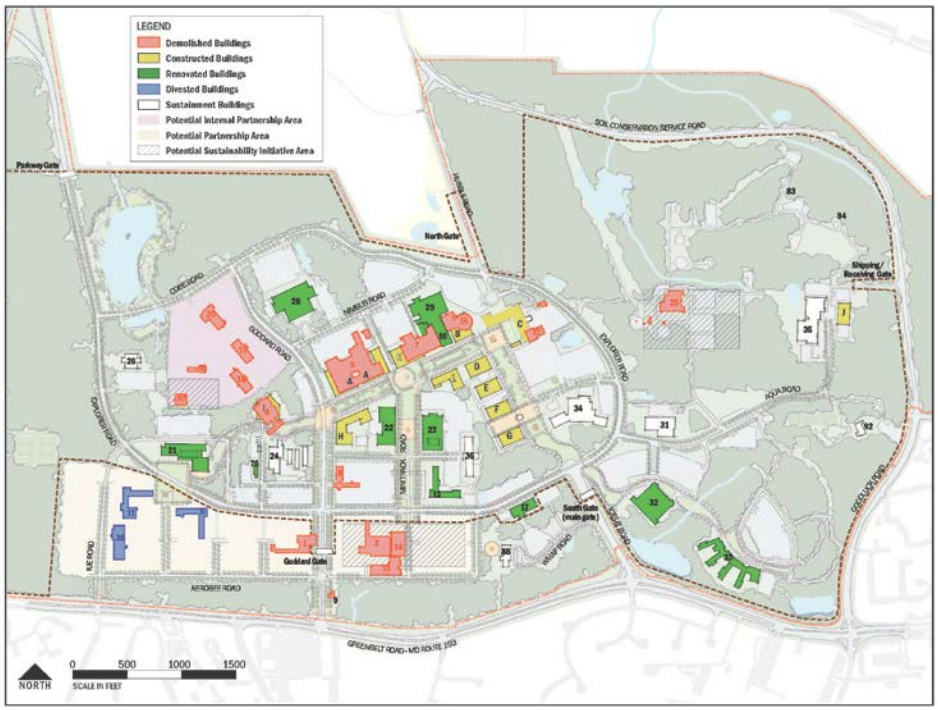
NASA GSFC scoping letter email July 16, 2020

Dear Sir/Madam:

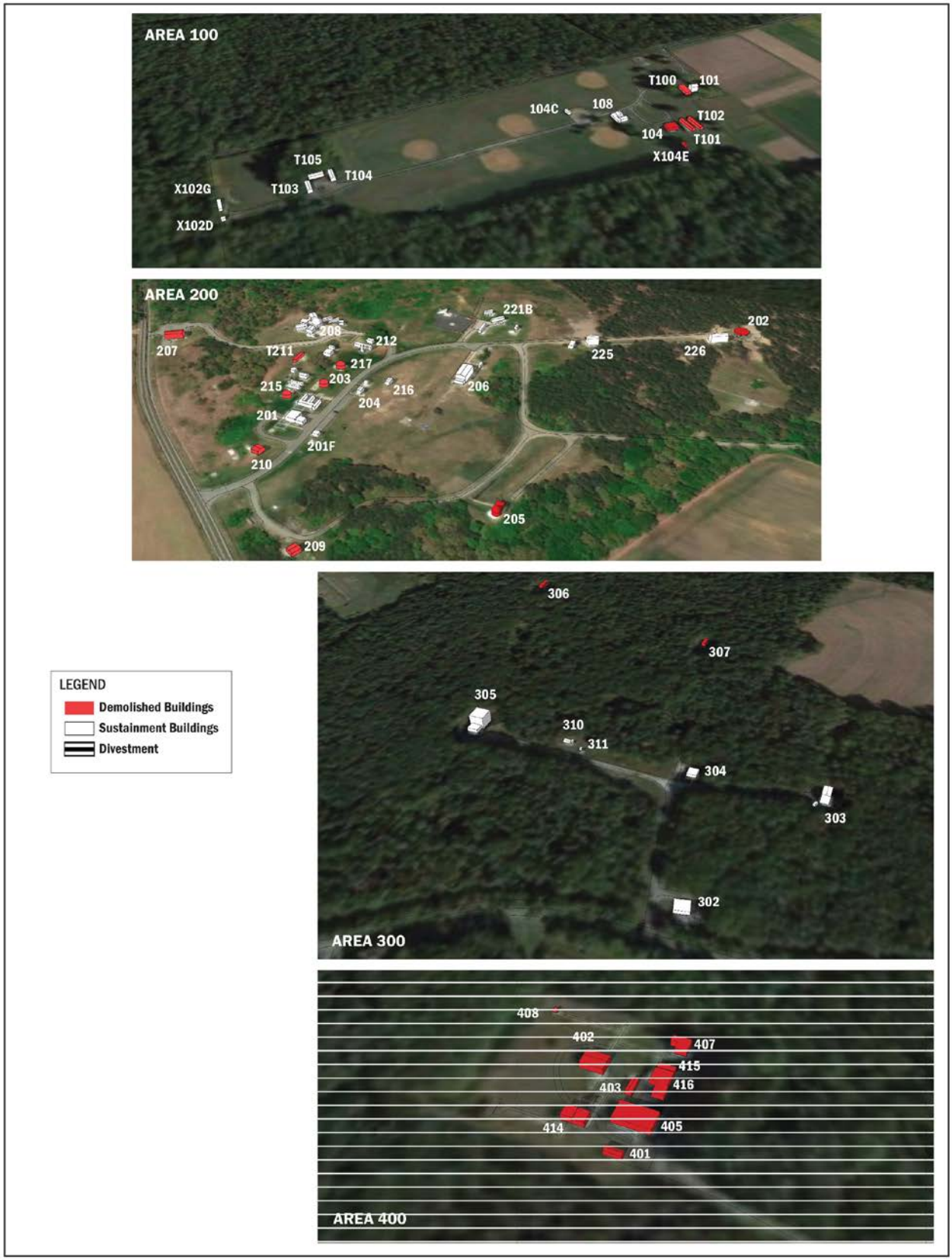
National Aeronautics and Space Administration (NASA) is proposing to implement the Goddard Space Flight Center (GSFC) Greenbelt Campus Master Plan. In accordance with the National Environmental Policy Act (NEPA), as amended, (42 U.S.C. 4321 et seq.), the Council on Environmental Quality Regulations for Implementing the Procedure Requirements of NEPA (40 CFR Parts 1500-1508), and NASA's NEPA regulations (14 CFR Part 1216, subpart 1216.3), NASA is preparing an Environmental Assessment (EA) to evaluate the potential environmental impacts of implementing the Greenbelt Campus Master Plan projects. In coordination with NEPA, GSFC will also address compliance with Section 106 of the National Historic Preservation Act (NHPA).

The GSFC Greenbelt Campus Master Plan would be implemented over a 20-year period during which time numerous buildings would be demolished, constructed, and renovated and general infrastructure maintenance and improvement activities would continue throughout the campus. NASA would explore different options for some excess buildings and land areas to include divesting land, divesting buildings and potential future partnerships with non-NASA entities. Under the Proposed Action, which represents full implementation of the GSFC Greenbelt Campus Master Plan, demolition of excess and/or energy inefficient buildings would reduce the site's building footprint by approximately 645,000 square feet (ft^2); divestment of excess buildings would reduce the site's building footprint by an additional 100,000 ft^2; and new construction of LEED certified energy efficient buildings would increase the site's building footprint by approximately 363,000 ft^2.

The following figures provide an overview of the proposed activities that would occur on the Main Campus and in areas off the Main Campus.



Overview of the Main Campus Projects



Overview of the Areas off the Main Campus Projects

In accordance with NEPA and Section 106 of NHPA, GSFC requests your input on the scope of the environmental review and on any potential environmental impacts of implementing the GSFC Greenbelt Campus Master Plan. We request that comments be provided within 30 days of the date of this notice to the address or email below. Comments may be submitted via mail or email, however due to the current situation with COVID19, email is preferred.

Lizabeth Montgomery
NASA Goddard Space Flight Center, Code 250
8800 Greenbelt Road
Greenbelt, Maryland 20771
Telephone: 301-286-0469
Email: lizabeth.r.montgomery@nasa.gov

The Draft EA is expected to be released in January 2021 for public review and comment. At that time, your organization will have an opportunity to review and comment on the Draft EA. If you need further information on NASA's environmental review process or the proposed GSFC Greenbelt Campus Master Plan, please contact me at the email address or phone number above. We look forward to hearing from you.

Sincerely,

Lizabeth Montgomery
GSFC NEPA Program Manager

Scoping Notice

Greenbelt Co-operative Publishing Assoc., Inc.
Publishers of the Greenbelt News Review
15 Crescent Road, Suite 100
Greenbelt, MD 20770

August 11, 2020

THIS IS TO CERTIFY that a Public Notice that the Goddard Space Flight Center is preparing an Environmental Assessment was published in the Greenbelt News Review ONE TIME, said notice appearing in the July 16 issue. A copy of that advertisement is attached.

The News Review is located in Prince George's County, Md.

Diane C. Oberg 8/11/20

BY: Diane Oberg
Accounts Manager
Greenbelt News Review

GRANTS continued from page 1

This grant will allow Higher Achievement to provide academic support, small group mentoring and year-round engagement by a dedicated staff working in concert with the Middle School administration and teachers. Three programs will be available to students: Afterschool Academy, Summer Link and High School Placement.

The final grant recipient for Spring 2020 is The Space Free Art for All, Inc., a nonprofit focused on building community through art. The SPACE is receiving $4,943.75 to launch a program called STEAM (Science, Technology, Engineering, Art and Math) Ahead. STEAM Ahead will build a cohort of diverse children, youth and adults who feel empowered to use STEAM to explore and create their worlds.

The purchasing of computers, digital cameras, software and hardware, made possible through this grant, will allow community members to experience STEAM for themselves. The SPACE is already planning virtual workshops and at-home tutorials for use during the COVID-19 related restrictions, and plans to launch the new STEAM Ahead in-person elements as soon as safely possible.

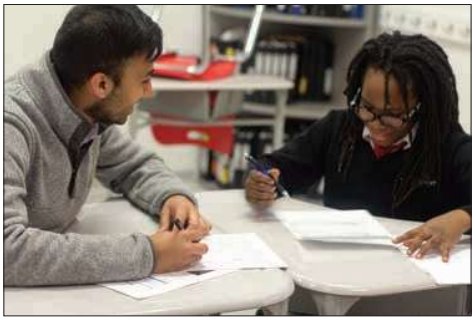


PHOTO COURTESY HIGHER ACHIEVEMENT

GCF grantee Higher Achievement provides mentoring for middle schoolers.

Since opening in 2018 and under the direction of founder and executive director Shaymar Higgs, The SPACE has hosted over 8,000 local residents and visitors in art-making experiences, such as sewing, painting, poetry, dancing and meditation workshops.

Grant applications are carefully considered based on viability, effect on the community and the funding available during the given grant cycle. To help support these and future projects, GCF encourages donations and promotion of the funded events or by volunteering to serve on one of the several governing committees.

GCF's mission is to support worthwhile initiatives by local organizations benefiting the Greenbelt community. GCF has two grant cycles a year; grant awards range from $500 to $5,000 and are given to Greenbelt community groups, cooperatives and nonprofit organizations. Interested groups may next apply for a grant on October 15, for new or existing projects.

COUNCIL continued from page 1

contract, meaning that anything in it could be rethought shortly as the process began again.

The Question Called

After impassioned and lengthy speeches on one side and a fair number of sharp exchanges, expressive faces and finger wagging on both sides of the question, the motion to accept the agreement passed by 5 to 2 with Roberts and Byrd against. To get to this point, however, Councilmember Judith Davis had called the question (to force a vote) and the majority backed her. Byrd complained that calling the question was unfair to those who still had much to say, at which point Davis noted sharply that the discussion had become circular, the majority of her colleagues apparently agreed with her and that members of the public had been heard from as well as counsel. As far as she was concerned, there was no more to be achieved by discussion.

Next Steps

Councilmember Emmett Jordan, Ehrenreich and counsel pointed out that citizen input needed to go in before the draft was negotiated to closure and that a series of public meetings in the fall, before the draft was prepared, would be a productive way to accommodate citizen and council concerns.

Attorney Patrick J. McAndrew, who represents the FOP, noted that the agreement as it stands is a significant investment by the city and the FOP, that the prior agreement had expired and this agreement is, in fact, a stopgap in that the new agreement will be in negotiations at the end of the year into early 2021 while the state legislature is working on LEOBR. He also pointed out that Greenbelt wasn't like Atlanta and Minneapolis in its policing – which drew some sharp criticism from Byrd who felt the city did not have a spotless record.

The public can see the entire discussion for themselves on the council video greenbeltmd.granicus.com/player/clip/1389?view_id=2. The discussion on the CBA begins at about 1:25 into the meeting and ends at around 2:50.

SCHOOLS continued from page 1

Classes will be held five days a week and will also be broadcast on PGCPS-TV for younger students.

Next week, PGCPS will release a report outlining how it will support all students, especially English language learners, those with special needs and youth from low-income families.

August 31 will be the first day of school for all grade levels. If health conditions allow, PGCPS will offer hybrid instruction during the second semester. This would include two days of in-person learning and three days of distance learning. Full-time distance learning would continue for those students who opted in.

Greenbelters Wear Masks

PHOTO BY LISA CRAWLEY

Benjamin Banneker and Booker T. Washington want to encourage all Greenbelters to wear their masks.

PHOTO BY DI QUYNN RENO

The Community Center's Di Quynn Reno sports a catchy chequered number.

Public Notice

National Aeronautics and Space Administration (NASA) Goddard Space Flight Center (GSFC) is preparing an Environmental Assessment (EA) to evaluate potential environmental impacts of implementing a new Master Plan for the GSFC Greenbelt Campus. The GSFC Greenbelt Campus Master Plan would be implemented over a 20-year period during which time numerous buildings would be demolished, constructed, and renovated and general infrastructure maintenance and improvement activities would continue throughout the installation. NASA would explore different options for some excess buildings and land areas to include divesting land, divesting buildings and potential future partnerships with non-NASA entities.

In accordance with the National Environmental Policy Act (NEPA) and Section 106 of the National Historic Preservation Act (NHPA), GSFC invites the public, government agencies, and other interested parties to comment on the scope of the environmental review. The input will be used in the development of the EA. The Draft EA is expected to be released in January 2021 for public review and comment.

Please provide comments in writing, within 30 days of the publication of this notice. Comments may be submitted via mail or email, however due to the current situation with COVID19, email is preferred.

Submit comments via email to lizabeth.r.montgomery@nasa.gov or postal mail to Lizabeth Montgomery, NASA Goddard Space Flight Center, Code 250, 8800 Greenbelt Road, Greenbelt, MD 20771.

For further information, contact Lizabeth Montgomery at lizabeth.r.montgomery@nasa.gov or 301.286.0469.

