George Washington Carver Center Solar Power Array Beltsville, Maryland

ENVIRONMENTAL ASSESSMENT

AUGUST 2013

U.S. DEPARTMENT OF AGRICULTURE

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GEORGE WASHINGTON CARVER CENTER SOLAR POWER ARRAY
BELTSVILLE, MARYLAND

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Responsible Agency:
United States Department of Agriculture

Abstract:

The U.S. Department of Agriculture has prepared this Environmental Assessment to evaluate the proposed installation of solar power arrays at the George Washington Carver Center in Beltsville, Maryland. The proposed action includes the installation and operation of solar photovoltaic arrays on approximately 10 acres at two sites at the George Washington Carver Center in support of a Solar Photovoltaic Energy Service Agreement between U.S. Department of Agriculture and Washington Gas Light Company. The proposed actions would help the U.S. Department of Agriculture meet Federal legislative requirements to save energy and increase the use and purchase of renewable energy. This Environmental Assessment addresses the potential impacts associated with the implementation of the action alternative and the no action alternative. Mitigation measures are also provided for the action alternative.

The U.S. Department of Agriculture prepared this Environmental Assessment pursuant to the National Environmental Policy Act. Government agencies and the public are encouraged to review and comment on this Environmental Assessment. Comments on this Environmental Assessment must be submitted during the official 30-day public review period, beginning on September 12, 2013, and concluding on October 11, 2013.

Written comments should be directed via email or mail to:

Edward Murtagh, P.E.
Sustainable Operations Manager
Office of Operations
U.S. Department of Agriculture
1400 Independence Ave, SW
Suite 1444 South Building
Washington, DC 20250

If you have further questions on this project or would like to request a copy of this Environmental Assessment, please contact Mr. Murtagh at 202-720-5961.

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1.0 PURPOSE AND NEED AND PROPOSED ACTION

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1.1 Introduction

1.1.1 Introduction

The U.S. Department of Agriculture (USDA) has prepared this Environmental Assessment (EA) to evaluate a proposal to install and operate solar photovoltaic arrays at the George Washington Carver Center (GWCC) in Beltsville, Maryland (Figure 1-1). The GWCC is bounded by Sunnyside Avenue to the north, the Washington Metro Area Transit Authority (WMATA) train tracks to the east, Interstate 495 to the south, and the GWCC property line to the west.

The proposed project would support the USDA Office of Operations' pursuit of a Solar Photovoltaic Energy Service Agreement with Washington Gas Light Company and help it comply with legislative requirements to increase the use/purchase of renewable energy. The Washington Gas Light Company would be responsible for the operation and maintenance of the solar photovoltaic arrays.

Figure 1-1: Project Location Map
Source: Bing.com

The USDA has prepared this EA consistent with the National Environmental Policy Act (NEPA) of 1969, as amended, and the Council on Environmental Quality (CEQ) regulations implementing NEPA [40 Code of Federal Regulations (CFR) 1500-1508 (1986)], as amended.

This EA identifies the affected environment, potential impacts, and recommended mitigation measures resulting from the implementation of the proposed action alternative and a no action alternative, including short-term construction impacts, long-term operational effects, and cumulative impacts when taken together with other projects in the vicinity of the site. The primary study area for identifying potential environmental impacts is generally within the project area identified in Figure 1-1. The study area may expand or contract for each resource discipline, depending upon the potential for a specific impact to affect a given geographic area.

1.1.2 Project Area

The GWCC is a 360,000-square-foot office building built in 1997 and located in Beltsville, Maryland (Figure 1-1). The building provides office space for nearly 1,500 USDA federal government employees. The GWCC is composed of five different interconnected buildings surrounded by paved parking lots to the north and northwest, lawn panels to the east and south, and a small wooded area to the west (Figure 1-1). Directly south of the lawn panels on the southern portion of the property are test fields. There is a fire access road that separates this south lawn panel from the test fields.

1.2 Purpose and Need

The purpose of the proposed action is to provide the GWCC with energy from renewable sources.

Action is needed to help USDA meet Federal legislative requirements to save energy and increase the use and purchase of renewable energy. The proposed action is needed to meet these requirements as the solar photovoltaic arrays would provide up to 10 percent of the GWCC's electricity needs.

1.3 Proposed Action

The proposed action is to construct and operate solar photovoltaic arrays at the GWCC in support of a Solar Photovoltaic Energy Service Agreement between USDA and Washington Gas Light Company and for USDA to comply with legislative requirements to increase the use/purchase of renewable energy.

1.4 Background

As a federal agency, USDA must meet the requirements of numerous federal statues, executive orders, and mandates that require changes in energy consumption patterns such as increased use of renewable resources. Under the Energy Policy Act of 2005 (EPAct 2005), within fiscal year 2013 and thereafter, 7.5 percent or more of energy consumed by federal facilities must come from renewable energy. As defined by EPAct 2005, renewable energy is electric energy generated from solar, wind, biomass, landfill gas, ocean (including tidal, wave, current, and thermal), geothermal, municipal solid waste, or new hydroelectric generation capacity achieved from increased efficiency or additions of new capacity at an existing hydroelectric project. EPAct 2005 especially encourages and provides incentives to federal agencies that produce renewable energy on-site and is used by federal facilities. The Energy Independence and Security Act of 2007 (EISA) provides support for federal agencies to finance renewable energy projects with energy savings performance contracts (ESPCs). ESPCs give federal agencies flexibility with funding by allowing them to combine federal funding and private financing.

Executive Order (EO) 13423 *Strengthening Federal Environmental, Energy, and Transportation Management* requires federal agencies to advance the nation's energy security and environmental

performance. Specifically, EO 13423 mandates that at least half of renewable energy used by the federal government must come from new renewable sources that were in service after January 1, 1999. EO 13514 *Federal Leadership in Environmental, Energy, and Economic Performance* builds on and expands the energy reduction and environmental requirements of EO 13423 by making reductions of greenhouse gas emissions a priority of the federal government. EO 13423 requires that federal agencies reduce greenhouse gas (GHG) emissions through a reduction of energy intensity by 3 percent annually through the end of fiscal year 2015 or by 30 percent by 2015, relative to the agency's baseline energy use in fiscal year 2003.

In an effort to comply with these federal mandates, reduce reliance on non-renewable resources, and reduce GHG emissions, USDA is seeking to partner with a private contractor to install and operate solar photovoltaic arrays on the GWCC property.

1.5 Agency and Public Involvement

As part of the preparation of this EA, USDA contacted public agencies to identify potential environmental concerns and to obtain other relevant information. Consultation letters were sent to the U.S. Fish and Wildlife Service and Maryland Department of Natural Resources, and Maryland Department of the Environment on July 26, 2013. See Appendix A for agency correspondences.

A Federal Consistency Determination, stating that the proposed action is consistent with the Maryland Coastal Zone Management Program (CZMP) to the greatest extent possible, was submitted to the Maryland Department of Environment (MDE) for concurrence (Appendix C).

1.5.1 Public and Agency Comments on this EA

Agencies and the public are encouraged to review and comment on the contents of this EA. A notice of the availability of the EA was printed in the Prince Georges Gazette and announced in the web-based Greenbelt Patch. A copy of the EA has been posted electronically on the USDA Web site, located at www.greening.usda.gov. Printed copies of the EA are also available for public review at the following locations:

Beltsville Library
4319 Sellman Rd.
Beltsville, MD 20705

George Washington Carver Center
5601 Sunnyside Avenue
College Park, MD 20740

Comments on the EA must be submitted during the official 30-day comment period that concludes on October 11 2013. Comments should be mailed or emailed to:

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If you have further questions on this project or would like to request a copy of this EA, please contact Mr. Murtagh at 202-720-5961.

1.6 Environmental Issues

1.6.1 Environmental Issues Considered

This EA evaluates the potential impacts that the construction and operation of the proposed solar photovoltaic arrays would have on resources, both natural and manmade. These resources are:

- Air Quality
- Soils
- Sustainability
- Water Resources, Stormwater Management, and Coastal Zone Management

1.6.2 Environmental Issues Dismissed from Detailed Analysis

To the extent possible, analyses of the various resources presented in this EA are streamlined based on the anticipated level of potential impact. The focus of this EA is on the potential environmental impacts associated with the construction and operation of the proposed solar photovoltaic arrays at GWCC. Consistent with 40 Code of Federal Regulations (CFR) Part 1501.7(a) (3), the following resource areas are not analyzed in this EA because the proposed action either has no potential to affect them or the potential impacts would be negligible.