PRELIMINARY AGENDA

GHI BOARD OF DIRECTORS

Thursday, July 23, 2020

A. **GHI Special Open Session – starts at 7:00 p.m. (open to members and visitors)**
Approve Motion to Hold an Executive Session Meeting on July 23, 2020

B. **GHI Executive Session – starts after the GHI Special Open Session Meeting adjourns (closed to members and visitors)**
- Approve Minutes of Executive Session Meeting Held on June 18, 2020
- Member Financial Matters
- Request by a Member for a Rental Permit Extension
- Contract for Pre-sale Repairs to a GHI Unit - 2nd reading
- Member Complaint Matter

C. **GHI Open Session (open to members and visitors) – starts at 7:45 p.m.**
- Announcement of Executive Session Meeting Held on July 23, 2020
- Approval of Addendum for Trust Ownership and Trustee's Affidavit
- Approve Minutes of Special Open Session Meeting Held on June 18, 2020
- Approve Minutes of Regular Open Session Meeting Held on June 18, 2020
- Member Proposal to Establish a COVID-19 Fee Deferral Relief Fund for GHI Members
- Proposed Repairs to a Retaining Wall and Staircase at 2 Ct Plateau Place Damaged by Roots of a Redwood Tree
- Architectural Review Committee's Recommendation re: Revisions to Section V11: Fences of the Member handbook

Contact information for attending the GHI Special Session, GDC Open Session and GHI Regular Open Session Meetings which will be held via a Zoom electronic platform due to the COVID-19 pandemic, is as follows:

Time: Jul 23, 2020 07:00 PM Eastern Time (US and Canada)
Join Zoom Meeting
https://us02web.zoom.us/j/83869896783?pwd=UEJQL0NUYjVnMFBkRklEbHUxMzNvZz09
Meeting ID: 838 6989 6783
Password: 402883
One tap mobile
+13017158592,, 83869896783#,,0#,402883# US (Germantown)
Dial by your location
+1 301 715 8592 US (Germantown)
Meeting ID: 838 6989 6783
Password: 402883
Find your local number: https://us02web.zoom.us/u/kbFSHvblhG

To request a sign language interpreter for a board meeting, go to http://www.ghi.coop/content/interpreter-request-form, contact us by phone (301-474-4161) or fax (301-474-4006).

Regular Board meetings are open to Members
For more information, visit our website: www.ghi.coop

Scoping Responses

THE MARYLAND-NATIONAL CAPITAL PARK AND PLANNING COMMISSION
14741 Governor Oden Bowie Drive
Upper Marlboro, Maryland 20772
www.pgplanning.org

Prince George's County Planning Department
Office of the Planning Director
(301) 952-5804
D20-071601

July 24, 2020

Ms. Lizabeth Montgomery
NASA Goddard Space Flight Center, Code 250
8800 Greenbelt Road
Greenbelt, Maryland 20771

RE: Environmental Assessment for the Goddard Space Flight Center Greenbelt Campus Master Plan

Dear Ms. Montgomery:

The Environmental Planning Section has reviewed your request for comments regarding the potential impacts associated with the implementation of the Goddard Space Flight Center Greenbelt Campus Master Plan.

According to the project description, the Goddard Space Flight Center Greenbelt Campus Master Plan proposes redevelopment of the existing structures, including demolition, construction, renovation, and general infrastructure maintenance and improvement activities throughout the Main Campus and off the Main Campus at Areas 100 (Parcel 14), 200 (Parcel 2), 300 and 400 (Parcel 170).

Impacts to the forested areas, wetland areas or their respective 25-foot-wide buffers, and the Waters of the U.S. should be minimized to the extent practicable. There is a potential for Forest Interior Dwelling Species (FIDS) and Sensitive Species Project Review Area (SSPRA) to be present on all included parcels according to the mapping on PGAtlas website. The included properties are located on land owned and operated by the United States of America and as such is not subject to the Prince George's County Woodland and Wildlife Habitat Conservation Ordinance (WCO) (Subtitle 25, Division 3) or the environmental regulations in Subtitles 24 and 27 of the Prince George's County Code. The site is subject to the Clean Water Act and will be required to address any proposed impacts to wetlands and Waters of the U.S. under the jurisdiction of the Maryland Department of the Environment (MDE) and The Army Corps of Engineers. The Environmental Planning Section has no further comments at this time but will provide additional comments, if required with the Mandatory Referral review.

Please contact Megan Reiser of the Environmental Planning Section if you have any additional questions at 301-952-3752 or megan.reiser@ppd.mncppc.org.

Sincerely,

Andree Green Checkley, Esq.
Planning Director

cc: Katina Shoulars, Chief, Countywide Planning Division
Megan Reiser, Supervisor, Environmental Planning Section

July 17, 2020

Ms. Lizabeth Montgomery
NASA Goddard Space Flight Center Code 250
8800 Greenbelt Road
Greenbelt, MD 20771

STATE CLEARINGHOUSE REVIEW PROCESS

State Application Identifier: **MD20200717-0623**
Reviewer Comments Due By: August 13, 2020
Project Description: Pre-Environmental Assessment Scoping: The National Aeronautics and Space Administration (NASA) Goddard Space Flight Center (GSFC) Greenbelt Campus Master Plan, Including Demolition, Construction, Renovation, and General Infrastructure Maintenance and Improvement Activities Throughout the Campus
Project Address: NASA Goddard Space Flight Center, 8800 Greenbelt Road, Greenbelt, MD 20771
Project Location: Prince George's County
Clearinghouse Contact: Sylvia Mosser

Dear Ms. Montgomery:

Thank you for submitting your project for intergovernmental review. Participation in the Maryland Intergovernmental Review and Coordination (MIRC) process helps ensure project consistency with plans, programs, and objectives of State agencies and local governments. MIRC enhances opportunities for approval and/or funding and minimizes delays by resolving issues before project implementation.

Maryland Gubernatorial Executive Order 01.01.1998.04, Smart Growth and Neighborhood Conservation Policy, encourages federal agencies to adopt flexible standards that support "Smart Growth." In addition, Federal Executive Order 12072, Federal Space Management, directs federal agencies to locate facilities in urban areas. Consideration of these two Orders should be taken prior to making final site selections. A copy of Maryland Gubernatorial Executive Order 01.01.1998.04, Smart Growth and Neighborhood Conservation Policy is available upon request.

We have forwarded your project to the following agencies and/or jurisdictions for their review and comments: the Maryland Departments of Natural Resources, the Environment, Transportation, and General Services; Prince George's County; the Maryland-National Capital Park and Planning Commission in Prince George's; and the Maryland Department of Planning, including the Maryland Historical Trust. A composite review and recommendation letter will be sent to you by the reply due date. Your project has been assigned a unique State

August 24, 2020

Ms. Lizabeth Montgomery
NASA Goddard Space Flight Center
Code 250
8800 Greenbelt Road
Greenbelt, MD 20771

STATE CLEARINGHOUSE RECOMMENDATION

State Application Identifier: MD20200717-0623
Applicant: NASA Goddard Space Flight Center
Project Description: Pre-Environmental Assessment (EA) Scoping: The National Aeronautics and Space Administration (NASA) Goddard Space Flight Center (GSFC) Greenbelt Campus Master Plan, Including Demolition, Construction, Renovation, and General Infrastructure Maintenance and Improvement Activities Throughout the Campus
Project Address: NASA Goddard Space Flight Center, 8800 Greenbelt Road, Greenbelt, MD 20771
Project Location: Prince George's County
Recommendation: Consistent Contingent Upon Certain Actions

Dear Ms. Montgomery:

In accordance with Presidential Executive Order 12372 and Code of Maryland Regulation 34.02.02.04-.07, the State Clearinghouse has coordinated the intergovernmental review of the referenced project. This letter constitutes the State process review and recommendation.

Review comments were requested from the Maryland Departments of General Services, Natural Resources, Transportation, and the Environment; Prince George's County; the Maryland National Capital Parks and Planning Commission - Prince George's County; and the Maryland Department of Planning, including the Maryland Historical Trust. Prince George's County did not provide comments.

The Maryland Departments of General Services, and Transportation; and the Maryland National Capital Parks and Planning Commission - Prince George's County found this project to be consistent with their plans, programs, and objectives.

The Maryland Department of Planning included the following comment: "No comment on this scoping phase of the project."

The Maryland National Capital Parks and Planning Commission - Prince George's County included the following comments:

> "This project is consistent with the 2014 Plan Prince George's 2035 General Plan which designates this application in the Established Communities. The subject property is included in the 1989 Approved Langley Park-College Park-Greenbelt Master Plan. It is recommended that the Landscape Manual standards be followed to the extent possible. The north side of Greenbelt Road fronting the subject property does not contain a sidewalk facility. Sidewalks along the southern side of Greenbelt Road fronting the subject property are disconnected but provide pedestrian access in the area surrounding the subject property. Good Luck Road features sidewalks along both sides along its frontage of GSFC. In the immediate off-campus vicinity of GSFC, Greenbelt Road is designated as planned bicycle lane, Cipriano Road is designated as a planned shared roadway, and Good Luck Road is designated as a planned side path, all respectively per the 2009 Prince George's County Master Plan of Transportation. Greenbelt Road currently displays a shared lane marking for bicycle use approximately 550 feet west of its main entrance. It is recommended that pedestrian connectivity and walkability not be adversely affected with the proposed implementation of the GSFC Greenbelt Campus Master Plan and that facilities to make walking and bicycling safer and convenient along the Greenbelt Road and Good Luck Road/Soil Conversation Road be considered. Development of this site may be subject to Prince George's County Mandatory Referral review process."

The Maryland Historical Trust (MHT) stated that their finding of consistency is contingent upon the applicant's completion of the review process required under Section 106 of the National Historic Preservation Act, and included the following comments:

> "NASA will need to continue consultation with MHT pursuant to Section 106 of the National Historic Preservation Act, for the Master Plan implementation. The NASA Goddard Space Flight Center Greenbelt Campus includes a historic district eligible for inclusion in the National Register of Historic Places, as well as a designated National Historic Landmark - the Spacecraft Magnetic Test Facility."

The Maryland Department of the Environment (MDE) stated that their finding of consistency is contingent upon the applicant taking the actions summarized below.

1. "If the applicant suspects that asbestos is present in any portion of the structure that will be renovated/demolished, then the applicant should contact the Community Environmental Services Program at (410) 537-3215 to learn about the State's requirements.
2. Construction, renovation and/or demolition of buildings and roadways must be performed in conformance with State regulations pertaining to 'Particulate Matter from Materials Handling and Construction' requiring that during any construction and/or demolition work, reasonable precaution must be taken to prevent particulate matter, such as fugitive dust, from becoming airborne.
3. During the duration of the project, soil excavation/grading/site work will be performed; there is a potential for encountering soil contamination. If soil contamination is present, a permit for soil remediation is required from MDE. Please contact the New Source Permits Division at (410) 537-3230 to learn about the State's requirements.
4. Any above ground or underground petroleum storage tanks, which may be utilized, must be installed and maintained in accordance with applicable State and federal laws and regulations. Underground storage tanks must be registered and the installation must be conducted and performed by a contractor certified to install underground storage tanks by the Land Management Administration in accordance with COMAR 26.10. Contact the Oil Control Program at (410) 537-3442 for additional information.

5. If the proposed project involves demolition – Any above ground or underground petroleum storage tanks that may be on site must have contents and tanks along with any contamination removed. Please contact the Oil Control Program at (410) 537-3442 for additional information.
6. Any solid waste including construction, demolition and land clearing debris, generated from the subject project, must be properly disposed of at a permitted solid waste acceptance facility, or recycled if possible. Contact the Solid Waste Program at (410) 537-3315 for additional information regarding solid waste activities and contact the Waste Diversion and Utilization Program at (410) 537-3314 for additional information regarding recycling activities.
7. The Waste Diversion and Utilization Program should be contacted directly at (410) 537-3314 by those facilities which generate or propose to generate or handle hazardous wastes to ensure these activities are being conducted in compliance with applicable State and federal laws and regulations. The Program should also be contacted prior to construction activities to ensure that the treatment, storage or disposal of hazardous wastes and low-level radioactive wastes at the facility will be conducted in compliance with applicable State and federal laws and regulations.
8. Any contract specifying 'lead paint abatement' must comply with Code of Maryland Regulations. If a property was built before 1950 and will be used as rental housing, then compliance with COMAR 26.16.02 is required. Additional guidance regarding projects where lead paint may be encountered can be obtained by contacting the Environmental Lead Division at (410) 537-3825.
9. The proposed project may involve rehabilitation, redevelopment, revitalization, or property acquisition of commercial, industrial property. For specific information about these programs and eligibility, please contact the Land Restoration Program at (410) 537-3437.
10. Borrow areas used to provide clean earth back fill material may require a surface mine permit. Disposal of excess cut material at a surface mine may require site approval. Contact the Mining Program at (410) 537-3557 for further details.
11. Additional comments emailed to Sylvia Mosser [enclosed]."

The Maryland Department of Natural Resources stated that their finding of consistency is contingent upon the applicant taking the actions summarized below.

> "The NASA facility is within the Maryland Coastal Zone and is therefore subject to CZMA [Coastal Zone Management Area] federal consistency review. Please include a consistency determination in the draft EA.
>
> NASA is to be commended for proposing LEED [Leadership in Energy and Environmental Design]-certified buildings and reducing its overall footprint on the campus. Please include beyond compliance activities in the EA that demonstrate sustainability and stewardship beyond the building envelopment such as wetland protection and restoration, forest conservation, pervious pavement, rain gardens, and habitat protection."

The State Application Identifier Number must be placed on any correspondence pertaining to this project.

Please remember, you must comply with all applicable state and local laws and regulations. If you need assistance or have questions, contact the State Clearinghouse staff person noted above at 410-767-4490 or through e-mail at sylvia.mosser@maryland.gov.

Thank you for your cooperation with the MIRC process.

Sincerely,

Myra Barnes, Lead Clearinghouse Coordinator

MB:SM
Enclosure—MDE Additional Comments
cc:

Tony Redman - DNR	Ian Beam - MDOT	Kathleen Herbert - PGEO	Joseph Griffiths - MDPL
Amanda Redmiles - MDE	Tanja Rucci - DGS	Ivy Thompson - MNCPPCP	Beth Cole - MHT

20-0623_CRR.CLS.docx

Pre-Environmental Assessment Scoping: The National Aeronautics and Space Administration (NASA) Goddard Space Flight Center (GSFC) Greenbelt Campus Master Plan

Maryland Department of the Environment – WSA/IWPP

REVIEW FINDING: R2 Contingent Upon Certain Actions (MD2020 0717-0623)

Please be aware that the Master Plan area appears to interest Tier II High Quality Water catchments. In the event that construction occurs there are special protections for high-quality waters in the local vicinity, which are identified pursuant to Maryland's anti-degradation policy.

Anti-degradation of Water Quality: Maryland requires special protections for waters of very high quality (Tier II waters). The policies and procedures that govern these special waters are commonly called "anti-degradation policies." This policy states that "proposed amendments to county plans or discharge permits for discharge to Tier II waters that will result in a new, or an increased, permitted annual discharge of pollutants and a potential impact to water quality, shall evaluate alternatives to eliminate or reduce discharges or impacts." Satisfactory completion of the Tier II Antidegradation Review is required to receive numerous State permits, such as those for wastewater treatment, nontidal wetlands disturbance, waterways construction, and coverage under the general construction permit.

The Tier II review is applicable to all portions of the whole and complete project within the Tier II watersheds of Beaverdam Creek 2 and Bald Hill Branch 1. The review is, at a minimum, a two-step alternatives analysis process. The initial analysis considers if the activity can avoid any impacts to Tier II waters (alternative site or potentially by strategic design). The second analysis considers minimization alternatives to limit associated water quality degradation. This includes BMP considerations for erosion and sediment controls, mitigation for net loss of vital resources such as forest cover, and justification for unavoidable impacts. Under certain circumstances, MDE may require a third analysis which justifies the project based on social or economic rationale.

MDE is revising the overall Tier II review procedures by creating or updating forms to assist with the no-discharge alternatives analysis, minimization analysis, temporary impacts, and social and economic justification. Completion of these forms is required for permitting and other approvals.

Tier II No-Discharge Analysis Form V1.2:[1]

1. Code of Maryland Regulations (COMAR) 26.08.02.04-1 (G(1)) states that "If a Tier II antidegradation review is required, the applicant shall provide an analysis of reasonable alternatives that do not require direct discharge to a Tier II water body (no-discharge alternative). The analysis shall include cost data and estimates to determine the cost effectiveness of the alternatives".

2. For land disturbing projects that result in permanent land use change, this 'no discharge' analysis specifically evaluates the reasonability of other sites or alternate routes which could be developed to meet the project purpose, but are located *outside* of the Tier II watershed. Reasonability considerations, as applicable, may take into account property availability, site constraints, natural resource concerns, size, accessibility, and cost to make the property suitable for the project.

3. This analysis shall be performed regardless of whether or not the applicant has ownership or lease agreements to a preferred property or route.

Tier II Minimization Alternative Analysis Form V1.1:[2]

1. Code of Maryland Regulations (COMAR) 26.08.02.04-1 (G(3)) states that "If the Department determines that the alternatives that do not require direct discharge to a Tier II water body are not cost effective, the applicant shall: (a) Provide the Department with plans to configure or structure the discharge to minimize the use of the assimilative capacity of the water body".

2. This form helps to ensure that water quality impacts due to the proposed project are comprehensively identified, minimized, mitigated, and justified.

3. To demonstrate that appropriate minimization practices have been considered and implemented, applicants must identify any minimization practices used when developing the project, calculate major Tier II resource impacts, consider alternatives for impacts, and adequately justify unavoidable impacts. Further water quality impact minimization such as mitigation or out-of-kind offsets may be required.

Construction Stormwater Antidegradation Checklist - Version 1.1 :[3]

1. This form replaces the Tier II checklist, *Enhanced Best Management Practices for Tier II Waters*, distributed in the past.

---

[1] https://mde.maryland.gov/programs/Water/TMDL/WaterQualityStandards/Documents/Tier-II-Forms/TierII_NoDischargeAnalysis_Form_1.2.pdf
[2] https://mde.maryland.gov/programs/Water/TMDL/WaterQualityStandards/Documents/Tier-II-Forms/TierII_Minimization_Form_1.1.pdf
[3] https://mde.maryland.gov/programs/Water/TMDL/WaterQualityStandards/Documents/Tier-II-Forms/AntiDegradation%20Checklist%20V1.1.pdf

2. To complete the checklist, applicants are required to coordinate with the County or appropriate approval authority when developing construction plans and stormwater management plans.

3. Applicants are required to provide this form when seeking a NOI/DOI for coverage under the general construction permit. Other forms and documentation materials shall also be uploaded to the general construction permit site at this time.

Beaverdam Creek 2 and Bald Hill Branch 1, which are located within the vicinity of the Project, have been designated as Tier II streams. The Project is within the Catchments (watersheds) of the segment. (See attached map).

Currently, there is no assimilative capacity in the Bald Hill Branch 1 watershed. This means that recent data indicates that sometime after designation, the Tier II stream segment has degraded. Therefore, additional social and economic justification is needed. The SEJ is primarily a narrative that justifies the unavoidable impacts to water quality identified by the minimization alternatives analysis. A general outline of information required to complete the SEJ has been provided.

Planners should be aware of legal obligations related to Tier II waters described in the Code of Maryland Regulations (COMAR) 26.08.02.04 with respect to current and future land use plans. Information on Tier II waters can be obtained online at: http://www.dsd.state.md.us/comar/comarhtml/26/26.08.02.04.htm
and policy implementation procedures are located at
http://www.dsd.state.md.us/comar/comarhtml/26/26.08.02.04-1.htm

Planners should also note as described in the Code of Maryland Regulations (COMAR) 26.08.02.04-1(C), "Compilation and Maintenance of the List of High Quality Waters", states that "When the water quality of a water body is better than that required by water quality standards to support the existing and designated uses, the Department shall list the water body as a Tier II water body. *All readily available information may be considered to determine a listing. The Department shall compile and maintain a public list of the waters identified as Tier II waters*."

The public list is available in PDF from the following MDE website: http://mde.maryland.gov/programs/Water/TMDL/WaterQualityStandards/Documents/Tier_II_Updates/Antidegradation-Tier-II-Data-Table.pdf.

The interactive Tier II webmap is located at the following website: (https://mdewin64.mde.state.md.us/WSA/TierIIWQ/index.html).

Direct any questions regarding the Antidegradation Review to Angel Valdez via email at angel.valdez@maryland.gov, or by phone at 410-537-3606.

ADDITIONAL COMMENTS

Stormwater

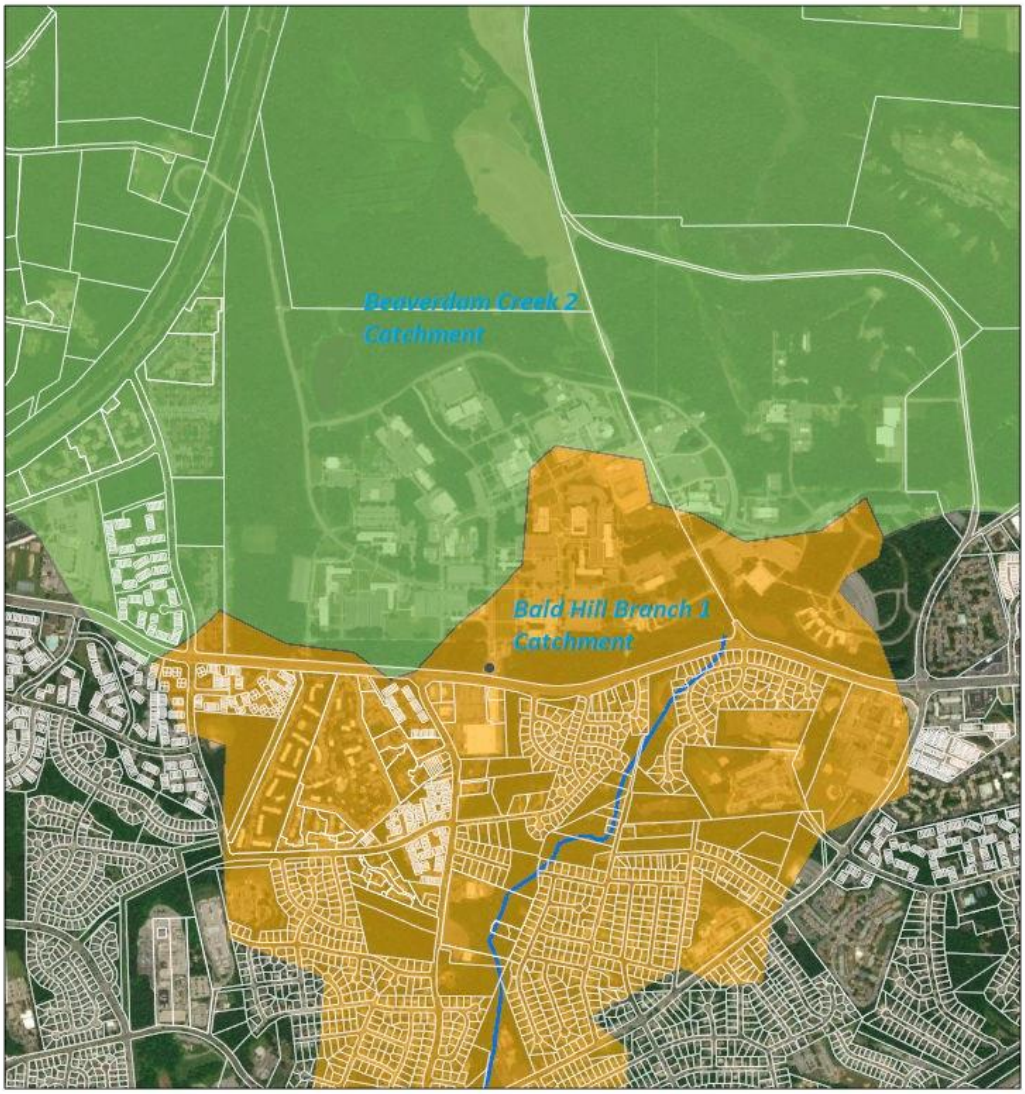
Planners should consider all Maryland Stormwater Management Controls and during Site Design the planner should consider all Environmental Site Design to the Maximum Extent Practicable and "Green Building" Alternatives. Designs that reduce impervious surface and BMPs that increase runoff infiltration are highly encouraged.

Further Information:
http://www.mde.state.md.us/programs/water/StormwaterManagementProgram/Pages/swm2007.aspx

Environmental Site Design (Chapter 5):
http://www.mde.state.md.us/programs/water/StormwaterManagementProgram/Documents/www.mde.state.md.us/assets/document/Design%20Manual%20Chapter%205%2003%2024%202009.pdf

Redevelopment Regulations:
http://www.dsd.state.md.us/comar/comarhtml/26/26.17.02.05.htm

MD2020 0717-0623



7/28/2020, 10:25:42 AM

1:23,072

0 0.15 0.3 0.6 mi

0 0.23 0.45 0.9 km

MD_ParcelBoundaries - Parcel Boundaries

Tier II Catchments 2016

- Assimilative Capacity Remaining
- No Assimilative Capacity Remaining
- Tier II Stream Segments 2016
- Tier II Baseline Stations 2016
- Maryland County Boundaries

Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community. Creator: Maryland Department of the Environment, Water and Science Administration (MDE WSA), MDE

Web AppBuilder for ArcGIS

USDA FSA | MDE | Creator: Maryland Department of the Environment, Water and Science Administration (MDE WSA) | MD iMAP, MDP |

Construction Stormwater Antidegradation Checklist – Version 1.1

This checklist is intended to be used as guidance for evaluating any portion of your construction site that is located with a watershed that is identified by the Department[1] or the EPA, as a Tier II for antidegradation purposes. This Checklist [2]is acceptable for use in documenting your antidegradation review and ensuring protection of Tier II resources during construction. This form, or other appropriate written evaluation, may be uploaded with your NOI or provided to the Industrial Stormwater Permits Division at the Maryland Department of the Environment. The information provided to the Department addresssing the antidegredation review shall be clearly marked on the erosion and sediment control (E&SC) plan and approved by the appropriate approval authority pursuant to COMAR 26.17.01.

Project Name: _____

General Permit Number (MD):_____ OR, if not available,

County or State ESC Plan Identifier: _____

County:_____ Site Map #_____ Parcel #_____

Applicant Signature: _____ Date Complete: _____

Do all Tier II watersheds impacted by the proposed activity have assimilative capacity(1)? If the proposed activity is to a stream segment which doesn't have assimilative capacity, you will need to consult with the Department's Tier II staff on available options and list the findings here. Comments: _____ _____ _____ _____	**Yes/No**
Were any waivers granted by the Approval Authority for stormwater controls for this project? For projects in Tier II watersheds, waivers need to be fully justified in light of the potential to impact water quality. A waiver that was granted that could lead to degradation would require modeling or other evidence that the lack of stormwater controls will not impact the receiving waters.	**Yes/No**
Verify whether you will meet the following minimum Stabilization Criteria. After initial soil disturbance or redisturbance, permanent (2011 ESC Handbook Section B-4-5) or temporary (2011 ESC Handbook Section B-4-4) stabilization is required within: i. Three (3) calendar days as to the surface of all perimeter controls, dikes, swales, ditches, perimeter slopes, and all slopes steeper than 3 horizontal to 1 vertical (3:1); and ii. Seven (7) calendar days as to all other disturbed areas on the project site except for those areas under active grading.	**Yes/No**

[1] Use the interactive Tier II webmap located at: https://mde.maryland.gov/programs/Water/TMDL/WaterQualityStandards/Pages/HighQualityWatersMap.aspx to assist you. On the map, Tier II watersheds colored orange have NO assimilative capacity.

[2] Alternative forms may be approved by the Department, if they contain the information in this checklist.

Verify Increased Inspection Frequency for activity within Tier II Watershed. For any portion of the site that discharges to a water that is identified by the Department as Tier II for antidegradation purposes, more frequent inspections are beneficial. Will you inspect at least once every four (4) calendar days?	**Yes/No**
Verify Piles are located outside the Stream Protection Zone. For stockpiles or land clearing debris piles composed, in whole or in part, of sediment and/or soil (2011 ESC Handbook Section B-4-8), locate the piles outside of any Stream Protection Zones.	**Yes/No**
Were there any E&SC exemptions to the requirements for Protections in the Stream Protection Zone below? Note: The list of potential exemptions are listed at the end of this checklist. If exemptions were applicable make sure to include them in the plan. Comments: _____ _____ _____	**Yes/No**
Have you Verified your Stream Protection Zone Considerations below? All additional controls selected in Compliance Alternative 2, to meet the Stream Protection Zone Considerations below shall be clearly marked on the erosion and sediment control (E&SC) plan and approved by the appropriate approval authority pursuant to COMAR 26.17.01. You are required to document in your E&SC plan where the natural buffer width that is retained (where you are implementing alternative 1 below) and you must document the reduced width of the buffer you will be retaining and document the additional erosion and sediment controls you will use (where you will be implementing alternative 2 below). Comments: _____ _____ _____	**Yes/No**
<u>Stream Protection Zone Alternative 1</u>: Provide and maintain an undisturbed natural buffer within the Stream Protection Zone (an average of 100 feet from edge of stream). Comments: _____ _____ _____	**Yes/No**
<u>Stream Protection Zone Alternative 2</u>: Provide and maintain an undisturbed natural buffer that is less than an average of 100 feet and is supplemented by additional erosion and sediment controls. The acceptable additional erosion and sediment controls include, but are not limited to, those listed in the 2011 ESC Handbook. Those controls are accelerated stabilization, redundant controls, upgraded controls, passive or active chemical treatment, or a reduction in the size of the grading unit. These options are provided below, which are the controls that must be considered and, once selected, implemented when construction activity occurs within these Stream Protection Zones. The local approval authorities may provide additional options that provide similar protection. Check each that apply below. Comments: _____ _____ _____ _____	**Yes/No**

□ ***a: Accelerated Stabilization Requirements***

Earth disturbance must be stabilized as soon as possible and as dictated by the approved plan (e.g., seed and mulch, soil stabilization matting, rip rap, sod, pavement):

- At a minimum, all perimeter controls (e.g., earth dikes, sediment traps) and slopes steeper than 3:1 require stabilization within three calendar days and all other disturbed areas within seven calendar days
- Accelerated stabilization (e.g., same day stabilization) may be required based on site characteristics or as specified by the approval authority

Comments: _____
_____

□ ***b: Redundant Controls***

Runoff must pass through two sediment control devices in series. The following are examples of possible combinations:

- When dewatering sump areas or sediment traps or basins, discharge sediment laden water first to a portable sediment tank and then a filter bag
- Install parallel rows of a perimeter filtering control or a combination thereof of silt fence, super silt fence, and filter logs (e.g., two rows of parallel silt fence or a row of filter log parallel to a row of super silt fence)

Comments: _____
_____

□ ***c: Upgrade Controls***

The following are examples of possible upgrades:

- Upgrade from silt fence to super silt fence
- Upgrade from temporary stone outlet structure to temporary gabion outlet structure
- Upgrade all sediment traps and basins to control additional storage volume; increase the required storage volume from 3,600 cubic feet/acre to 5,400 cubic feet/acre
- Upgrade standard inlet protection type A to type B and at grade inlet protection to gabion inlet protection

Comments: _____
_____

□ ***d: Passive or Active Chemical Treatment***

The use of chemical additives requires permit coverage and considerations related to potential aquatic toxicity. https://mdewwp.page.link/ChemAddReview.