Geology and Topography

The project sites are located in the area known as the Fall Line, an area separating the Western Shore of the Atlantic Coastal Plain from the Eastern Division of Maryland's Piedmont province. The Eastern Division is underlain by sedimentary and metamorphosed rocks. The Western Shore of the Atlantic Coastal Plain is underlain by Cretaceous deposits composed of unconsolidated sand and gravel. The upland surface in sections of Prince George's Count consists primarily of pebbles, quartzite, chert, and hard sandstone (USDA 1992).

The solar photovoltaic arrays would be mounted on concrete footers that would be placed in the soil to a depth of approximately four to five feet. At such shallow depths, the natural geologic character and general topography of the sites would not be impacted. As a result, impacts to geology and topography were dismissed from detailed analysis in this EA.

Noise

The Noise Control Act of 1972 (Public Law 92-574) directs federal agencies to comply with applicable federal, state, interstate, and local noise control regulations. Construction activities resulting from the proposed action alternative may require using heavy machinery and equipment that would generate short-term increases in noise at the proposed construction sites. However, construction would be performed during the normal work hours and would comply with all noise ordinances and regulations; therefore, impacts would be negligible. In addition, the only nearby sensitive noise receptors are residences located more than 500 feet from the site south of the GWCC buildings and behind a large wooded area, which would buffer any construction noise from reaching the sensitive receptors. Long-

term operation of the solar photovoltaic arrays would not impact the noise environment at GWCC, therefore, noise impacts were dismissed from detailed analysis in this EA.

Biological Resources

The project area is located in a previously disturbed area with vegetation composed primarily of a few landscape trees and frequently mowed lawn areas, including introduced turf grasses and weeds (USDA 2013). Prior to the construction of the GWCC, the project area was used for agriculture. Per a 2013 Biological Assessment conducted at the site, the project area contains no threatened or endangered species (USDA 2013). As a result, biological resources were dismissed from detailed analysis in this EA.

Land Use

The proposed sites for the installation and operation of the solar photovoltaic arrays are currently not being used for any activities and are designated for open space. In addition, there are no future plans for these sites. Therefore, this impact topic was dismissed from detailed analysis in this EA.

Traffic and Transportation

Since the proposed action is confined to lawn panels at the project sites, would not require the installation of a new access road, and would not affect adjacent roadways, there would be no long-term impacts on traffic and transportation. There would be short-term impacts during construction due to increased vehicle traffic from the delivery of construction materials, but the impact would be negligible; therefore, this impact topic was dismissed from detailed analysis in this EA.

Socioeconomics

The proposed installation and operation of solar photovoltaic arrays would not result in changes to the local population, demographics, income, community services and facilities, or housing. Personnel hired for construction and maintenance activities are unlikely to change their place of residence. Additionally, the proposed action would result in only temporary and negligible additive impacts to the local economy from the proposed upgrade projects. As a result, socioeconomics was dismissed from detailed analysis in this EA.

Hazardous Materials/Hazardous Wastes

From the 1960s to 1988, a laundry and dry cleaning facility operated just north of the project site on the Beltsville Industrial Park property. The facility used dry cleaning chemicals, including perchloroethylene (PERC), in a large outdoor above-ground tank. During the transfer to WMATA, a Phase 1 environmental site assessment was performed and found some evidence of PERC contamination. Although the contamination site was not on USDA property, concern about a contaminated groundwater plume located below USDA property led the USDA and EPA to conduct a VI Assessment. In 2009, 8 subslab vapor samples were collected from USDA's GWCC day care center. In addition, two background air samples were collected in the playground outside of the day care center. Findings illustrated that all detected volatile organic chemical levels were below screening values and not a public health concern (USDA 2009a).

No batteries would be used or stored on-site as a result of the proposed action. All energy and excess energy produced by the solar photovoltaic arrays would be tied directly into the GWCC building or re-sold to Pepco and placed back in the grid.

Potential use of hazardous materials during construction would be handled and stored according to all applicable federal, state, and local laws and regulations. All hazardous wastes would be disposed of at permitted treatment, storage, and disposal facilities in compliance with all applicable regulations. As a result, hazardous materials and hazardous wastes were dismissed from detailed analysis in this EA.

Utilities and Services

The proposed installation and operation of solar photovoltaic arrays could require some water usage during construction and maintenance activities. However, a low maintenance option for the solar arrays would be selected and the arrays would be cleaned mostly be rainwater, thus having a negligible impact on utilities and services. As a result, this impact topic was dismissed from further analysis in this EA.

Cultural Resources

A Phase I Cultural Resources Survey was completed in 1992 as part of the GWCC EA, which identified the presence of significant cultural resources on the GWCC campus. Site 18PR426, a cemetery site, is located south of the property directly east of the GWCC parking lot. The installation and operation of the solar photovoltaic arrays would not impact the cemetery. As a result, this impact topic was not carried forward for further analysis in this EA.

2.0 ALTERNATIVES

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2.1 Description of Alternatives

This EA evaluates alternatives for the proposed installation and operation of solar photovoltaic arrays at the USDA's GWCC in order to help the agency meet federal requirements for renewable energy use. The alternatives under consideration must include the no action alternative as prescribed by 40 CFR 1502.14.

One alternative site, as described under the proposed action alternative, would meet the purpose and need for providing the GWCC with energy from renewable sources and increase its energy efficiency to meet federal legislative requirements for the use of renewable energy in federal facilities.

Other alternative sites were considered for installation of solar photovoltaic arrays, but were not carried forward for further analysis. Those alternative sites were dismissed due to issues with costs and production efficiencies (discussed further in Section 2.1.3).

2.1.1 Proposed Action Alternative

Under the proposed action alternative, USDA proposes to install solar photovoltaic arrays on approximately 10 acres at two sites on the GWCC campus in Beltsville, Maryland (Figure 2-1). One site is located on a lawn panel directly east of the GWCC parking lot and the other site is located on a large lawn panel directly south of the GWCC buildings (Figures 2-2 and 2-3).

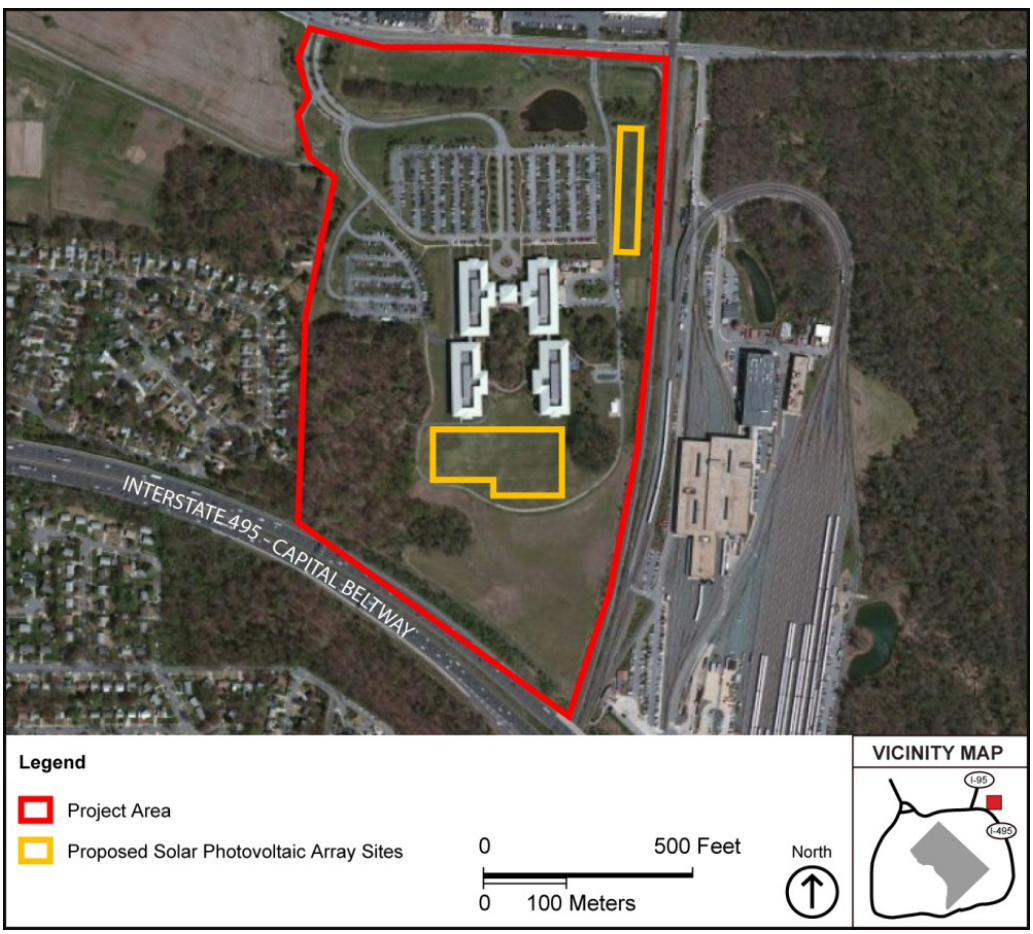

Figure 2-1: Proposed solar photovoltaic array sites.