Comments: _____
_____

□ ***e: Reduction in the Size of the Grading Unit***

- Require grading unit limitations to 10 acres of earth disturbance inside the Stream Protection Zone
- Require grading unit limitations to 20 acres for any earth disturbance that is adjacent to and contiguous with earth disturbances inside the Stream Protection Zone

Comments: _____
_____

□ ***f: Prerogative of Approval Authorities***

The additional controls described above for projects in Stream Protection Zones are examples of accelerated stabilization, redundant controls, upgraded controls, passive or active chemical treatment, or a reduction in the size of the grading unit. Approval authorities may use these examples as a guide when approving projects, but may also apply further erosion and sediment control measures based on local site conditions and best professional judgement.

Comments: _____
_____

Exemptions to the requirements for Protections in the Stream Protection Zone:

• The following disturbances within the Stream Protection Zone are exempt from the requirements this guidance:- Construction approved under a CWA Section 404 permit; or- Construction of a water-dependent structure or water access areas (e.g., pier, boat ramp, trail).

• If there is no discharge of stormwater to Waters of this State through the area between the disturbed portions of the site and receiving waters, you are not required to comply with the requirements in this guidance. This includes situations where you have implemented controls measures, such as a berm or other barrier, which will prevent such discharges.

• Where no natural buffer exists due to preexisting development disturbances (e.g., structures, impervious surfaces) that occurred prior to the initiation of planning for the current development of the site, you are not required to comply with the requirements in this guidance.

Where some natural buffer exists but portions of the area within the Stream Protection Zone are occupied by preexisting development disturbances, you <u>are</u> required to comply with the requirements in this guidance. Clarity about how to implement the compliance alternatives for these situations is provided upon request from the Department.

• For “linear construction sites” , you are not required to comply with this requirement if site constraints (e.g., limited right-of-way) make it infeasible to implement one of the above compliance alternatives, provided that, to the extent feasible, you limit disturbances within Stream Protection Zone. You must also document in the Checklist your rationale for why it is infeasible for you to implement one of the above compliance alternatives, and describe any buffer width retained and supplemental erosion and sediment controls installed.

Maryland Department of the Environment

Antidegradation Review Report Form

Alternatives Analysis – Minimization Alternatives

Purpose

This form is designed to help applicants assemble a complete Tier II Review report. This form specifically addresses calculating Tier II resource impacts, and evaluating alternatives that minimize water quality degradation from unavoidable impacts to Tier II watersheds and streams. This analysis is applicable to all areas of the **whole and complete project** within a Tier II watershed.

The Department will use this information to determine whether or not the applicant evaluated all reasonable alternatives to minimize water quality degradation. MDE may provide additional comments, conditions, or requirements, during the course of the review.

Fill in all that apply:

1. **Project Name:** _____
2. **County ESC Plan Identifier:** _____
3. **Nontidal Wetlands & Waterways Construction Tracking Number: 20206_ _ _ _**
4. **General Permit Number:** _____
5. **Other Application Type and Number:** _____

_____

Applicant Signature: _____ **Date Complete:** _____

Background

Code of Maryland Regulations (COMAR) 26.08.02.04-1 (G(3)) states that "If the Department determines that the alternatives that do not require direct discharge to a Tier II water body are not cost effective, the applicant shall: (a) Provide the Department with plans to configure or structure the discharge to minimize the use of the assimilative capacity of the water body".

To demonstrate that appropriate minimization practices have been considered and implemented, applicants must identify any minimization practices used when developing the project, calculate major Tier II resource impacts, consider alternatives for impacts, and adequately justify unavoidable impacts. Further water quality impact minimization such as mitigation or out-of-kind offsets may be required.

Additionally, applicants are required to coordinate with the County or appropriate approval authority when developing construction plans, and incorporate additional practices as indicated by the guidance provided in the *Construction Stormwater Antidegradation Checklist*. This checklist, as well as the other portions of the Tier II Review Report are required prior to receiving many permits and authorizations from MDE.

Instructions and Notes

1. Review all of the information in this document carefully. Prepare a report to address all of the analysis required by this document. Submit all Tier II analysis and documentation together.

2. Do not leave any response blank. Please mark "N/A" for any questions or sections that are not applicable until you reach the end of the document.

3. Provide sufficient supporting documentation for narratives.

4. The level of analysis necessary, and amount of documentation that may be needed to determine if impacts have been adequately addressed, is dependent upon project size, scope, and scale of relative impacts to Tier II resources. Please develop responses accordingly.

5. Reports/responses shall be submitted in electronic format, as well as paper. Full plans are not required unless requested over the course of the review.

6. Direct any questions regarding this form to Angel Valdez at angel.valdez@maryland.gov, or by phone at 410-537-3606.

Minimization Alternative Analysis Final Documentation Checklist

- ☐ Signature & Date MDE Tier II Alternatives Analysis – Minimization Alternative form (page 1)
- ☐ Resource Impact Analysis (**Complete the analysis for each Tier II watershed affected**)
  - ☐ Tier II Stream Buffer Impacts
    - Impact Calculation
    - Impact Minimization
    - Impact Mitigation
    - Impact Justification
    - Stream Buffer Exhibit
  - ☐ Forest Cover Impacts
    - Impact Calculation
    - Impact Minimization
    - Impact Mitigation
    - Impact Justification
    - Forest Cover Exhibit
  - ☐ Impervious Cover
    - Impact Calculation
    - Impact Minimization
    - Impact Mitigation
    - Impact Justification
    - Impervious Cover Exhibit
  - ☐ Mitigation & Other Potential Requirements
    - Plans
    - Signature & Date (Page 8)
- ☐ Construction Stormwater Antidegradation Checklist

Tier II Resource Impacts

Sufficient riparian buffers, ample watershed forest cover, and lower levels of impervious cover are essential to maintaining high quality waters. This project may permanently reduce riparian buffers and forest cover, or increase impervious cover within Tier II watersheds leading to a decrease in water quality. Depending upon project specific impacts, MDE may require monitoring, additional BMPs, expanded buffers in Table 1, and other studies prior to approval. This analysis is applicable to all areas of the **whole and complete project** within a Tier II watershed.

MDE will use the following information to determine **permanent** impacts to Tier II watershed resources. Complete the analysis for each Tier II watershed the proposed project may impact.

A. Tier II Stream Buffers

1. Instructions:
- **a. If no stream buffer impacts are proposed (within 100' of stream), mark this section N/A and proceed to Section B, Forest Cover.**
- **b. Insert the Tier II watershed name at the top of each box.**
- **c. "Impacted" stream segments are those disrupted by road crossings, other infrastructure, construction (ex. sewer lines), or otherwise buried**
- **d. Calculate buffer averages for 2(f) below on a stream segment-by-segment basis.**
- **e. Explain in detail alternatives considered, and any actions taken**

A. Tier II Stream Buffers - - Tier II Watershed: _____		
2. Calculation of Permanent Riparian Buffer Impacts to State Regulated Waters	**Linear Feet +/-**	
	LEFT Bank	**Right Bank**
a. Combined length of on-site stream segments:		
b. Combined length of EXISTING, pre-development, impacted stream segments:		
c. Combined length of PROPOSED, post-development, impacted stream segments:		
d. Total post-development impacted stream segments 2(b) + 2(c)=		
e. Total post-development unimpacted stream segments 2(a) - 2(d) =		
f. Combined length of streams, post-development, with an average 100' buffer, based on the value in 2(e):		
g. Potential Tier II Buffer Impacts 2(e) - 2(f) =		

A. Tier II Stream Buffers - - Tier II Watershed: _____

3. Buffer Impact Minimization:

Evaluate on-site alternatives for buffer impacts for segments identified in 2(g). Examples include minimizing ROW, narrowing paths, alternate routes for walkways, roads, crossings, etc. to avoid buffer impacts.

4. Buffer Impact Mitigation:

Mitigation or offsets can occur both on and off-site. On-site, the intent is to achieve a 100' average stream buffer width.

Per segment, locate areas where impacts to the 100' buffer are unavoidable. Include those impacts in the mitigation/offset alternatives analysis. Conditions under section D shall apply.

a) Evaluate on-site alternatives to identify areas where buffers could be expanded beyond the minimum 100' to offset areas of unavoidable buffer width constraints.
b) If there are no on-site areas, evaluate off-site areas, within the Tier II watershed, where buffers could be improved, expanded, or established.

5. Buffer Impact Justification:

If there are any remaining unavoidable impacts, provide narrative justification and supporting documentation for impacts. Reasons may include existing infrastructure, clearance necessary to comply with regulation, no alternative location for stormwater management, property boundary, etc.

6. Buffer Exhibit

Prepare a Tier II Buffer Exhibit for on-site streams. Dependent upon the number of segments, multiple sheets (8 ½" by 11") may be used. On an overview, label each segment (a, b, c…) and provide a tabular summary, per bank-segment (e.g., left bank of segment a), of average buffer width.

In addition to on-site streams, the exhibit shall display the following information:

- 100- foot riparian buffer. (symbolize with a line)
- Areas where the post-construction stream buffer are +/- 100 feet. (symbolize with shading, hatches, or dots, etc.)
- On-site areas where buffers could be maintained at a distance of greater than a 100' if there are unavoidable constraints in some locations. (symbolize with shading, hatches, or dots, etc.)

Table 1: Expanded Tier II Riparian Buffer

Adjusted Average Optimal Buffer Width Key (in Feet)				
	Slopes (%)			
Soils	0-5%	5-15%	15-25%	>25%
ab	100	130	160	190
c	120	150	180	210
d	140	170	200	230

B. Tier II Forest Cover
1. Instructions: **a. If there is no net forest cover loss within the impacted Tier II watershed, mark this section N/A and proceed to Section C, Impervious Cover.** **b. Insert the Tier II watershed name at the top of each box.** **c. "Potential Constraints" include forest loss due to ROW, property boundaries, regulatory requirements, etc.** **d. Explain in detail alternatives considered, and any actions taken**

B. Tier II Forest Cover - - Tier II Watershed: _____	
2. **Calculation of Permanent Forest Cover Impacts**	**Acres +/-**
a. Total on-site forest cover, EXISTING:	
b. Total on-site forest cover, POST-PROJECT:	
c. Total off-site reforestation or restoration, IN the Tier II Watershed listed above:	
d. Permanent forest loss due to potential constraints:	
e. Total forest cover retained in Tier II Watershed 2(b) + 2(c) =	
f. Total forest cover loss in Tier II Watershed 2(e) – 2(a) =	

B. Tier II Forest Cover - - Tier II Watershed: _____
3. Forest Cover Loss Minimization
If 2(d) is greater than 0, or if 2(f) is a negative value, evaluate on-site alternatives for forest cover impact minimization. Examples include minimizing ROW, alternate routes for roads, crossings, etc. to avoid forest cover impacts.
4. Forest Cover Loss Mitigation
To achieve no net negative impact as a result of the proposed activity, the applicant shall consider alternatives to mitigate impacts 'in-kind', for forest cover loss, to the maximum extent economically feasible. Provide additional information regarding the value in 2(c). Once those options are exhausted, applicants shall evaluate out-of-kind alternatives within the Tier II watershed that will help offset water quality impacts. These out-of-kind alternatives include impervious cover disconnection or retrofits, stream restoration, buffer enhancement, etc.
5. Forest Cover Loss Justification
If there are any remaining unavoidable impacts to forest cover, provide narrative justification and supporting documentation for impacts. Reasons may include existing infrastructure, clearance necessary to comply with regulation, no alternative location for stormwater management, property boundary, etc.
6. Forest Cover Exhibit
On an 8 ½" by 11" sheet(s), prepare an on-site Tier II Forest Cover Exhibit. Using varying symbology, show a basic site layout relative to 2(a), 2(b), and 2(d) above. Prepare a separate exhibit regarding any off-site reforestation, or out-of-kind mitigation opportunities in accordance with Section D.

C. Impervious Cover
1. Instructions: **a. If ESD is used to treat all new, on-site, post-construction stormwater, mark this section N/A and proceed to Section D, Mitigation and Other Potential Requirements.** **b. Insert the Tier II watershed name at the top of each box.** **c. Explain in detail alternatives considered, and any actions taken.**

C. Tier II Impervious Cover - - Tier II Watershed: _____	
2. Calculation of Impervious Cover Increase	**Acres +/-**
a. Total additional (new) impervious cover, POST-PROJECT:	
b. Total additional (new) impervious cover treated with ESD practices, POST PROJECT:	
c. Total impervious cover not treated with ESD practices, POST-PROJECT: *2(a) – 2(b) =*	

C. Tier II Impervious Cover - - Tier II Watershed: _____
3. Impervious Cover Minimization
If 2(c) is greater than 0, evaluate on-site alternatives for impervious cover impact minimization by identifying additional areas where ESD stormwater management practices can be utilized.
4. Impervious Cover Offsets
Add the area-acres of remaining unavoidable impervious cover increases (not treated with ESD) to the total targeted for mitigation under Section B(4). Increases such as these can be mitigated with forest cover restoration/afforestation, or through off-site mitigation alternatives such as impervious cover disconnection or retrofits, stream restoration, buffer enhancement, etc.
5. Impervious Cover Justification
If there is any remaining unavoidable addition of impervious surface acreage (not treated with ESD) and which is not offset, provide narrative justification and supporting documentation for impacts. Reasons may include existing infrastructure, clearance necessary to comply with regulation, no alternative location for stormwater management, property boundary, etc.
6. Impervious Cover Exhibit
On an 8 ½" by 11" sheet(s), prepare an on-site Tier II Impervious Cover Exhibit. Using varying symbology, show a basic site layout relative to 2(a), 2(b), and 2(c) above. Prepare a separate exhibit regarding any off-site reforestation, or out-of-kind mitigation opportunities in accordance with Section D.