Figure 2-2: Lawn panel directly east of GWCC buildings.

Figure 2-3: Lawn panel directly south of GWCC buildings, fire access road, and test fields.

The solar photovoltaic arrays would be a total of 914 kilowatt (kW) direct current (DC) in size and provide a year 1 estimated output of approximately 1,258 megawatt hours (MWh). The arrays would be mounted at 180-degree azimuth with a 25-degree tilt. The exact size of the arrays would be finalized in the detailed design phase of this project. The arrays would be the 3,598 Motech IM60+ Series 250 W polycrystalline silicon photovoltaic modules or of a similar model pictured in Figure 2-4. The arrays would be mounted using a Solar FlexRack mounting structure or similar structure to be determined during the detailed design phase of this project. An AE Solaron 500 kW inverter and one Solaron 250 kW inverter would be used. Conceptual placement of the arrays on the two sites is shown in figures 2-5 and 2-6.

Figure 2-4: Example of proposed solar photovoltaic arrays.

The solar photovoltaic arrays would be installed and operated by Washington Gas Light Company. The power produced by the arrays would be purchased back by USDA for use at GWCC, providing up to 10 percent of GWCC's electricity needs. In addition, an agreement with the Potomac Electric Power Company (Pepco), the region's electric service provider, would be arranged to resell any energy produced from the arrays not consumed by GWCC, such as energy produced after hours, on weekends, or on holidays. This excess energy would be resold to Pepco and put back into the grid.

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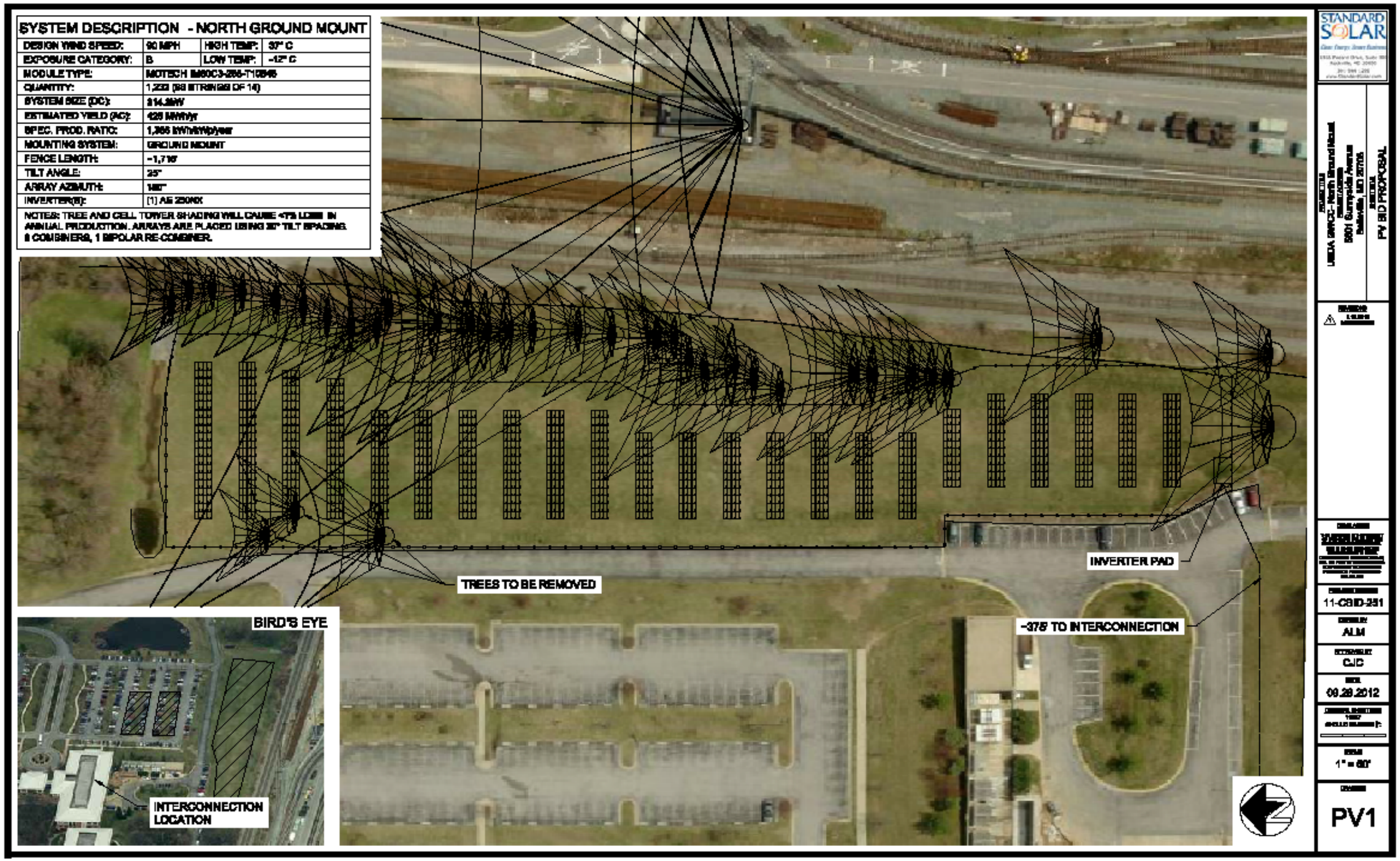

Figure 2-5: Conceptual layout for site directly east of the GWCC parking lot.