D. Tier II Mitigation and Other Potential Requirements

1. If mitigation is necessary:

- **a. In-kind mitigation shall occur at a target ratio of 1:1.**
- **b. In order to satisfy the requirements of the Antidegradation Review, an applicant must demonstrate that they have conducted a robust alternatives analysis, <u>including mitigation</u> as a means for additional minimization of unavoidable impact to Tier II resources.**
- **c. MDE strongly recommends pre-application meetings.**
- **d. Regardless of application status, prepare preliminary analysis, including:**
  - **i. Preliminary site search for potential properties**
  - **ii. Basic exploration of out-of-kind possibilities, such as restoration, impervious cover retrofit or removal, etc.**
- **e. Mitigation is required for unavoidable net forest cover loss.**
- **f. The greater the net loss, the higher the restoration target.**

D. Tier II Mitigation and Other Potential Requirements

2. Mitigation Plan Components

a. <u>Statement of unavoidable impacts to Tier II waters</u>. This is total loss calculated in Section A (2)h, Section A(2)i, Section B (2)f, and Section C (2)c. Identify values specifically associates with stream buffers, forest cover, and impervious cover. Tabular totals shall be broken according to resource type and Tier II watershed impacted. The accompanying narrative shall include a summary of why impacts are considered unavoidable.

b. <u>Preferred mitigation alternatives analysis within the impacted Tier II watershed</u>. The order of mitigation alternatives is as follows:
   i. In-kind, on-site
   ii. In-kind, off-site
   iii. Out-of-kind, on-site
   iv. Out-of-kind, off-site

c. <u>Mitigation site alternative analysis</u>. Establish site search criteria. All locations must be located within the affected Tier II watershed identified for each unavoidable impact calculated in 2(a). Tabular totals shall include the amount of mitigation/offset selected alternatives achieve. Include maps of each mitigation property.

d. <u>Protection Mechanism</u>. Explain the plan proposed to ensure that all areas identified for mitigation shall be protected in perpetuity. Permittees shall be required to provide documentation in the form of covenants, landowner agreements, deed details, etc. as well as financial assurances. This shall be provided no more than 60 days after completion.

e. <u>Site Description</u>. Provide site address, name of property if known, map and parcel number, and centroid coordinates in latitude/longitude. Include maps of each mitigation property. Maps shall include natural resources (i.e. existing forest cover, streams, wetlands, etc.), roads, railways, and any other important identifying features. Maps shall include natural resources (i.e. existing forest cover, streams, wetlands, etc.), roads, railways, and any other important identifying features.

f. <u>Planting plan</u>: Reforestation shall incorporate optimum vegetation selection guidance provided in the *State Forest Conservation Technical Manual, 3rd edition, 1997 by Maryland Department of Natural Resources*.

D. Tier II Mitigation and Other Potential Requirements
2. Mitigation Plan Components, Continued
g. Monitoring Reports. Properties shall be monitored for a minimum of five years to ensure site success. Reports shall provide visuals of establishment progress, as well as narrative descriptions. Include any issues encountered, overcome, and potential changes that may be necessary to meet objectives.

D. Tier II Mitigation and Other Potential Requirements
3. Other Potential Requirements
a. pH Monitoring and Corrective Action Plan. Often associated with in-stream grout activities. b. Compaction Management Plan. Often associated with linear activities, such as pipelines. c. Water Quality Monitoring and Corrective Action Plan. Associated with projects with in-stream impacts. d. Biological Monitoring. Project requirement for complex projects with direct or significant impacts. e. Hydraulic Analysis. Projects may include direct or significant near-stream disturbances, such as grading, vegetative removal, watershed boundary changes, etc. f. Other requirements. To address unique impacts specific to the activity or site. g. Social and Economic Justification. Depending upon the scope of impacts to Tier II resources and streams, applicants may be required to provide additional documentation to justify the permitting of an activity that will degrade Tier II streams, on an socio-economic basis.

Applicant Signature: _____ Date: _____

Provide a hardcopy responses to:

Maryland Department of the Environment
Environmental Assessment and Standards Program
Antidegradation Implementation Coordinator
ATTN: Angel D. Valdez
1800 Washington Blvd
Baltimore, Maryland 21230

Provide an electronic response, by CD to the address above, or a way to download the response from secure cloud-based site, email: to Angel Valdez at angel.valdez@maryland.gov.

Maryland Department of the Environment

Antidegradation Review Report Form

Alternatives Analysis - No Discharge Alternative

Purpose

This form is designed to help applicants assemble a complete Tier II Review report. This form specifically addresses evaluating alternatives that avoid impacts to Tier II watersheds and streams. It is strongly recommended that applicants complete this analysis as early in the project planning stages as possible, during initial property site search and screening analysis of purchase and feasibility alternatives.

The Department will use this information to determine whether or not an adequate alternatives analysis was conducted, and to help determine if a reasonable alternative to the proposed activity is available. MDE may provide additional comments during the course of the review.

Fill in all that apply:

1. **Project Name:** _____
2. **County ESC Plan Identifier:** _____
3. **Nontidal Wetlands & Waterways Construction Tracking Number: 20206_ _ _ _**
4. **General Permit Number:** _____
5. **Other Application Type and Number:** _____

_____

Applicant Signature: _____ **Date Complete:** _____

Background

Code of Maryland Regulations (COMAR) 26.08.02.04-1 (G(1)) states that "If a Tier II antidegradation review is required, the applicant shall provide an analysis of reasonable alternatives that do not require direct discharge to a Tier II water body (no-discharge alternative). The analysis shall include cost data and estimates to determine the cost effectiveness of the alternatives".

For land disturbing projects that result in permanent land use change, this 'no discharge' analysis specifically evaluates the reasonability of other sites or alternate routes which could be developed to meet the project purpose, but are located *outside* of the Tier II watershed. Reasonability considerations, as applicable, may take into account property availability, site constraints, natural resource concerns, size, accessibility, and cost to make the property suitable for the project. This analysis shall be performed regardless of whether or not the applicant has ownership or lease agreements to a preferred property or route.

Information from this analysis may be used to inform minimization analysis.

Instructions and Notes

1. Complete the analysis for each Tier II watershed impacted.
2. Review the information in this document carefully. Prepare a report to address all of the analyses required by this document. Submit all Tier II analysis and documentation at one time.
3. To help improve review efficiency and avoid delays, do not leave any response blank. Please use "N/A" for any questions or sections that are not applicable.
4. Provide sufficient supporting documentation for narratives.
5. The level of analysis necessary, and amount of documentation that may be needed to make a decision is dependent upon project size, scope, and scale of relative impacts to Tier II resources. Please develop responses accordingly.
6. Reports/responses shall be submitted in electronic format, as well as paper. Full plans are not required unless requested over the course of the review.
7. Direct any questions regarding this form to Angel Valdez at angel.valdez@maryland.gov, or by phone at 410-537-3606.

No Discharge Alternative Analysis Final Documentation Checklist

- ☐ Signed & Dated MDE Tier II Alternatives Analysis – No Discharge Alternative form (page 1)
- ☐ Qualifying Exemptions with supporting documentation
- ☐ General Project Purpose Statement with relevant definitions
- ☐ Alternative Site Reasonability Analysis
  - ☐ Results of initial site search
  - ☐ Map of alternatives relative to preferred site and Tier II streams/catchment
  - ☐ Alternative Sites Summary Analysis Table Supplementary Information (per site)
  - ☐ Detailed Narrative of Alternate Analysis Outcome
- ☐ Alternative Route Reasonability Analysis
  - ☐ Results of initial site search
  - ☐ Map of all alternatives relative to preferred route and Tier II streams/catchment
  - ☐ Alternative Sites Summary Analysis Table Supplementary Information (per site)
  - ☐ Detailed Narrative of Alternate Analysis Outcome
- ☐ Narrative rationale for final decision of reasonableness

Qualifying Exemptions

For the purposes of the no discharge analysis for land disturbing activities, extenuating circumstances may apply to projects that are developed to address a specific need, may be linked to special funding, or linked to a specific location. Supporting documentation is required before consideration. Please read the following examples and determine whether or not a given situation is applicable.

The applicant must get concurrence from MDE as to the applicability of any special circumstances prior to completing the no discharge alternatives analysis. It is at the Department's discretion to determine whether a special circumstance applies, and whether or not this applicability means that there is not a reasonable alternative that avoids the Tier II watershed.

If none of the special circumstances apply, check "**Not Applicable**".

☐ **Not Applicable**

☐ **Situation 1:** Project is linked to unique or special incentives for State, County, or Municipality

Example: County needs for 1000 units of low-income senior housing in legislative district 7. Documentation must include the request for proposals (RFP) or similar missive to meet the housing need, and unique benefits or incentives lost if the project is moved outside of legislative district 7.

Example: Project is located in a State Designated Priority Funding Area, State Designated Enterprise Zone, or similar area targeted by the State for economic growth, business development, or investment.

☐ **Situation 2:** Project has location specific limitations

Example: College campus extension. Education capital funding limits development to sites that are within 5 miles of the main campus. Documentation should include the RFP or similar documentation.

Example: Project is taking place in an existing right of way, or using an area that is currently operational. Such projects include replacing transmission lines, expanding operations on a working farm or business center.

☐ **Situation 3:** Military project (or similar) with restrictions due to national security, etc.

Example: Construct a new runway and hangar for Air Force 1. The military may identify a certain location or base where this construction shall occur due to existing facilities, support personnel, and security concerns.

☐ **Situation 4:** Project has little to no resource impacts.

Example: Repair or replacement of existing structures, road resurfacing, bridge maintenance using scaffolding, General Waterways Construction Permits, habitat restoration, rehabilitation, and stabilization.

☐ **Situation 5:** Project is a "Grandfathered" development, that meets the specifications within Chapter 1.2, in the *Maryland Model Stormwater Management Ordinance, June 2009 & April 2010*

Administrative waivers, extension documentation, etc. are required documentation.

Note -This exemption does not apply to linear projects like roads or pipelines. Grandfathered projects are not exempt from the minimization alternatives analysis.

General Project Purpose Statement

1. Define the overall project purpose and site selection criteria. To result in a fair and meaningful analysis for the antidegradation review the site selection criteria must fall into the following parameters:
    a. The statement must not be so narrowly constructed as to limit the results to one site with no other possible alternatives, or
    b. Likewise, the statement cannot be too broadly written creating too many alternatives to effectively consider.

2. Example Statements
    a. Too Narrow: To develop a high density residential housing complex consisting of 1000 living units on a 200 acre site adjacent to the Mall of Maryland. –- The likelihood that there are multiple properties other than the desired alternative available are unlikely, and this eliminates the possibility of properties outside of the Tier II watershed.
    b. Too Broad: To develop a residential housing complex in Charles County. –- This will yield hundreds of results, creating a burdensome and unrealistic amount of work to evaluate each alternative.**
    c. Reasonable: To develop a residential housing complex near a major shopping center in Northern Charles County. –- This will reduce the number of available properties to a more manageable amount, while still meeting the overall purpose of providing housing near a retail center in a target geographic area. The applicant can further refine the statement by defining "near", "major shopping center", and "Northern Charles County".

3. The applicant must craft a statement that yields at least 3 available alternative properties for further evaluation.

4. The level of detail for the alternative analysis process should appropriately match the complexity of the project taking into consideration factors such as resource impacts to Tier II watersheds in terms of impervious cover, forest cover loss, riparian buffer impacts, public comment, etc. For example, the amount of documentation provided for 3 alternatives to place a single dwelling on one acre is expected to be significantly less than the documentation expected for a 300 acre mixed-use development.

    **Based on comments received during the review or other mitigating circumstances, the Department may require the applicant to evaluate additional alternatives, or provide a more in-depth analysis.

Table 1: Alternative Site Evaluation Summary Analysis Table			
Evaluate each criteria listed in the left hand column for each alternative site. Populate each box with the appropriate conditions, i.e. either yes/no, or by listing one or more of the options provided (a, b, c…), such as types of utilities available at a given site.			
	Site 1	**Site 2**	**Site 3**
Availability: a. Owned by applicant b. For sale c. Special, please explain (example: remediation required)			
Sizing appropriate: a. As is b. Purchase of adjoining property/ROW required			
Accessible Utilities: a. Electric b. Water c. Sewer d. Site access (existing road/bridge, etc.). e. None			
Development Resources: a. Existing SWM b. Existing buildings/structures c. Site cleared			
Zoning: a. Appropriate b. Waiver required			
Resource Impacts: a. Streams b. Forest c. Wetlands/wetlands buffer d. 100-yr flood plain			
Cost to Acquire is Reasonable: Yes or No			

Alternative Sites Summary Analysis Table Supplementary Information:

1. Explanation of site search criteria and rationale.
    a. Relate project requirements to the criteria in Table 1.
    b. Include any additional critical criteria not identified in the above table.

2. Results of initial site search.
    a. List the available sites for consideration before the applicant chose 3 for further evaluation.
    b. Include a brief narrative description of each site.
    c. Include a table listing basic site address, lot size, parcel and map.
    d. Include an overview map showing sites and their relative location to the preferred property.
    e. If available, include Real Property Search Data (From Maryland Department of Assessments and Taxation (http://sdat.dat.maryland.gov/RealProperty/Pages/default.aspx), or MLS (Multiple Listing Service) information.

3. Expand upon the responses in Table 1.
    a. Include a narrative that clearly explains how the applicant determined the final 3 sites for further consideration in Table 1.
    b. Provide basic information about each site, i.e. land use, land cover, unique features, on-site resources such as streams, wetlands, relevant geology and/or hydrology, etc.
    c. Discuss specific resource impacts.
        i. Include a table that further breaks down the resource impacts associated with the 3 alternative sites.
        ii. Include a narrative that further details whether resources could be avoided. For example, an on-site stream that will most likely be crossed to accommodate site access would make that site less favorable when compared to another option.

4. Justify final site decision.

Table 1: Alternative Route Evaluation Summary Analysis Table (use for linear projects such as roads, utility lines, etc)			
Evaluate each criteria listed in the left hand column for each alternative site. Populate each box with the appropriate conditions, i.e. either yes/no, or by listing one or more of the options provided (a, b, c…), such as types of utilities available at a given site.			
	Site 1	**Site 2**	**Site 3**
Availability: a. ROW Owned by applicant b. ROW can be acquired or leased c. Other, please explain			
Accessible Utilities (i.e. where connecting infrastructure is required): a. Electric b. Water c. Sewer or pipeline d. Site access (existing road/bridge, etc.). e. None			
Zoning: a. Appropriate b. Waiver required			
Resource Impacts: a. Streams b. Forest c. Wetlands/wetlands buffer d. 100-yr flood plain			
Cost to Acquire is Reasonable: Yes or No			

Alternative Route Summary Analysis Table Supplementary Information:

1. Explanation of route search criteria and rationale.
    a. Relate project requirements to the criteria in Table 1.
    b. Include any additional critical criteria not identified in the above table. For example, if the purpose of the project is to improve public safety, documentation must be provided to support this claim. For a new road this may include data on accidents, visibility issues, or geometric design issues that can complicate travel.

2. Results of initial route search.
    a. List the available routes for consideration before the applicant chose 3 for further evaluation.
    b. Include a brief narrative description of each route.
    c. Include a table listing route start and end addresses, parcel and map, land use (i.e. residential neighborhood, commercial district, etc.)
    d. Include an overview map showing results and their relative location within the impacted Tier II watershed.

3. Expand upon the responses in Table 1.
    a. Include a narrative that clearly explains how the applicant determined the final 3 sites for further consideration in Table 1.
    b. Provide basic information about each site, i.e. land use, land cover, unique features, on-site resources such as streams, wetlands, etc.
    c. Discuss specific resource impacts.
        i. Include a table that further breaks down the resource impacts associated with the 3 alternative routes. For example identify the number of streams on-site, potential forest loss for site clearing, etc.
        ii. Include a narrative that further details whether resources could be avoided. For example, an on-site stream that will most likely be crossed to accommodate site access would make that site less favorable when compared to another option. Note: In making a final decision, MDE may take into consideration whether or not the project can avoid the impact by going over it (i.e. bridge) or under it (i.e. drilling). Consider this in the resource impact evaluation. The method of crossing may be a special permit condition.