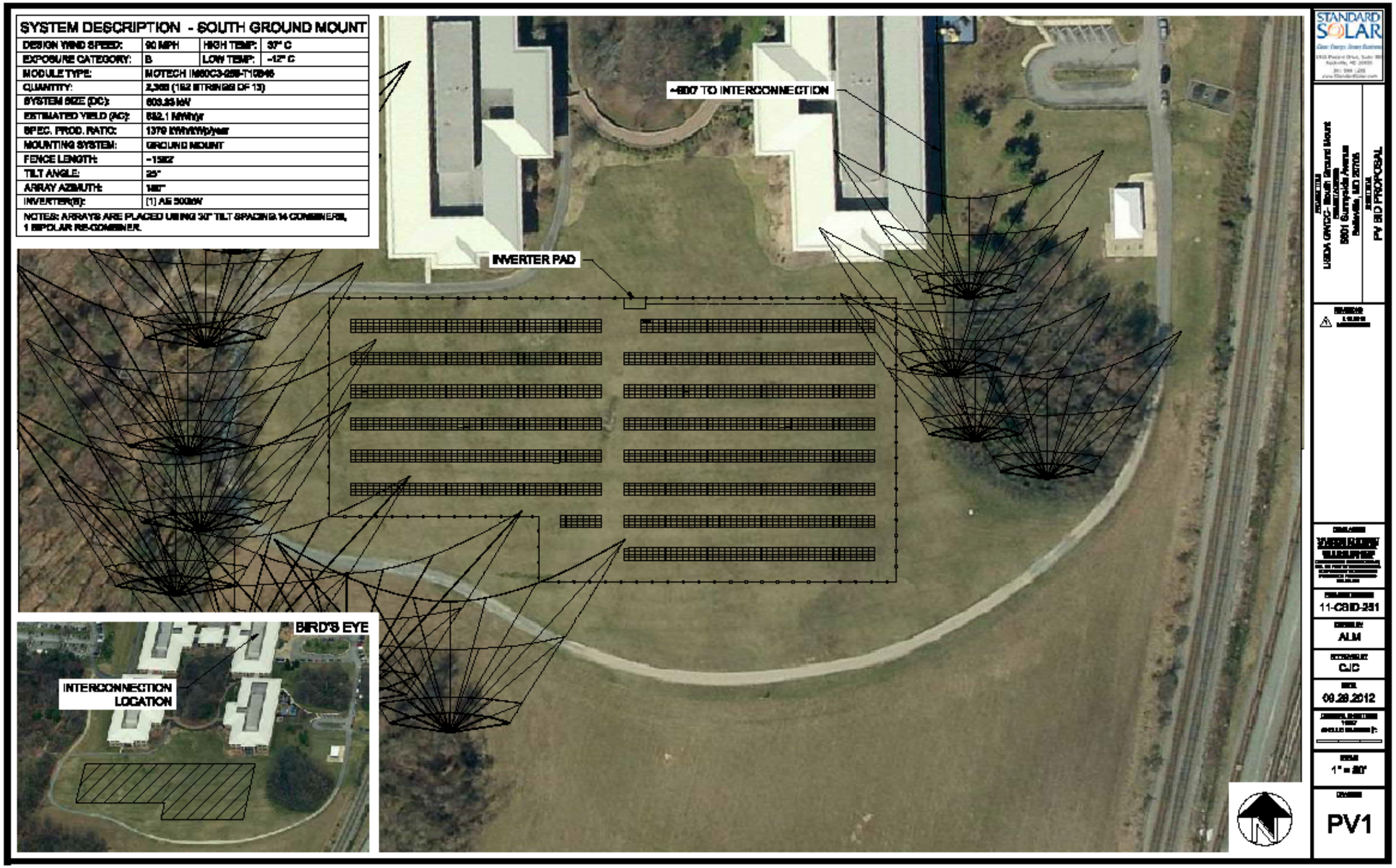

Figure 2-6: Conceptual layout for site south of the GWCC buildings.

2.1.2 No Action Alternative

Under the no action alternative, the current energy production and consumption patterns at GWCC would remain the same. Pepco would continue to provide the campus with electricity to meet its demand. No solar photovoltaic arrays would be installed or operated.

2.1.3 Alternative Considered, but Not Carried Forward

Several alternative sites were identified during the planning process and consultation with Washington Gas Light Company. In addition to the two sites being carried forward for analysis, Washington Gas Light Company identified the main parking lot and the rooftops of the GWCC buildings as potential sites for the location of the solar arrays. Both the parking lot and the rooftops were determined not to be the best locations from both cost effectiveness and long-term production efficiency potential standpoints. Although installing the arrays on the rooftop and parking lot sites would generate enough capacity, the construction costs and interconnection complications eliminated these sites from being carried forward for analysis.

2.2 Comparison of Alternatives

The table below provides a summary of each alternative's impacts on the resources analyzed within this EA. The detailed analysis is included in Chapter 4.

Resource	Proposed Action Alternative		No Action Alternative
Air Quality	Short-term minor adverse impacts during construction with long-term beneficial impacts		No impacts
Soils	Short- and long-term minor adverse impacts		No impacts
Sustainability	Long-term moderate beneficial impacts		Short- and long-term minor adverse impacts
Water Resources, Stormwater Management, and Coastal Zone Management	*Surface Water*	Short- and long-term negligible adverse impacts	No impacts
	Ground Water	Short- and long-term negligible adverse impacts	No impacts
	Wetlands and Floodplains	No impacts	No impacts
	Stormwater	Short- and long-term minor adverse impacts	No impacts
	Coastal Zone Management	Consistent with applicable enforceable policies of the Maryland Coastal Zone Management Program	No impacts

Table 2-1: Summary of Impacts

2.3 Preferred Alternative

USDA has selected the proposed action alternative as its preferred alternative because the proposed action alternative best meets the purpose and need of the proposed action by developing renewable energy sources on-site to help USDA meet Federal legislative requirements and provide up to 10 percent of GWCC's electricity needs. This would be achieved in the proposed action alternative through the development of solar power arrays on approximately 10 acres of the GWCC campus.

The proposed action alternative would create 914 kW of renewable energy for use by USDA, in coordination with Washington Gas Light Company, and would help achieve renewable energy goals to increase the use and purchase of renewable energy. Additionally, any renewable energy not used by USDA would be sold back to the grid, in coordination with Pepco, further promoting the use of renewable energy.

3.0 AFFECTED ENVIRONMENT

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3.1 Affected Environment

The chapter describes the existing conditions of environmental resources that could be impacted by the implementation of the proposed action, either adversely or beneficially, and the analysis of potential effects arising from the implementation of the proposed action.

3.2 Air Quality

The USEPA defines ambient air in 40 CFR 50.1(e) as "that portion of the atmosphere, external to buildings, to which the general public has access." In compliance with the 1970 CAA and the 1977 and 1990 CAAA, the USEPA has promulgated NAAQS for the protection of the public health and welfare, allowing for an adequate margin of safety. To date, the USEPA has issued NAAQS for the following criteria pollutants: carbon monoxide (CO), sulfur dioxide (SO_2), particulate matter [particles with a diameter less than or equal to a nominal 10 micrometers (PM_{10}) and particles with a diameter less than or equal to nominal 2.5 micrometers ($PM_{2.5}$)], ozone (O_3), nitrogen dioxide (NO_2), and lead (Pb). USEPA classification for the Metropolitan Washington, DC area, which includes Prince George's County, is discussed in detail in Section 3.2.1.

On July 11, 2006, USEPA established *de minimis* levels for $PM_{2.5}$. The final rule established 100 tons per year (TPY) as the *de minimis* emission level under nonattainment for directly emitted $PM_{2.5}$ and each of the precursors that form it [sulfur dioxide (SO_2), nitrogen oxide (NO_x), VOCs and ammonia]. This 100 TPY threshold applies separately to each precursor. This means that if an action's direct or indirect emissions of $PM_{2.5}$, SO_2, NO_x, VOC, or ammonia exceed 100 TPY, a general conformity determination would be required. Under the current USEPA policy for addressing $PM_{2.5}$ precursors, only $PM_{2.5}$ and SO_2 must be evaluated in all regions. States are not required to evaluate VOC, NO_x, or ammonia unless the state or USEPA make a technical demonstration that those particular emissions from sources within the state significantly contribute to $PM_{2.5}$ concentrations in a given nonattainment are. Neither EPA nor Maryland has found $PM_{2.5}$ problems in Air Quality Control Region 47 (AQCR 47) to be caused by NO_x, VOC, or ammonia. Ammonia is not further addressed by the EA (NO_x and VOC are addressed as ozone precursors).

3.2.1 Air Quality General Conformity

Federal regulations designate AQCRs in violation of the NAAQS as nonattainment areas. According to the severity of the pollution problem, nonattainment areas can be categorized as marginal, moderate, serious, severe, or extreme. Severity categories have not yet been applied to $PM_{2.5}$ nonattainment areas. The USEPA has classified the Metropolitan Washington, DC, area (AQCR 47), which includes Prince George's County, as in moderate nonattainment for the eight-hour ozone NAAQS and in nonattainment for particulate matter of 2.5 microns or smaller ($PM_{2.5}$). Table 3-1 presents the NAAQS for these pollutants that are in nonattainment. Additionally, AQCR 47 is in the ozone transport region, which is the Northeastern section of the U.S. where ozone is transported by air currents into regions from other areas of the U.S. AQCR 47 is in attainment for all other criteria pollutants.

Pollutant	Federal Standard	Maryland Standard
Ozone (O_3)* eight-Hour Average	0.075 ppm	0.075 ppm
Particulate Matter ($PM_{2.5}$)*		
24-Hour Average	35 μg/m^3	35 μg/m^3
Annual Geometric Mean	15 μg/m^3	15 μg/m^3

* Federal primary and secondary standards for this pollutant are identical. ppm = parts per million.
** There are no secondary standards for this pollutant.
Sources: USEPA 2013a; MDE 2007

Table 3-1: Ambient Air Quality Standards for Ozone and $PM_{2.5}$

To regulate the emission levels resulting from a project, federal actions located in nonattainment or maintenance areas are required to demonstrate compliance with the general conformity guidelines established in 40 CFR Part 93, Determining Conformity of Federal Actions to State or Federal Implementation Plans (the Rule). Section 93.153 of the Rule sets the applicability requirements for projects subject to the Rule through the establishment of *de minimis* levels for annual criteria pollutant emissions. These *de minimis* levels are set according to criteria pollutant nonattainment area designations. For projects below the *de minimis* levels, a full conformity determination is not required. Those at or above the levels are required to perform a conformity analysis as established in the Rule. The *de minimis* levels apply to emissions that can occur during the construction or operation phases of the action.

3.2.2 Air Permit Requirements

The GWCC does not produce enough emissions to be considered a Title V (major source) facility under the CAA. Therefore, there are no air operation permits for the facility.

3.2.3 Existing Ambient Air Quality Concentrations

Ambient air quality is monitored in Prince George's County by a station meeting USEPA's design criteria for State and Local Air Monitoring Stations (SLAMS) and National Air Monitoring Stations (NAMS). Four monitor locations have been in operation during the past five years. At two locations, there are three individual monitors in operation measuring ozone, $PM_{2.5}$, and meteorological conditions in the county. The highest and second highest values recorded at these stations during the period 2008 through 2012 are shown in Table 3-2.

Monitoring Station	Year				
	2008	2009	2010	2011	2012
#240330030 – Howard University's Beltsville Laboratory					
eight–hour (1st / 2nd Maximum) - Ozone	0.097/0.085	0.076/0.073	0.094/0.091	0.094/0.091	0.091/0.085
24-hour (1st / 2nd Maximum) – $PM_{2.5}$ – 1	35/30.6	21.7/19	34.4/20.3	24.7/22	25/22.3
24-hour (1st / 2nd Maximum) $PM_{2.5}$ – 2	NA	NA	17.2/14.4	24.3/15.1	25/22.1
#240338003 – PG County Equestrian Center					
eight–hour (1st / 2nd Maximum) – Ozone	0.081/0.080	0.071/0.068	0.090/0.090	0.095/0.092	0.104/0.091
24-hour (1st / 2nd Maximum) $PM_{2.5}$ – 1	35.9/32.7	27.7/20.9	21.4/21.3	28.8/25.8	24.7/23.8
24-hour (1st / 2nd Maximum) $PM_{2.5}$ – 2	35/32	15/14.9	19.3/18.6	15/13.9	14.8/14.7
#240339991 – Powder Mill Road					
eight–hour (1st / 2nd Maximum) – Ozone	NA	NA	NA	0.092/0.086	0.097/0.085
#240330025 – Bladensburg Volunteer Fire Dept					
24-hour (1st / 2nd Maximum) $PM_{2.5}$ – 1	37.7/33.4	28.1/23.5	35.7/32.4	27/25.4	NA

Source: USEPA 2013b

Table 3-2: Two Highest Ozone and $PM_{2.5}$ Values, 2008 to 2012

3.2.4 Meteorology/Climate

Temperature is a parameter used in calculations of emissions for air quality applicability. Climate at USDA Beltsville can be characterized as a humid, continental with an average high temperature of 88° Fahrenheit (F) in July and an average low temperature of 25°F in January. Summers are warm with periods of high humidity and winters are cold, with periods of snow cover (City-data, n.d.).

3.2.5 Regional Air Quality Index Summary

The USEPA calculates the Air Quality Index (AQI) for five major air pollutants regulated by the Clean Air Act: ground-level O_3, PM, CO, SO_2, and NO_2. The Metropolitan Washington Council of Governments (MWCOG) collects data daily to determine air quality for the region and releases it in the form of the AQI. The AQI ranges from zero to 500, with zero being no air pollution and 500 representing severely unhealthy air pollution levels. An AQI value between 101 and 150 indicates that air quality is unhealthy for sensitive groups, which may be subject to negative health effects. Sensitive groups may include those with lung or heart disease, who would be negatively affected by lower levels of ground level ozone and particulate matter than the rest of the general public. An AQI value between 151 and 200 is considered to be unhealthy and may result in negative health effects for the general public, with more severe effects possible for those in sensitive groups. AQI values above 200 are considered very unhealthy. An AQI over 300 represents hazardous air quality (AirNow 2013).

Table 3-3 displays the recent AQI data for Prince George's County, Maryland, and shows that an AQI over 300 has not been recorded in the area in the 2008-2012 period. There were no days over 200 during this time period.

Year	AQI - 101 to 150 Unhealthy for Sensitive Groups (days)	AQI - 151 to 200 Unhealthy (days)
2008	12	1
2009	1	0
2010	20	0
2011	16	1
2012	16	1

Source: USEPA 2013c

Table 3-3: AQI Data for Prince George's County, Maryland

3.2.6 Greenhouse Gases

There is broad scientific consensus that humans are changing the chemical composition of Earth's atmosphere. Activities such as fossil fuel combustion, deforestation, and other changes in land use are resulting in the accumulation of trace GHGs, such as CO_2, in our atmosphere. An increase in GHG emissions is said to result in an increase in the Earth's average surface temperature, which is commonly referred to as global warming. Global warming is expected, in turn, to affect weather patterns, average sea level, ocean acidification, chemical reaction rates, precipitation rates, etc., which is commonly referred to as climate change. The Intergovernmental Panel on Climate Change best estimates are that the average global temperature rise between 2000 and 2100 could range from 0.6 degrees Celsius (°C) (with no increase in GHG emissions above year 2000 levels) to 4.0°C (with substantial increase in GHG emissions). Even small increases in global temperatures could have considerable detrimental impacts on natural and human environments.

GHGs include water vapor, carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), O_3, and several hydrocarbons (HCs) and chlorofluorocarbons (CFCs). Each GHG has an estimated Global Warming Potential (GWP), which is a function of its atmospheric lifetime and its ability to absorb and radiate infrared energy emitted from the Earth's surface. A gas's GWP provides a relative basis for calculating its Carbon Dioxide Equivalent (CO_2e), which is a metric measure used to compare the emissions from various GHGs based upon their GWP. CO_2 has a GWP of 1, and is therefore the standard to which all other GHGs are measured.

Water vapor is a naturally occurring GHG and accounts for the largest percentage of the greenhouse effect. Next to water vapor, CO_2 is the second-most abundant GHG. Uncontrolled CO_2 emissions from power plants, heating sources, and mobile sources are a function of the power rating of each source, the feedstock (fuel) consumed, and the source's net efficiency at converting the energy in the feedstock into other useful forms of energy (e.g., electricity, heat, and kinetic). Because CO_2 and the other GHGs are relatively stable in the atmosphere and essentially uniformly mixed throughout the troposphere and stratosphere, the climatic impact of these emissions does not depend upon the source location on the earth (i.e., regional climatic impacts/changes would be a function of global emissions).

Regulatory Climate

There have been no significant environmental regulations enacted in the U.S. at the national level to specifically address increasing concentrations of GHGs or climate change for facilities that are not a major source of emissions. In April 2007, the U.S. Supreme Court determined that the EPA had the regulatory authority to list GHGs as pollutants under the federal CAA. The EPA has sought comments from the public and other federal agencies, but has not yet proposed or adopted any regulations

pertaining to GHGs. Numerous proposals and bills have been circulated and have been considered in the U.S. Congress to regulate GHGs, but no legislation has been adopted.

Currently, federal agencies address emissions of GHGs by reporting and meeting reductions mandated in laws, EOs and policies. The most recent of these are EO 13514 *Federal Leadership in Environmental, Energy, and Economic Performance* of October 5, 2009 and EO 13423 *Strengthening Federal Environmental, Energy, and Transportation Management* of January 26, 2007.

Specific USDA measures to reduce GHG emissions are discussed under section 3.4 Sustainability.

3.3 Soils

Soils located in the proposed solar photovoltaic array project locations have been mapped using the National Resources Conservation Service (NRCS) Soil Survey for Prince George's County, Maryland (USDA-NRCS Soil Survey 2009). The soil types found within the project areas are detailed in Table 3-4 and Figure 3-5.

Soil Name	Geographic Location	Flooding Potential	Drainage	Erosion Potential	Farmland Classification
Christiana-Downer complex, 5 to 10 percent slopes	Interfluves, swales, hill slopes	None	Moderately well drained	Moderate	Farmland of statewide importance
Downer-Hammonton complex, 2 to 5 percent slopes	Knolls, interfluves, broad interstream divides	None	Well drained	Slight	Prime farmland
Downer-Hammonton complex, 10 to 15 percent slopes	Knolls, interfluves, broad interstream divides	None	Well drained	Moderate	Not prime farmland
Russett-Christiana complex, 0 to 2 percent slopes	Knolls, interfluves, broad interstream divides, swales	None	Moderately well drained	Slight	Prime farmland
Russett-Christiana complex, 2 to 5 percent slopes	Interfluves, broad interstream divides, swales	None	Moderately well drained	Moderate	Prime farmland

Table 3-4: Description of Soils in the Project Area

The northern site for proposed solar photovoltaic array is located primarily on the Downer-Hammonton complex (2-5 percent slopes) and the Russet-Christiana complex (0-2 percent slopes). The southern portion of the project area is located on the Russet-Christiana complex (2-5 percent slopes). These soil units do not have flooding potential and range from moderately well- to well-drained. While the majority of the site has only slight erosion potential, the most southern portion is located in a soil unit with moderate erosion potential. Both soil units located on the northern and middle portion of the site are more susceptible to wind erosion while the southern soil unit is more susceptible to water erosion. Any construction could increase the potential for erosion. Each of the soil classifications located at this site are classified by the USDA as prime farmland meaning that the areas have the best combination of physical and chemical characteristics for producing crops and also serve as prime developable land.