4. Justify final route decision.

Provide a hardcopy responses to:

Maryland Department of the Environment
Environmental Assessment and Standards Program
Antidegradation Implementation Coordinator
ATTN: Angel D. Valdez
1800 Washington Blvd
Baltimore, Maryland 21230

Provide an electronic response, by CD to the address above, or a way to download the response from secure cloud-based site, email: to Angel Valdez at angel.valdez@maryland.gov.

Maryland Department of the Environment
Antidegradation Review Report Form
Social and Economic Justification – Outline for Basic Projects

Purpose

This form is designed to help applicants assemble a complete social and economic justification (SEJ) to complete the Antidegradation Tier II Review when there are certain unavoidable impacts to water quality. Pursuant to COMAR 26.08.02.04-1 (J), applicants must submit an SEJ if "(a) No cost effective alternative to the discharge is available; or (b) The cumulative degradation resulting from nonpoint source pollution and any other permitted discharges would diminish water quality". Therefore, if impacts cannot be fully avoided, minimized, or mitigated, the applicant may have to provide MDE with an SEJ. The SEJ must demonstrate that an economic hardship and/or public benefit overrides the value of the ecological services or water quality benefit that the Tier II water segment provides. The applicant must also provide documentation to show that all reasonable avoidance, minimization, and mitigation alternatives have been considered, and where economically feasible, implemented.

The Department will use this information to determine whether or not the SEJ is complete, if it adequately justifies the impact to water quality, and to make a final permit determination. MDE may provide additional comments during the course of the review.

- **Introduction**
  - Project Summary
  - Impacts
  - Antidegradation Policy
  - Document purpose

- **Socioeconomic Contributions of the Project**
  - Economic Importance and Benefit
    - Economic Impacts- During Construction
    - Economic Impacts –During Operations
    - Fiscal Impacts –Development Phase
    - Fiscal Impacts –During Operations
  - Social Importance and Benefit
    - Widespread social benefits to the community affected
    - Contributions to environment

- **Socioeconomic Benefits of High Quality Waters (as applicable)**
  - Social importance and benefit
    - Impacts on property value
    - Recreation value
    - Other quality of life benefits
  - General Evaluation of Economic Impacts of Restoring Degraded Stream Resources, including impacts to resources necessary to maintain high quality waters
    - Costs of 1:1 in-kind mitigation for all net forest cover loss based on area market value
    - Estimated cost of stream restoration, per linear foot, based on area market value

- **Conclusion**

- **References & Appendices as needed**

Application Identifier that you should use on all documents and correspondence. Please be assured that we will expeditiously process your project.

If you need assistance or have questions, contact the State Clearinghouse staff noted above at 410-767-4490 or through e-mail at sylvia.mosser@maryland.gov. Thank you for your cooperation with the MIRC process.

Sincerely,

Jason Dubow, Manager
Resource Conservation and Management

JD:SM

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Appendix B
Gross Square Footage of Master Plan Buildings

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Proposed Demolition Projects on the Main Campus		
Building Number	**Building Footprint (ft^2)**	**Building Gross Footage**
1	35,900	79,150
1A	2,600	3,166
3	52,000	113,791
4	43,588	50,280
4A	234	234
4B	234	234
4C	280	280
4D	281	281
4E	279	279
4F	262	262
4H	142	142
5	132,700	200,530
7	67,400	163,578
8	20,500	108,740
9	3,600	7,237
13	35,700	84,197
14	29,900	99,373
15	37,900	49,993
18	22,150	42,148
18B	150	138
19	21,760	24,503
19A	140	121
20	26,400	34,588
25	35,550	71,767
25A	2,015	3,040
25B	325	345
25C	625	625
25E	385	388
27	13,750	13,747
27A	3,700	3,706
27B	450	449
27C	3,625	3,639
27D	200	202
27E	375	382
79	4,600	5,195
90	9,725	9,700
90A	1,215	1,217
90B	150	149
90C	100	96
90D	10	8
95	1,500	1,500
97	12,000	12,000
	624,400	***1,191,400***

Proposed Demolition Projects in the Areas off the Main Campus			
Location	**Building Number**	**Building Footprint (ft^2)**	**Building Gross Footage (ft^2)**
Area 100			
	X102G	600	600
	104	1,300	1,300
	X104E	200	200
	T100	1,400	1,400
	T101	1,400	1,400
	T102	1,400	1,400
Area 200			
	202	underground	634
	203	300	300
	205	600	900
	206	1,800	1,800
	207	1,100	1,100
	209	400	400
	210	400	400
	215	300	300
	217	400	400
	T211	400	400
Area 300			
	306	1,600	1,600
	307	900	900
Area 400			
	401	400	400
	402	1,500	1,500
	403	400	400
	405	2,500	2,500
	407	800	800
	408	100	100
	414	900	900
	415	400	400
	416	1,400	1,400
		22,900	***23,900***

Proposed Construction Projects on the Main Campus		
Building Number	**Building Footprint (ft^2)**	**Number of Floors**
A	80,000	3.5
B	40,000	3
C	60,000	1
D	22,000	2
E	22,000	2
F	22,000	2
G	22,000	2
H	45,000	4
I	40,000	1
J	22,000	1
K	**	**
L	**	**
	375,000	

Note: **facility size has not been established.

Appendix C
Air Quality Calculations

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TAB A. **CONSTRUCTION EMISSIONS**

Basic Conversions

453.59	grams per pound
43,560	Conversion from Acre to SF
0.03704	Cubic feet to Cubic Yards
0.1111	Square Feet to Square Yards
1.4	tons/CY for Gravel
80,000	lbs/Truck Load for Delivery
1.66	CY for each CY of asphalt/concrete demo
0.33333333	asphalt thickness for demolition
0.33333333	asphalt thickness for pavement
2000	pounds per ton
145	lb/ft^3 density of Hot Mix Asphalt

Table 1.1 **Demolition** 22,125 SF

Off-road Equipment	Hours of Operation	Engine HP	Load Factor	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO_2 g/hp-hr	PM10 g/hp-hr	PM2.5 g/hp-hr	CO_2 g/hp-hr
Dozer	60	145	0.58	0.38	1.41	4.17	0.12	0.30	0.29	536
Loader/Backhoe	60	87	0.21	1.43	7.35	6.35	0.15	1.06	1.03	692
Small Backhoe	60	55	0.21	1.43	7.35	6.35	0.15	1.06	1.03	692

	VOC lb	CO lb	NOx lb	SO2 lb	PM10 lb	PM2.5 lb	CO_2 lb
Dozer	4.19	15.73	46.43	1.28	3.29	3.19	5,959
Loader w/integral Backhoe	3.46	17.76	15.34	0.36	2.57	2.49	1,672
Small backhoe	2.19	11.23	9.70	0.23	1.62	1.58	1,057
Subtotal in lbs	10	45	71	2	7	7	8,688
Demo Total in Tons	**0.00**	**0.02**	**0.04**	**0.00**	**0.00**	**0.00**	
Demo Total in Metric Tons							**4**

111 Truck trips

Table 1.2 **Demolition - Hauling** 20 miles per trip

On-road Equipment	Miles	Engine HP	VOC lb/mile	CO lb/mile	NOx lb/mile	SO_2 lb/mile	PM10 lb/mile	PM2.5 lb/mile	CO_2 lb/mile
Dump Truck (12 CY)	2,213	230	0.0015	0.0080	0.0361	0.0000	0.0015	0.0015	3.4385

	VOC lb	CO lb	NOx lb	SO2 lb	PM10 lb	PM2.5 lb	CO_2 lb
Dump Truck (12 CY)	3.37	17.79	79.80	0.04	3.33	3.23	7,608
Subtotal in lb:	3	18	80	0	3	3	7,608
Site Prep Grand Total in Tons	**0.00**	**0.01**	**0.04**	**0.00**	**0.00**	**0.00**	
Site Prep Grand Total in Metric Tons							**3**

8 working days

10 Trips per day

Table 1.3 **Demolition - Worker Trips** 10 miles per trip

On-road Equipment	Miles	Engine HP	VOC lb/mile	CO lb/mile	NOx lb/mile	SO_2 lb/mile	PM_{10} lb/mile	$PM_{2.5}$ lb/mile	CO_2 lb/mile
Light-duty Truck	800	230	0.0015	0.0080	0.0361	0.0000	0.0015	0.0015	3.4385

	VOC lb	CO lb	NOx lb	SO2 lb	PM10 lb	PM2.5 lb	CO_2 lb
Dump Truck	1.22	6.43	28.86	0.01	1.20	1.17	2,751
Subtotal (lbs):	1	6	29	0	1	1	2,751
Excavation Hauling Grand Total in Tons	**0.00**	**0.00**	**0.01**	**0.00**	**0.00**	**0.00**	
Excavation Hauling Grand Total in Metric Tons							**1**

Table 1.4 **Clearing** 1 acres

Off-road Equipment	Hours of Operation	Engine HP	Load Factor	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO_2 g/hp-hr	PM10 g/hp-hr	PM2.5 g/hp-hr	CO_2 g/hp-hr
Dozer	12	145	0.58	0.38	1.41	4.17	0.12	0.30	0.29	536
Loader/Backhoe	12	87	0.21	1.43	7.35	6.35	0.15	1.06	1.03	692
Small Backhoe	12	55	0.21	1.43	7.35	6.35	0.15	1.06	1.03	692

	VOC lb	CO lb	NOx lb	SO2 lb	PM10 lb	PM2.5 lb	CO_2 lb
Dozer	0.81	3.04	8.97	0.25	0.64	0.62	1,151
Loader w/integral Backhoe	0.67	3.43	2.96	0.07	0.50	0.48	323
Small backhoe	0.42	2.17	1.87	0.04	0.31	0.30	204

20 miles RT

On-road Equipment	Miles	Engine HP	VOC lb/mile	CO lb/mile	NOx lb/mile	SO_2 lb/mile	PM_{10} lb/mile	$PM_{2.5}$ lb/mile	CO_2 lb/mile
Dump Truck (12 CY)	1,333	230	0.0015	0.0080	0.0361	0.0000	0.0015	0.0015	3.4385

	VOC lb	CO lb	NOx lb	SO2 lb	PM10 lb	PM2.5 lb	CO_2 lb
Dump Truck	2.03	10.72	48.09	0.02	2.01	1.94	4,585
Subtotal in lbs	4	19	62	0	3	3	6,263
Clearing Grand Total in Tons	**0.00**	**0.01**	**0.03**	**0.00**	**0.00**	**0.00**	
Clearing Grand Total in Metric Tons							**3**

Table 1.5 **Site Prep**

Grading (SY) 14,520 SY

Off-road Equipment	Hours	Engine HP	Load Factor	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO_2 g/hp-hr	PM10 g/hp-hr	PM2.5 g/hp-hr	CO_2 g/hp-hr
Skid Steer Loader	24	160	0.23	0.38	1.47	4.34	0.12	0.31	0.30	536
Dozer (Rubber Tired)	24	145	0.59	0.38	1.41	4.17	0.12	0.30	0.29	536
Compactor	24	103	0.58	0.40	1.57	4.57	0.12	0.32	0.31	536
Grader	24	285	0.58	0.34	1.21	4.07	0.12	0.23	0.22	536

	VOC lb	CO lb	NOx lb	SO2 lb	PM10 lb	PM2.5 lb	CO_2 lb
Skid Steer Loader	0.75	2.86	8.45	0.22	0.59	0.58	1,043
Dozer (Rubber Tired)	1.70	6.40	18.89	0.52	1.34	1.30	2,425
Compactor	1.25	4.96	14.43	0.36	1.01	0.98	1,693
Grader	3.01	10.56	35.60	1.01	1.97	1.91	4,686
Subtotal in lb:	7	25	77	2	5	5	9,847
Site Prep Grand Total in Tons	**0.00**	**0.01**	**0.04**	**0.00**	**0.00**	**0.00**	
Site Prep Grand Total in Metric Tons							**4**

Table 1.6 **Gravel Work** 192 CY

Off-road Equipment	Hours	Engine HP	Load Factor	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO_2 g/hp-hr	PM_{10} g/hp-hr	$PM_{2.5}$ g/hp-hr	CO_2 g/hp-hr
Dozer	2	185	0.59	0.34	1.21	4.08	0.12	0.23	0.22	536
Wheel Loader for Spreading	3	87	0.59	0.35	1.25	4.23	0.12	0.24	0.23	536
Compactor	6	103	0.43	0.36	1.34	4.45	0.12	0.26	0.25	536

	VOC lb	CO lb	NOx lb	SO2 lb	PM10 lb	PM2.5 lb	CO_2 lb
Dozer	0.17	0.58	1.96	0.06	0.11	0.11	258
Wheel Loader for Spreading	0.12	0.42	1.44	0.04	0.08	0.08	182
Compactor	0.21	0.78	2.61	0.07	0.15	0.15	314

20 miles RT

On-road Equipment	Miles	Engine HP	VOC lb/mile	CO lb/mile	NOx lb/mile	SO_2 lb/mile	PM_{10} lb/mile	$PM_{2.5}$ lb/mile	CO_2 lb/mile
Dump Truck (12 CY)	319	230	0.0015	0.0080	0.0361	0.0000	0.0015	0.0015	3.4385

	VOC lb	CO lb	NOx lb	SO2 lb	PM10 lb	PM2.5 lb	CO_2 lb
Dump Truck	0.49	2.57	11.51	0.01	0.48	0.47	1,098
Subtotal (lbs):	**1**	**4**	**18**	**0**	**1**	**1**	**1,851**
Gravel Work Grand Total in Tons	**0.00**	**0.00**	**0.01**	**0.00**	**0.00**	**0.00**	
Gravel Work Grand Total in Metric Tons							**1**

Table 1.7 **Concrete Work**

Total 883 CY

Off-road Equipment	Hours of Operation	Engine HP	Load Factor	Emission Factors VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO_2 g/hp-hr	PM10 g/hp-hr	PM2.5 g/hp-hr	CO_2 g/hp-hr
Concrete Mixer	60	3.5	0.43	0.69	3.04	6.17	0.13	0.54	0.52	588
Concrete Truck	60	300	0.43	0.38	1.75	6.18	0.11	0.27	0.26	530

	Annual Emissions VOC lb	CO lb	NOx lb	SO2 lb	PM10 lb	PM2.5 lb	CO_2 lb
Concrete Mixer	0.14	0.61	1.23	0.03	0.11	0.10	117.12
Concrete Truck	6.48	29.79	105.50	1.95	4.59	4.45	9,042.03
Subtotal (lbs):	**7**	**30**	**107**	**2**	**5**	**5**	**9,159**
Concrete Work Grand Total in Tons	**0.00**	**0.02**	**0.05**	**0.00**	**0.00**	**0.00**	
Concrete Work Grand Total in Metric Tons							**4**

20 miles RT

On-road Equipment	Miles	Engine HP	VOC lb/mile	CO lb/mile	NOx lb/mile	SO_2 lb/mile	PM_{10} lb/mile	$PM_{2.5}$ lb/mile	CO_2 lb/mile
Concrete Truck	1,962	230	0.0015	0.0080	0.0361	0.0000	0.0015	0.0015	3.4385

	VOC lb	CO lb	NOx lb	SO2 lb	PM10 lb	PM2.5 lb	CO_2 lb
Concrete Truck	2.98	15.78	70.76	0.04	2.95	2.86	6,745
Subtotal (lbs):	**3**	**16**	**71**	**0**	**3**	**3**	**6,745**
Concrete Truck Travel Grand Total in Tons	**0.00**	**0.01**	**0.04**	**0.00**	**0.00**	**0.00**	
Concrete Truck Travel Grand Total in Metric Tons							**3**