The southern site for the proposed solar photovoltaic array is located primarily on the Downer-Hammonton complex (2-5 percent slopes). The northwest portion of the site is on Downer-Hammonton complex (10-15 percent slopes) and the eastern portion is on Christiana-Downer complex (5-10 percent slopes). These soil units do not have potential for flooding and are moderately well to well drained. The majority of the site is only slightly susceptible to erosion, with the northwest portion and western portion being located on soil units with moderate susceptibility. The Christiana-Downer complex (5-10 percent slopes) has a higher susceptibility to water erosion and the other soil units are more susceptible to wind. The majority of the site is classified as prime farmland, with the northwest portion soil unit not being classified and the western portion being classified as farmland of statewide importance, which describes land similar to prime farmland in its characteristics but with particular importance to the state.

The majority of the two sites are composed predominately of previously disturbed agricultural land that is now turf panels, meaning that soils have been disturbed and may not hold some of the characteristics presented above.

While there are soils within the project sites that are classified as prime farmland, the proposed action is not subject to the Farmland Protection Policy Act because the land is already in urban development[1] .

3.4 Sustainability

"Sustainability creates and maintains the conditions under which humans and nature can exist in productive harmony, that permits fulfilling the social, economic and other requirements of present and future generations" (USEPA n.d.). It involves balancing materials and resources to protect human health and the environment. The federal government has set forth to create a sustainable nation and as mentioned in Section 1.4 (*Background*), the USDA must meet the requirements of numerous federal statues, executive orders, and mandates that require changes in energy consumption patterns to carry

[1] Urban and built-up areas -A Land cover/use category consisting of residential, industrial, commercial, and institutional land; construction sites; public administrative sites; railroad yards; cemeteries; airports; golf courses; sanitary landfills; sewage treatment plants; water control structures and spillways; other land used for such purposes; small parks (less than 10 acres) within urban and built-up areas; and highways, railroads, and other transportation facilities if they are surrounded by urban areas. Also included are tracts of less than 10 acres that do not meet the above definition but are completely surrounded by Urban and built-up land (USDA 2009b).

out the sustainability effort. The USDA has also set forth a Strategic Sustainability Performance Plan (SSPP) to commit to operating in a sustainable manner and to better understand and address climate change adaptation (USDA 2012a).The SSPP consists of eight goals to help achieve sustainability and meet federal requirements.

Goal 1: **Greenhouse Gas Reduction and Maintenance of USDA Comprehensive Greenhouse Gas Inventory.** Reductions in employee travel, contracted waste disposal, and transmission and distribution losses from purchased electricity would be made to achieve the Scope 3 GHG reduction target.

Goal 2: **Buildings, ESPC, Initiative Schedule, and Regional and Local Planning.** Progress will be made to improve energy efficiency and renewable energy use performance.

Goal 3: **Fleet Management.** Reductions in fossil fuel use and an increase in alternative fuel usage in fleet vehicles will be continued.

Goal 4: **Water Use Efficiency and Management.** The promotion of water conservation and better stormwater management practices will be continued.

Goal 5: **Pollution Prevention and Waste Reduction.** A reduction in waste/landfill matter will be made.

Goal 6: **Sustainable Acquisition.** Online tools have been made available to help achieve sustainability.

Goal 7: **Electronic Stewardship and Data Centers.** Procuring and handling electronics in an environmentally sound manner will continue as well as reducing the number of data centers.

Goal 8: **Innovation and Government-wide Support.** The USDA will continue to pursue innovative initiatives, projects, practices, and partnerships promoting sustainability.

As of 2011, the USDA made progress towards reaching its goals, specifically Goals 1, 2, 4, and 7. The USDA has worked towards Goal 1 by decreasing carbon dioxide emissions by 4.7 percent to help achieve a 21 percent reduction of Scope 3 GHG emissions by 2020. To help attain Goal 2, a facility energy use reduction of 21.8 percent has been completed toward the 2015 goal of a 30 percent reduction. To accomplish Goal 4, the USDA made a potable water use reduction of 18.9 percent toward a 2020 goal of 26 percent. The USDA has accomplished the electronics stewardship acquisition and end-of-life lifecycle goals of procuring Electronic Product Environmental Assessment Tool[2] (EPEAT-registered) products for 95 percent of eligible electronics and handling 100 percent of excess and surplus electronics equipment in an environmentally sound manner to reach Goal 7(USDA 2012a).

GWCC's current electric needs are supplied through an agreement with Pepco. The GWCC has seen a steady increase in electric use and cost from FY 1999 to FY 2010. The electric use at GWCC has increased by 26percent in FY 2012 compared to our baseline year of FY 2003. The electrical use decreased by over 14 percent compared to FY 2010 (USDA 2012b). To help achieve USDA and federal goals, GWCC has proposed eight Energy Conservation Measures (ECMs) within the 2011 Detailed Feasibility Study (USDA 2011) to implement renewable energy infrastructure, improve energy efficiency, and reduce its reliance on purchased electricity.

[2] EPEAT is an easy-to-use, online tool to help institutional purchasers select and compare computer desktops, laptops, and monitors based on their environmental attributes (USEPA 2010).

ECM 4: Install a 1.7 MW Solar PV Array (the proposed action).

ECM 5: Replace the current 300-ton chillers with two comparably sized high-efficiency magnetic bearing McQuay centrifugal chillers using HFC-134a refrigerant.

ECM 6: Use of the thermal ice bank and diesel generator on a non-emergency basis to offset chiller and electric load.

ECM7: Replace existing Liebert unit control modules at individual units with networked, solid-state temperature and humidity controls.

ECM 8: Retrofit or replace water fixtures with low flow equipment.

ECM 9: Retrofit or replace existing lighting fixtures with high-efficiency low power fixtures.

ECM 10: Complete a full building envelope study to locate possible infiltration problems.

ECM 11: Upgrade the existing DDC control system to increase system efficiency and occupant comfort.

ECMs 5 to 11 would be completed in the foreseeable future and are analyzed in the Cumulative Impacts section in Chapter 4.

3.5 Water Resources, Stormwater Management, and Coastal Zone Management

The entire GWCC is located within the Anacostia River Watershed of the Potomac River. Water quality conditions in the Anacostia River reflect the historic land use changes that have occurred throughout the watershed during the past two centuries. Extensive woodland clearing for agriculture and later urban development have created stresses on the watershed system that are reflected by its current overall water quality (MWCOG 2010).

Surface Water

There are no surface water sources within the site of the GWCC. The two project sites consist entirely of turf grass. Indian Creek, a tributary of the northeast branch of the Anacostia River is located to the east of the GWCC. An intermittent drainage way runs along the northeast boundary of the GWCC and discharges to the east beneath the Beltsville Metro railroad tracks.

Ground Water

Groundwater is found in hydrologic basins, or aquifers, below the ground surface. Recharge occurs through infiltration of surface water, often an accumulation of precipitation moving through surface layers and into underlying aquifers. Recharge can be affected by a variety of factors such as rainfall, topography, soil types, geologic structure, and ground surface cover. Groundwater recharge requirements must be met by the project stormwater management design.

The GWCC is underlain by the Northern Atlantic Coastal Plain aquifer, Patuxent Formation (MDNR 2005). The water table at the project sites is in the form of shallow, unconfined aquifers. Depth of the water table at the GWCC varies, but it is typically 16 to 27 feet below ground surface (USGS 2013).

Wetlands and Floodplains

The U.S. Department of Interior, Fish, and Wildlife Service, National Wetlands Inventory (NWI) 2012 data for the GWCC area does not indicate the presence of wetlands at GWCC or on the two project sites. A site visit conducted in July 2013 confirmed that no wetlands occur on the project sites.

Both proposed project sites for construction of the new photovoltaic arrays are located outside of the 100-year floodplain (FEMA 1989).

Stormwater Management

Section 402 of the CWA established the National Pollutant Discharge Elimination System (NPDES) to regulate the discharge of effluents into U.S. waters by regulating point sources that discharge pollutants. Point sources are discrete conveyances such as pipes or man-made ditches. Industrial, municipal, and other facilities must obtain permits if their discharges go directly to surface waters. The NPDES program in Maryland is administered through the MDE.

Stormwater runoff from the southern portion of the GWCC facility drains to a grassed swale directly south of the GWCC buildings. The northern portion of the facility drains to the east into a drainage ditch along the GWCC and WMATA property lines.

Coastal Zone Management

The Coastal Zone Management Act (CZMA) of 1972 (11 USC 1451 et seq), as amended through the Coastal Zone Protection Act of 1996, requires federal agencies to review their actions for potential impacts on coastal resources and for consistency with the Maryland CZMP. The CZMP in Maryland is based on federal laws, such as Section 404 of the CWA of 1977, and state laws, such as the Chesapeake Bay Critical Area Program, the Tidal Wetlands Act of 1970, the Non-Tidal Wetlands Protection Act of 1989, and the state's authority under Section 401 of the CWA of 1977. Consistency with Maryland's CZMP involves compliance to the maximum extent practicable with the aforementioned relevant federal and state regulatory programs. Compliance with the consistency determination emphasizes the avoidance and minimization of impacts to tidal wetlands as part of their evaluation for CZMA consistency. Pursuant to Section 307 of CZMA, 16 USC § 1456, as amended, and its implementing regulations at 15 CFR 930, USDA has submitted a Federal Consistency Determination for the proposed installation of solar photovoltaic arrays at the GWCC in Beltsville, Maryland for evaluation. This correspondence can be found in Appendix A (Consultation and Coordination).

Critical Areas - As a component of the Maryland CZMP, the Chesapeake Bay Critical Area Program implements comprehensive plans and policies to protect land and water resources in the Chesapeake Bay Critical Area. Land use development standards and requirements are intended to foster more sensitive development activity for shoreline areas and minimize the adverse impacts of development and land use activities on water quality and natural resources. The State Critical Area is non-federal land within 1,000 feet of the bay and its tidal tributaries.

Because the project sites proposed for installation of solar photovoltaic arrays are on federal land and located more than 1,000 feet from tidal waters, they are not within a Chesapeake Bay Critical Area and not subject to critical area requirements.

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4.0 ENVIRONMENTAL CONSEQUENCES

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4.1 General Approach and Methodology for Establishing Impact Thresholds and Measuring Effects by Resource

This chapter analyzes beneficial and adverse impacts that would result from implementing the alternatives considered in this EA. Impacts of the alternatives were considered for the construction and long-term operation of the solar photovoltaic arrays. As documented in Chapter 1, resources that are not likely to be impacted by the alternatives have been dismissed from detailed analysis.

As required by CEQ regulations implementing NEPA, a summary of the environmental consequences for each alternative is provided in Table 2-1 in Chapter 2. The resource topics presented in this chapter and the organization of the topics correspond to the resource discussions contained in Chapter 3: Affected Environment of this EA.

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

Type: The impact type refers to whether it is adverse (negative) or beneficial (positive). Adverse impacts would potentially harm resources, while beneficial impacts would improve resource conditions. Within the analysis, impacts are assumed to be adverse unless identified as beneficial.

Duration: Impacts resulting from construction are considered short term and would occur during the construction of the site improvements. Long-term impacts would persist once the construction is complete.

Intensity: The intensity of an impact describes the magnitude of change that the impact generates. The intensity thresholds are as follows:

- **Negligible:** There would be no impact or the impact would not result in a noticeable change in the resource.
- **Minor:** The impact would be slight, but detectable, resulting in a small but measurable change in the resource.
- **Moderate:** The impact would be readily apparent and/or easily detectable.
- **Major:** The impact would be widespread and would substantially alter the resource. A major adverse impact would be considered significant under NEPA.

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

4.2 Air Quality

Proposed Action Alternative

The proposed action alternative would require the operation of heavy equipment for site preparation and construction of solar arrays. Given that both proposed project locations are already flat and that solar arrays would require clearing of a few landscape trees, construction impacts from heavy

equipment would be limited to delivery trucks and digging holes for the panel footers. Construction activities have the potential to produce dust and result in short-term increases in vehicle emissions in the vicinity of the proposed project site. However, the production of dust and the increase in vehicle emissions would be minimal due to the size and scope of the construction activities and would be temporary in nature as they would only occur during construction. Additional impacts during construction would include delivery trucks and emissions from commuting to and from the site by construction workers. Construction would result in short-term minor adverse impacts to air quality.

During operation, there would be a beneficial impact from the reduction of energy requirements from Pepco. Given the small amount of renewable energy that would be produced, this reduction would be immeasurable in terms of improvement to overall air quality in the airshed.

Overall, project emissions from construction and operation would not be expected to exceed the *de minimis* values for moderate nonattainment ozone areas in an ozone transport region and nonattainment for $PM_{2.5}$ (100 TPY for NO_x, $PM_{2.5}$, and SO_2, and 50 TPY for VOCs). A Record of Non-Applicability is provided in Appendix B.

No Action Alternative

Under the no action alternative, the current energy production and consumption patterns at GWCC would remain and no solar photovoltaic arrays would be installed or operated. Because there would be no construction and no change in operations, there would be no impact to air quality.

4.3 Soils

Proposed Action Alternative

Soils found within the area of the proposed solar photovoltaic arrays would experience minor adverse impacts associated with proposed construction activities. Heavy machinery could be used when preparing the site for construction such as for minor grading and digging holes for the footers. As a result of these construction activities, soil layer structure would be disturbed and modified. Soils would be exposed, increasing the overall potential for erosion and resulting in short-term minor adverse impacts to soils.

Soils in the project sites have varying erosion potential characteristics from slight to moderate erodibility. The potential for erosion where footers would be placed and construction activities would occur would be minor because existing vegetation (grass) would not be removed other than in the footprint of the footers. After construction, areas disturbed outside of the footprints of the new construction would be aerated and reseeded, grass replanted, and/or re-sodded, which would decrease the overall erosion potential of the site and improve soil productivity.

Implementation of the proposed alternative would result in up to 10 acres of disturbed soil. In addition, the proposed solar photovoltaic arrays would increase impervious surface (from the footers) and cause shading. As a result, soil productivity, could decline in disturbed areas resulting in long-term negligible adverse impacts to soils. In addition, the proposed action alternative would also require the removal of the soil where the mounting structures or footers would be installed in the ground resulting in long-term minor adverse impacts to soils.

Soil Best Management Practices (BMPs) would be put in place for controlling runoff, erosion, and sedimentation during construction activities, as well as after construction. Site-specific BMPs could include:

- a perimeter silt fence and tree protection for landscape trees;
- protection of stormwater management structures; and
- sediment traps.

No Action Alternative

Under the no action alternative the solar photovoltaic arrays would not be constructed and there would be no impacts to soils.

4.4 Sustainability

Proposed Action Alternative

Under the proposed action alternative, the USDA would further its sustainability efforts. The installation of a solar photovoltaic array would help achieve GWCC energy conservation measures the USDA's SSPP Goals 1 and 2 as well as the federal government sustainability requirements by providing up to 10 percent of the GWCC's electricity needs, all resulting in a moderate beneficial impact. When using an onsite solar photovoltaic array, less greenhouse gas emissions would be produced due to a decrease in transmission and distribution losses associated with purchased electricity. Additionally by not contributing to global warming, acid rain and smog, the solar photovoltaic array would lower GWCCs carbon footprint. The reduction in purchased electricity would also decrease the dependence on conventional energy sources. Reducing conventional energy source use and increasing renewable energy use collectively result in better sustainability for the center.

The proposed action alternative would have long-term moderate beneficial impacts on GWCC and the USDA's sustainability efforts. The installation of a photovoltaic array would provide approximately 25 years of electricity to GWCC, equivalent to the lifespan of photovoltaic devices. The proposed action alternative would generate a minor beneficial impact by providing GWCC with 10 percent of its electricity needs. The overall environmental consequence from the proposed action alternative would be a long-term moderate beneficial impact to sustainability efforts by GWCC and the USDA.

No Action Alternative

Under the no action alternative, sustainability efforts would not be made and the USDA might fail to meet the requirements of the EPAct 2005, EISA, EO 13423 and SSPP. This would result in both short- and long-term minor adverse effects.

4.5 Water Resources, Stormwater Management, and Coastal Zone Management

Proposed Action Alternative

Surface Water

Under the proposed action alternative, approximately 10 acres of the GWCC would be impacted for the construction of the photovoltaic arrays. Construction projects with more than 5,000 square-feet of earth

disturbance require an approved erosion and sediment control plan, consistent with Maryland's most current erosion and sediment control guidelines, and stormwater management (COMAR 26.17.01 and 26.17.02). While the panels of the photovoltaic arrays would be considered impervious surfaces, there would, however, be limited impervious surfaces added to existing impervious surfaces at the GWCC as a result of construction of the footers for the photovoltaic arrays.