Table 1.8 **Main Building Construction**

10,000 SF Foundation
10,000 SF Total

Off-road Equipment	Hours of Operation	Engine HP	Load Factor	Emission Factors VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO_2 g/hp-hr	PM10 g/hp-hr	PM2.5 g/hp-hr	CO_2 g/hp-hr
Crane	125	330	0.58	0.25	1.22	5.26	0.11	0.21	0.20	530
Concrete Truck	125	300	0.43	0.19	1.45	4.32	0.12	0.21	0.20	536
Diesel Generator	100	40	0.43	0.26	1.41	3.51	0.11	0.23	0.22	536
Telehandler	250	99	0.59	0.51	3.94	4.93	0.13	0.52	0.51	595
Scissors Lift	200	83	0.59	0.51	3.94	4.93	0.13	0.52	0.51	595
Skid Steer Loader	125	67	0.59	1.69	7.97	6.70	0.15	1.19	1.15	691
All Terrain Forklift	5	84	0.59	0.51	3.94	4.93	0.13	0.52	0.51	595

	Annual Emissions VOC lb	CO lb	NOx lb	SO2 lb	PM10 lb	PM2.5 lb	CO_2 lb
Crane	12.96	64.32	277.43	6.02	10.96	10.63	27,971
Concrete Truck	6.67	51.71	153.60	4.10	7.47	7.24	19,064
Diesel Generator	1.00	5.34	13.30	0.41	0.88	0.85	2,033
Telehandler	16.40	126.83	158.68	4.12	16.78	16.27	19,142
Scissors Lift	11.00	85.07	106.43	2.76	11.25	10.91	12,839
Skid Steer Loader	18.44	86.80	72.96	1.62	12.95	12.57	7,526
All Terrain Forklift	0.28	2.15	2.69	0.07	0.28	0.28	325
Subtotal (lbs):	**67**	**422**	**785**	**19**	**61**	**59**	**88,901**
Building Construction Grand Total in Tons	**0.03**	**0.21**	**0.39**	**0.01**	**0.03**	**0.03**	
Building Construction Grand Total in Metric Tons							**40**

Table 1.9 **Paving**

27,670 SF
18,448 CF

Off-road Equipment	Hours of Operation	Engine HP	Load Factor	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM10 g/hp-hr	PM2.5 g/hp-hr	CO_2 g/hp-hr
Grader	60	145	0.59	0.38	1.41	4.16	0.12	0.30	0.29	536
Roller	60	401	0.59	0.34	2.46	5.53	0.12	0.34	0.33	536
Paving Machine	60	164	0.59	0.38	1.44	4.25	0.12	0.30	0.29	536
Asphalt Curbing Machine	60	130	0.59	0.40	1.57	4.57	0.12	0.32	0.31	536

	VOC lb	CO lb	NOx lb	SO2 lb	PM10 lb	PM2.5 lb	CO_2 lb
Grader	4.26	15.98	47.09	1.30	3.35	3.25	6,062
Roller	10.68	77.07	173.22	3.61	10.60	10.28	16,768
Paving Machine	4.86	18.46	54.42	1.47	3.84	3.72	6,856
Asphalt Curbing Machine	4.01	15.93	46.32	1.17	3.24	3.14	5,434

On-road Equipment	Hours of Operation	Engine HP	Productivity based Speed	VOC lb/mile	CO lb/mile	NOx lb/mile	SO2 lb/mile	PM10 lb/mile	PM2.5 lb/mile	CO_2 lb/mile
Dump Truck	60	230	17	0.001521	0.008042	0.036070	1.80E-05	0.001504	0.001458	3.438541
Water Truck	60	230	10	0.001521	0.008042	0.036070	1.80E-05	0.001504	0.001458	3.438541

	VOC lb	CO lb	NOx lb	SO2 lb	PM10 lb	PM2.5 lb	CO_2 lb
Dump Truck	1.55	8.20	36.79	0.02	1.53	1.49	3,507.31
Water Truck	0.91	4.83	21.64	0.01	0.90	0.87	2,063.12

Hot Mix Asphalt (HMA)	Volume of HMA (ft^3)	Weight of HMA (tons)	VOC lb/ton	VOC lb	CO lb	NOx lb	SO2 lb	PM10 lb	PM2.5 lb	CO_2 lb
Standard Hot Mix Asphalt	18,448	1,337	0.04	53.50	-	-	-	-	-	-
Subtotal (lbs):				80	140	379	8	23	23	40,691
Paving Grand Total in Tons				**0.04**	**0.07**	**0.19**	**0.00**	**0.01**	**0.01**	
Paving Grand Total in Metric Tons										**18**

Table 1.10 **Material Deliveries** 240 40 miles RT

On-road Equipment	Miles	Engine HP	Speed (mph)	VOC lb/mile	CO lb/mile	NOx lb/mile	SO2 lb/mile	PM10 lb/mile	PM2.5 lb/mile	CO_2 lb/mile
Delivery Truck	9,600	265	-	0.0015	0.0080	0.0361	0.0000	0.0015	0.0015	3.4385

	VOC lb	CO lb	NOx lb	SO2 lb	PM10 lb	PM2.5 lb	CO_2 lb
Delivery Truck	14.60	77.20	346.27	0.17	14.44	13.99	33,009.99
Material Deliveries Grand Total in Tons	**0.01**	**0.04**	**0.17**	**0.00**	**0.01**	**0.01**	
Material Deliveries Grand Total in Metric Tons							**15**

Table 1.11 **Fugitive Dust Emissions** (Bldg 27 & Bldg J) total of 1 year of constructior

Year	PM_{10} tons/acre/mo	acres	days of disturbance	PM_{10} Total	$PM_{2.5}$ PM_{10} Ratio	$PM_{2.5}$ Total
Year 1	0.42	2.01	60	2.5	0.1	0.3

Table 1.12 **Total Emissions**

Year	VOC Tons	CO Tons	NOx Tons	SO2 Tons	PM10 Tons	PM2.5 Tons	CO_2 Metric Tons
Year 1	0.10	0.40	1.01	0.02	2.59	0.31	98

Appendix D
Section 7 USFWS Consultation Package

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Charee Hoffman

From: Cullen, Kathleen M <kathleen_cullen@fws.gov>
Sent: Monday, November 23, 2020 2:34 PM
To: Charee Hoffman
Subject: Re: [EXTERNAL] NASA GSFC Greenbelt Campus Section 7 consultation - online certification letter

Hi Charee-

Thank you for providing this information. You've included everything that's required, and no further section 7 consultation is needed for this project unless plans change.

Thank you,
Kathleen

Kathleen Cullen
U.S. Fish & Wildlife Service - Chesapeake Bay Field Office
177 Admiral Cochrane Dr., Annapolis MD, 21401
410-573-4579 - kathleen_cullen@fws.gov

From: Charee Hoffman <Charee.Hoffman@cardno-gs.com>
Sent: Monday, November 23, 2020 2:05 PM
To: Cullen, Kathleen M <kathleen_cullen@fws.gov>
Subject: [EXTERNAL] NASA GSFC Greenbelt Campus Section 7 consultation - online certification letter

Hi Kathleen,

I am a contractor assisting the National Aeronautics and Space Administration (NASA) Goddard Space Flight Center (GSFC) Greenbelt Campus in the preparation of an environmental assessment (EA) and related documents.

NASA is proposing to implement the GSFC Greenbelt Campus Master Plan over a 20-year period. Numerous buildings would be demolished, constructed, and renovated/sustained along with general infrastructure maintenance and improvement activities that would be implemented throughout the installation. Approximately 1.0 acres of forested area on the Main Campus would be removed.

An official species list was obtained for the project. The species list indicates the Greenbelt Campus is in the conditional area of influence for Northern long-eared bat; however, there are no maternity roosts or hibernacula in the area. This project is not expected to impact the Northern long-eared bat.

An Online Certification Letter has been filled out and has been attached to the project review package.

Is any more needed to complete the Section 7 consultation for this project?

Respectfully,
Chareé Hoffman

Charee Hoffman
SENIOR PROJECT MANAGER
CARDNO

Office (+1) 757-594-1465 Direct (+1) 757-690-2823
Address 501 Butler Farm Road, Suite H, Hampton, VA 23666
Email charee.hoffman@cardno-gs.com Web www.cardno.com

The health, wellbeing, and livelihoods of our people, families, clients, and communities is Cardno's key priority. Our teams are responding to COVID-19 with robust business continuity plans and we will continue to work closely with our people and clients to support them every day. *> LEARN MORE*

United States Department of the Interior
U.S. Fish & Wildlife Service
Chesapeake Bay Field Office
177 Admiral Cochrane Drive
Annapolis, MD 21401
410/573 4575

Online Certification Letter

Today's date: November 23, 2020

Project: Consultation Code: 05E2CB00-2020-SLI-1292
NASA GSFC Greenbelt Campus Master Plan EA

Dear Applicant for online certification:

Thank you for using the U.S. Fish and Wildlife Service (Service) Chesapeake Bay Field Office online project review process. By printing this letter in conjunction with your project review package, you are certifying that you have completed the online project review process for the referenced project in accordance with all instructions provided, using the best available information to reach your conclusions. This letter, and the enclosed project review package, completes the review of your project in accordance with the Endangered Species Act of 1973 (16 U.S.C. 1531-1544, 87 Stat. 884), as amended (ESA).This letter also provides information for your project review under the National Environmental Policy Act of 1969 (P.L. 91-190, 42 U.S.C. 4321-4347, 83 Stat. 852), as amended. A copy of this letter and the project review package must be submitted to this office for this certification to be valid. This letter and the project review package will be maintained in our records.

Based on this information and in accordance with section 7 of the Endangered Species Act (87 Stat. 884, as amended; 16 U.S.C. 1531 et seq.), we certify that except for occasional transient individuals, no federally proposed or listed endangered or threatened species are known to exist within the project area. Therefore, no Biological Assessment or further section 7 consultation with the U.S. Fish and Wildlife Service is required. Should project plans change, or if additional information on the distribution of listed or proposed species becomes available, this determination may be reconsidered.

This response relates only to federally protected threatened or endangered species under our jurisdiction. For additional information on threatened or endangered species in Maryland, you should contact the Maryland Wildlife and Heritage Division at (410) 260-8573. For information in Delaware you should contact the Delaware Division of Fish and Wildlife, Wildlife Species Conservation and Research Program at (302) 735-8658. For information in the District of Columbia, you should contact the National Park Service at (202) 339-8309.

The U.S. Fish and Wildlife Service also works with other Federal agencies and states to minimize loss of wetlands, reduce impacts to fish and migratory birds, including bald eagles, and restore habitat for wildlife. Information on these conservation issues and how development projects can avoid affecting these resources can be found on our website (www.fws.gov/chesapeakebay)

We appreciate the opportunity to provide information relative to fish and wildlife issues, and thank you for your interest in these resources. If you have any questions or need further assistance, please contact Chesapeake Bay Field Office Threatened and Endangered Species program at (410) 573-4527.

Sincerely,

Genevieve LaRouche
Field Supervisor

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Chesapeake Bay Ecological Services Field Office
177 Admiral Cochrane Drive
Annapolis, MD 21401-7307
Phone: (410) 573-4599 Fax: (410) 266-9127
http://www.fws.gov/chesapeakebay/
http://www.fws.gov/chesapeakebay/endsppweb/ProjectReview/Index.html

In Reply Refer To: August 11, 2020
Consultation Code: 05E2CB00-2020-SLI-1292
Event Code: 05E2CB00-2020-E-04618
Project Name: NASA GSFC Greenbelt Campus Master Plan EA

Subject: Updated list of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. This species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (http://www.fws.gov/windenergy/) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm; http://www.towerkill.com; and http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List
- USFWS National Wildlife Refuges and Fish Hatcheries
- Wetlands

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Chesapeake Bay Ecological Services Field Office
177 Admiral Cochrane Drive
Annapolis, MD 21401-7307
(410) 573-4599

Project Summary

Consultation Code: 05E2CB00-2020-SLI-1292

Event Code: 05E2CB00-2020-E-04618

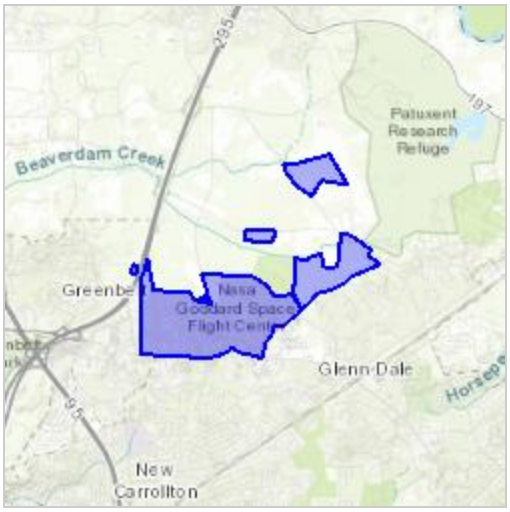
Project Name: NASA GSFC Greenbelt Campus Master Plan EA

Project Type: ** OTHER **

Project Description: NASA proposes to implement the Goddard Space Flight Center Greenbelt Campus Master Plan over a 20-year period. Under the Proposed Action analyzed in the Environmental Assessment (EA), numerous buildings would be demolished, constructed, and renovated/sustained along with general infrastructure maintenance and improvement activities that would be implemented throughout the installation. The Proposed Action would remove via demolition approximately 645,000 square feet of excess and/or energy inefficient buildings and add via construction approximately 363,000 square feet of new LEED certified energy efficient buildings. Most activities would occur in already disturbed areas.

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/place/38.999379608265755N76.84560917807755W



Counties: Prince George's, MD

Endangered Species Act Species

There is a total of 1 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. Note that 1 of these species should be considered only under certain conditions.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

---

1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Mammals

NAME	STATUS
Northern Long-eared Bat *Myotis septentrionalis*	Threatened

No critical habitat has been designated for this species.

This species only needs to be considered under the following conditions:

- Projects with a federal nexus that have tree clearing = to or > 15 acres: 1. REQUEST A SPECIES LIST 2. NEXT STEP: EVALUATE DETERMINATION KEYS 3. SELECT EVALUATE under the Northern Long-Eared Bat (NLEB) Consultation and 4(d) Rule Consistency key

Species profile: https://ecos.fws.gov/ecp/species/9045

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

USFWS National Wildlife Refuge Lands And Fish Hatcheries

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

The following FWS National Wildlife Refuge Lands and Fish Hatcheries lie fully or partially within your project area:

FACILITY NAME	ACRES
Patuxent Research Refuge	2,390

Patuxent Research Refuge
12100 Beech Forest Road, Room 138
Laurel, MD 20708-4036
(301) 497-5580

https://www.fws.gov/refuges/profiles/index.cfm?id=51640

Wetlands

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

FRESHWATER EMERGENT WETLAND

- PEM1Ch

FRESHWATER FORESTED/SHRUB WETLAND

- PFO1A
- PFO1C
- PFO4A

FRESHWATER POND

- PUBHh
- PUBHx

RIVERINE

- R4SBC
- R5UBH

Appendix E
Coastal Consistency Determination

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Charee Hoffman

Subject: FW: Coastal Consistency - request for review

From: Heather Nelson -MDE- <hnelson@maryland.gov>
Sent: Thursday, November 12, 2020 1:05 PM
To: Charee Hoffman <Charee.Hoffman@cardno-gs.com>
Cc: Montgomery, Lizabeth R. {Beth} (GSFC-2500) <lizabeth.r.montgomery@nasa.gov>; Joseph Abe -DNR- <joseph.abe@maryland.gov>
Subject: Re: Coastal Consistency - request for review

Maryland is in receipt of your CZM Consistency Determination concurrence request. It has been forwarded to Mr. Joseph Abe with Maryland Department of Natural Resources on this date for a response per below. Maryland has 60 days to respond to your request for a ***Federal Activity or Development Project (15 C.F.R. Part 930, Subpart C)*** *(generally a direct federal action, including federal funding to a private entity)*. Mr. Abe is cc'd on this email. If this is an incorrect Category, please let us know.

Please be advised that as of October 1, 2019, the Maryland Coastal Management Program, a network of Maryland state planning and regulatory agencies led by the Maryland Department of Natural Resources (DNR), has made some staffing changes to handle federal consistency review and concurrence requests. If your project or activity falls under one of the following Federal Consistency Categories:

Federal Activity or Development Project (15 C.F.R. Part 930, Subpart C) *(generally a direct federal action, including federal funding to a private entity)*

Outer Continental Shelf Exploration, Development & Production (15 C.F.R. Part 930, Subpart E)

Federal Financial Assistance to State and Local Governments (15 C.F.R. Part 930, Subpart F) *(includes grant or contractual arrangements, loans, subsidies, guarantees, insurance, or other forms of financial aid)*

Please send your future consistency concurrence requests to Joseph Abe (DNR) at joseph.abe@maryland.gov and cc: Heather Nelson, MDE, at hnelson@maryland.gov. For projects in the Critical Area, consistency requests should also be sent to Lisa Hoerger at Critical Area Commission at lisa.hoerger@maryland.gov in addition to DNR.

If your already submitted project does fall into one of the above categories, I have already forwarded your concurrence request to Mr. Joseph Abe with DNR who will manage your request with the Network Partners and respond to your request for this project on my behalf. You do not need to resubmit this request. Mr. Abe will respond to your request.

If your project falls under the following Federal Consistency Category:

Federal License or Permit Activity (15 C.F.R. Part 930, Subpart D)

Please send your consistency concurrence request to the Maryland Department of the Environment (MDE)'s Wetlands and Waterways Program c/o Heather Nelson at hnelson@maryland.gov.

For more information on the Maryland Coastal Management Program, please visit the Maryland Department of Natural Resources website at https://dnr.maryland.gov/ccs/Pages/coastalpolicies.aspx or MDE's website at https://mde.maryland.gov/programs/Water/WetlandsandWaterways/Pages/CZM.aspx

Thank you. If you have any questions please contact me or Joseph Abe (again, cc'd on this email) and we will be happy to assist you.

On Thu, Nov 12, 2020 at 12:45 PM Charee Hoffman <Charee.Hoffman@cardno-gs.com> wrote:

> Hi Heather,
>
> I am a contractor assisting the National Aeronautics and Space Administration (NASA) Goddard Space Flight Center (GSFC) Greenbelt Campus in the preparation of an environmental assessment (EA) and related documents. As such, I am submitting the attached Coastal Consistency request form and Coastal Consistency Determination on behalf of NASA.
>
> NASA is proposing to implement the GSFC Greenbelt Campus Master Plan over a 20-year period. Numerous buildings would be demolished, constructed, and renovated/sustained along with general infrastructure maintenance and improvement activities that would be implemented throughout the installation.
>
> A Coastal Consistency Determination has been completed and is attached to this email. Based upon data and analysis, and review and evaluation of Maryland's enforceable policies, NASA finds that the proposed activities evaluated under the GSFC Greenbelt Campus Master Plan EA are consistent to the maximum extent practicable with the 19 enforceable policies of the Maryland Coastal Resources Management Plan. NASA GSFC is requesting concurrence of their determination.
>
> I respectfully ask that the State's response be sent to:
>
> Lizabeth Montgomery
> NASA Goddard Space Flight Center, Code 250
> 8800 Greenbelt Road
> Greenbelt, Maryland 20771
> Email: lizabeth.r.montgomery@nasa.gov
>
> Thank you,
> Chareé
>
> Charee Hoffman
> SENIOR PROJECT MANAGER
> CARDNO
>
> 
>

Office (+1) 757-594-1465 Direct (+1) 757-690-2823
Address 501 Butler Farm Road, Suite H, Hampton, VA 23666
Email charee.hoffman@cardno-gs.com Web www.cardno.com

The health, wellbeing, and livelihoods of our people, families, clients, and communities is Cardno's key priority. Our teams are responding to COVID-19 with robust business continuity plans and we will continue to work closely with our people and clients to support them every day. *> LEARN MORE*

--

Because of the COVID-19 virus and the need for safety precautions, many state employees are working remotely.

Heather L. Nelson
Acting Program Manager
Wetlands and Waterways Program
Water and Science Administration
Maryland Department of the Environment
1800 Washington Boulevard
Baltimore, Maryland 21230
hnelson@maryland.gov
410-537-3528 (O)
Website | Facebook | Twitter

Click here to complete a three question customer experience survey.

Click here to complete a three question customer experience survey.

Coastal Consistency Request Form

This request document, under the authority of the Maryland Coastal Zone Management Program, initiates information sharing and state-federal-industry coordination to ensure projects or activities regulated under the Coastal Zone Management Act of 1972, as amended, and NOAA's Federal Consistency Regulations (15 C.F.R Part 930) are consistent to the maximum extent practicable with Maryland's enforceable policies. Federal agencies and other applicants for federal consistency are not required to use this form; it is provided to facilitate the submission and timely review of a Consistency Determination or Consistency Certification. In addition, federal agencies and applicants are only required to provide the information required by NOAA's Federal Consistency Regulations.

* Required

1. Name of Project or Activity * NASA GSFC Greenbelt Campus Master Plan EA

2. Name of Person Submitting Request *

Chareé Hoffman (Cardno) on behalf of NASA

3. Federal Agency Contractor Name (if applicable)

4. Federal Agency *

NASA

5. County *

Prince George's

6. Address *

501 Butler Farm Road
Suite H
Hampton, VA 23666

7. Email *

charee.hoffman@cardno-gs.com

8. Phone Number(s) *

757-594-1465

9. Please select the appropriate Federal Consistency Category: *Choose one**

- (●) **Federal Activity or Development Project (15 C.F.R. Part 930, Subpart C)**
- ( ) **Federal License or Permit Activity (15 C.F.R. Part 930, Subpart D)**
- ( ) **Outer Continental Shelf Plans: Exploration, Development & Production Activities (15 C.F.R. Part 930, Subpart E)**
- ( ) **Federal Financial Assistance to State & Local Governments (15 C.F.R. Part 930, Subpart F)**

10. Summary Description – Please describe the nature, areal extent and location of project or activity. Describe foreseeable effects on coastal resources and uses.

NASA proposes to implement the GSFC Greenbelt Campus Master Plan over a 20-year period.

Coastal Consistency Request Form

11. Please select policy area checklists relevant to your project or activity:

Check all that apply:

- [x] **Core Policies (required for all projects and activities)**
- [ ] **The Chesapeake & Atlantic Coastal Bays Critical Area**
- [ ] **Tidal Wetlands**
- [x] **Forests**
- [x] **Historical & Archaeological Site**
- [ ] **Living Aquatic Resources**
- [ ] **Mineral Extraction**
- [ ] **Electrical Generation & Transmission**
- [ ] **Tidal Shore Erosion**
- [ ] **Oil & Natural Gas Facilities**
- [ ] **Dredging & Disposal of Dredge Materials**
- [ ] **Navigation**
- [ ] **Transportation**
- [ ] **Agriculture**
- [x] **Development**
- [ ] **Sewage Treatment**

12. Supporting Documentation. Please list all maps, diagrams, reports, letters and other materials below:

A Coastal Consistency Determination for the subject project has been prepared (attached).

COASTAL CONSISTENCY DETERMINATION
FOR
NASA GODDARD SPACE FLIGHT CENTER GREENBELT CAMPUS

MASTER PLAN ENVIRONMENTAL ASSESSMENT

PRINCE GEORGE'S COUNTY, MARYLAND

Introduction

The National Aeronautics and Space Administration (NASA) has prepared an Environmental Assessment (EA) to evaluate the potential environmental impacts from the proposal to implement the Goddard Space Flight Center (GSFC) Greenbelt Campus Master Plan. The EA for the NASA GSFC Greenbelt Campus Master Plan has been prepared in accordance with the requirements of the National Environmental Policy Act (NEPA) as implemented by the Council on Environmental Quality Regulations and NASA's NEPA regulations for implementing NEPA.

This document provides Maryland with NASA GSFC Greenbelt Campus' Consistency Determination under Section 307 of the Coastal Zone Management Act and Title 15 Code of Federal Regulations (CFR) Part 930, Subpart C, for implementation of the Proposed Action analyzed in the NASA GSFC Greenbelt Campus Master Plan EA. The information in this Consistency Determination is provided pursuant to 15 CFR Section 930.39.

GSFC Greenbelt is located approximately 20 miles from the Chesapeake Bay in Prince George's County, which lies within Maryland's coastal zone. The Proposed Action would implement the GSFC Greenbelt Campus Master Plan over a 20-year period. Numerous buildings would be demolished, constructed, and renovated/sustained along with general infrastructure maintenance and improvement activities that would be implemented throughout the installation. Full implementation of the Proposed Action at GSFC Greenbelt Campus would:

- Remove via demolition approximately 645,000 square feet (ft2 - building footprint) of excess and/or energy inefficient buildings;
- Add via construction approximately 363,000 ft2 (building footprint) of new LEED certified energy efficient buildings;
- Divest of approximately 100,000 ft2 (building footprint) of excess buildings
- Avoid annual energy costs by approximately $8.8 million;
- Avoid approximately $10.1 million in operations and maintenance costs; and
- Remove approximately $54 million in deferred maintenance.

Effect to Resources

NASA GSFC has determined that implementing the NASA GSFC Greenbelt Campus Master Plan as described in the EA would affect resources of Maryland in the following manner:

Air Quality – Potential for short-term impacts to air quality during construction activities; criteria pollutant emissions would be less than significant. The improved efficiency of new, upgraded, and energy efficient buildings and infrastructure could result in minor long-term beneficial impacts to air quality.

Biological Resources – Potential for minor, short-term adverse impacts to vegetation and wildlife during construction from trampling and heavy equipment activity and noise, respectively. Approximately 1.0

acres of forested area would be removed representing a long-term impact; however, abundant forested areas are found on GSFC. No impacts to threatened and/or endangered species or critical habitat as none are known to occur on the installation.

Water Resources – Potential for minor, short-term impacts to surface waters during construction; stormwater protection measures would be installed and no long-term impacts anticipated. The project site is not located on or adjacent to 100-year or 500-year floodplains; as such, no impact to floodplains would occur.

Cultural Resources – Numerous buildings proposed for demolition on the Main Campus and in Area 300 are contributing features to the GSFC historic district or have; GSFC will consult with the Maryland Historical Trust (i.e., State Historic Preservation Office) and Advisory Council on Historic Preservation to resolve the adverse effects on these historic properties. No known archaeological sites would be affected, and no traditional cultural properties have been identified at GSFC. New building construction would not directly affect architectural resources; however, there is potential for adverse visual effects to the historic district.

Hazardous Materials and Wastes - Hazardous materials usage during construction activities would be temporary and would be managed in accordance with Federal and state regulations. Hazardous wastes would be managed in accordance with the NASA waste management procedural requirements. Observation of the land use controls established for sites on GSFC would be strictly enforced.

Infrastructure and Utilities – Potential for minor, short-term disruption of utilities service connections during the construction phases. No significant short- or long-term impacts would be anticipated during the operational phase.

Consistency Determination

Based upon the following information, data, and analysis, NASA GSFC finds that the proposed activities evaluated under the NASA GSFC Greenbelt Campus Master Plan EA are consistent to the maximum extent practicable with the 19 enforceable policies of the Maryland Coastal Resources Management Plan. The following table below summarizes NASA GSFC Greenbelt's analysis supporting this determination.

Pursuant to 15 CFR Section 930.41, the Maryland Coastal Resources Management Program has 60 days in which to concur with or object to this Consistency Determination, or to request an extension under 15 CFR Section 930.41(b). Maryland's concurrence will be presumed if its response is not received by NASA GSFC Greenbelt on the 60th day from receipt of this determination. The State's response should be sent to:

Lizabeth Montgomery
NASA Goddard Space Flight Center, Code 250
8800 Greenbelt Road
Greenbelt, Maryland 20771
Email: lizabeth.r.montgomery@nasa.gov

Maryland Policy	*Consistent?*	*Analysis*
General Policies		
Core Policies	Yes	The Proposed Action would be implemented utilizing best management practices (BMPs) adopted to reduce the environmental impacts of designated activities, functions, or processes. Low impact development would be incorporated as appropriate to minimize stormwater runoff and Maryland Department of the Environment low impact development guidelines requiring an approach of "quantity reduction and quality improvement" for stormwater runoff would be observed.
Water Quality	Yes	BMPs for controlling stormwater runoff would be incorporated into facility design plans.
Flood Hazards	Yes	GSFC Greenbelt Campus is not located within a 100-year or 500-year floodplain.
Coastal Resources		
The Chesapeake and Atlantic Coastal Bays Critical Area	Yes	The Proposed Action would not occur near or affect the Chesapeake and Atlantic Coastal Bays Critical Area.
Tidal Wetlands	Yes	The Proposed Action would not affect tidal wetlands.
Non-Tidal Wetlands	Yes	The Proposed Action would not affect non-tidal wetlands.
Forests	Yes	Approximately 1.0 acres forest area would be removed. The loss would be offset through new plantings of native vegetation.
Historical and Archaeological Sites	Yes	Numerous buildings proposed for demolition on the Main Campus and in Area 300 are contributing features to the GSFC historic district; GSFC is consulting with the Maryland State Historic Preservation Office and Advisory Council on Historic Preservation to resolve the adverse effects on these historic properties. No known archaeological sites would be affected by the Proposed Action.
Living Aquatic Resources	Yes	The Proposed Action would not affect aquatic resources.
Coastal Uses		
Mineral Extraction	Yes	The Proposed Action would not involve mining activities.
Electrical Generation and Transmission	Yes	The Proposed Action would not involve the construction of a power plant or placement of transmission lines.
Tidal Shore Erosion Control	Yes	The Proposed Action would not be located near a beach or tidal shore.
Oil and Natural Gas Facilities	Yes	The Proposed Action would not involve the use oil and natural gas facilities.
Dredging and Disposal of Dredged Material	Yes	The Proposed Action would not involve dredging or the disposal of dredged material.
Navigation	Yes	The Proposed Action would not be in proximity to navigable access points or channels.
Transportation	Yes	The Proposed Action would not alter access to or the use of Maryland's transportation systems or service.
Agriculture	Yes	The Proposed Action would not involve agricultural activity.
Development	Yes	The Proposed Action would use BMPs for to minimize soil erosion and transport. A National Pollutant Discharge Elimination System (NPDES) construction stormwater general permit would be obtained prior to any construction and a Stormwater Pollution Prevention Plan (SWPPP) would be prepared in accordance with the NPDES permit process.
Sewage Treatment	Yes	The Proposed Action would not affect sewage treatment.