During construction, soils would be exposed, creating an increased potential for erosion and/or transport of surface pollutant into nearby bodies of water. Prior to construction, a general permit for construction activities (required for projects that would disturb one or more acres of earth) would be obtained, which would include an approved sediment and erosion control plan. Appropriate site specific erosion and sediment control BMPs would be implemented to reduce surface erosion and control runoff of pollutants and ensure that adverse impacts would be negligible.

To reduce the risk of adverse impacts to water quality from the use of construction vehicles and equipment, the contractor would prepare a hazardous spill plan, stating the protocols to be taken in the event of a fuel leak or spill. This plan would incorporate preventative measures to reduce the likelihood of spills and to ensure that any spills that do occur are contained and do not enter any nearby surface waters via either overland flows or stormwater conveyance systems.

Ground Water

Negligible adverse impacts to groundwater quality would be expected as a result of construction activities. The USDA would comply with the Spill Prevention, Control, and Countermeasures Rule (40 CFR 112) and existing groundwater protection protocols as required under the Safe Drinking Water Act (1974, with amendments 1986).

Accidental release of petroleum, oils, and lubricants from construction equipment could adversely impact groundwater quality. However, using BMPs, including sediment and erosion control practices in keeping with federal and Maryland sediment and erosion control requirements and following industry standards would minimize potential adverse effects. This would result in negligible adverse impacts to groundwater from construction activities. In addition, adherence to the general permit requirements would minimize potential for adverse impacts to shallow unconfined groundwater resulting from project development.

Wetlands and Floodplains

No impacts to wetlands are expected from the proposed action alternative because no wetland areas exist within the GWCC or the project sites. Additionally, no impacts to floodplains are expected because the project site is located outside of the 100-year floodplain.

Stormwater Management

In December 2007, Congress enacted the EISA (42 U.S.C. 17094). Section 438 of EISA requires federal agencies to develop and redevelop applicable facilities in a manner that maintains or restores stormwater runoff to the maximum extent technically feasible. The provision reads as follows: *"Storm water runoff requirements for federal development projects. The sponsor of any development or redevelopment project involving a federal facility with a footprint that exceeds 5,000 square feet shall use site planning, design, construction, and maintenance strategies for the property to maintain or restore, to the maximum extent technically feasible, the predevelopment hydrology of the property with regard to the temperature, rate, volume, and duration of flow."*

On October 5, 2009, President Barack Obama signed EO 13514, "Federal Leadership in Environmental, Energy, and Economic Performance." Section 14 of the EO provides Stormwater Guidance for Federal Facilities.

In December 2009, USEPA issued Technical Guidance on Implementing the Stormwater Runoff Requirements for Federal Projects under Section 438 of the Energy Independence and Security Act (USEPA 2009). Implementation of Section 438 of the EISA is to be achieved through the use of the green infrastructure/low impact development (GI/LID) infrastructure tools described in this guidance, with the intent of maintaining or restoring the predevelopment site hydrology during the development or redevelopment process. Currently, USDA is using technically feasible stormwater control practices that employ or mimic natural hydrologic processes to manage the temperature, rate, volume, and duration of flow of stormwater discharge to achieve the specific performance objectives of EISA Section 438, the EPA Stormwater Guidance for Federal Facilities, and Section 14 of EO 13514.

USDA will adhere to stormwater management requirements in the technical guidance for Section 438 of the EISA. The proposed action alternative would also be implemented in compliance with MDE regulations and the applicable requirements of the MDE Stormwater Design Manual, including the most current revisions (MDE 2000). Prior to construction, a stormwater management plan would be implemented by USDA and approved by MDE. This plan would address the minor increase in impervious surfaces and any potential increases in overland runoff by incorporating stormwater control designs (either new or expand existing onsite stormwater management structures) into the project to manage the rate at which runoff and associated nutrients leave the site. This requirement has recently been made more stringent by Maryland's Stormwater Management Act of 2007, which requires that environmental site design, through the use of nonstructural best management practices and other better site design techniques, be implemented to the maximum extent practicable.

With the planning and management measures implemented during and after construction, minor adverse impacts to stormwater management would be expected.

Coastal Zone Management

Enforceable provisions relevant to the proposed action include the Maryland Erosion and Sediment Control Regulations (COMAR 26.17.01), the Maryland Stormwater Management Plan Regulations (COMAR 26.17.02), guidelines and permit requirements, and Maryland provisions established pursuant to the NPDES Phase II stormwater permit requirements. Section 404 of the CWA, Maryland tidal or nontidal wetlands and waterways authorizations, and Section 401 Water Quality Certifications issued through MDE would be applicable to any impacts to wetlands and other waters of the U.S. associated with the proposed action.

Best management practices and Maryland permit requirements would be followed to minimize impacts and make any impact consistent with Maryland CZMP and minimize potential impacts from runoff into the surface waters. USDA would comply with the Spill Prevention, Control, and Countermeasures Rule (40 CFR 112) and existing groundwater protocols that are required under the Safe Drinking Water Act. USDA will adhere to stormwater management requirements in the technical guidance for Section 438 of the EISA. The proposed installation and operation of the solar photovoltaic arrays under the proposed action alternative would also be implemented in compliance with MDE regulations and the applicable requirements of the MDE Stormwater Design Manual. As a result, the action alternative would be consistent with the applicable enforceable policies and mechanisms of the Maryland CZMP.

A Federal Consistency Determination was submitted to the MDE to seek state concurrence with the USDA's determination that the action is consistent with the state's CZMP. This correspondence can be found in Appendix C.

Critical Area – The proposed site for installation and operation of solar photovoltaic arrays is on federal land in addition to being located more than 1,000 feet from tidal waters; it is not within a Chesapeake Bay Critical Area and not subject to critical area requirements.

No Action Alternative

Under the no action alternative, USDA would not enter into a Solar Photovoltaic Energy Service Agreement with Washington Gas Light Company to construct and operate solar photovoltaic arrays at the GWCC. There would be no impacts to water resources, including surface water, ground water, wetlands, floodplains, the coastal zone management, or the existing stormwater management from the no action alternative.

4.6 Cumulative Impacts

4.6.1 Cumulative Impact Projects

Cumulative impacts are defined as "the impact on the environment that results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or nonfederal) or person undertakes such other actions" (40 CFR 1508.7). These impacts are considered as part of the analysis so that the environmental impacts of the proposed action are understood within the context of other ongoing and planned changes.

Several ongoing and planned projects in the area could generate cumulative impacts when considered together with the impacts of the proposed action. These projects are as follows:

Past Projects

The impacts of past actions on the GWCC are already reflected in the conditions that currently exist, as described in the Affected Environment section of each resource topic.

Ongoing

There are no current projects at GWCC that could be considered cumulative actions for this project.

Planned

There are new construction projects proposed in the foreseeable future at the GWCC. However, a Detailed Feasibility Study (DFS) and preliminary design were performed by Pepco for USDA in 2011. The DFS details current energy use and practices at GWCC and recommends ECMs including the proposed solar photovoltaic array installation analyzed in this project. In addition, the DFS recommends the following ECMs that would be completed in the foreseeable future:

- *Chiller replacement* – Remove two existing 300-ton chillers and replace with two comparably sized high-efficiency magnetic bearing McQuay centrifugal chillers.
- *Demand response* – Shed demand by using the existing thermal storage unit to offset the chiller load and use the existing emergency generators onsite to offset the electric load, resulting in 300-500 kW of connected load reduction available on a nonemergency basis.

- *Data center upgrades* – Replace the existing Liebert unit control modules at individual units with a networked, solid-state temperature and humidity control.
- *Water conservation* – Retrofit or replace existing water fixtures running at high water flow conditions with low flow equipment to conserve water and reduce maintenance costs.
- *Lighting* – Retrofit and replace existing lighting fixtures with high efficiency lighting and appropriate task lighting.
- *Building envelope/weatherization* – Create a continuous air barrier from floor deck to floor deck by using foam or caulk at all existing penetrations to reduce energy loss from leaks.
- *Existing Direct Digital Control (DDC) control system upgrade* – Replace the existing pneumatic controllers with electrically controlled hardware; expand the control system to full zone control; and install upgraded software for Graphic User Interface (GUI) enabled human machine interface.

4.6.2 Proposed Action Alternative

Soils

There are no present or reasonably foreseeable future cumulative actions that would impact soils; therefore, there are no cumulative impacts to soils.

Air Quality

Reasonably foreseeable projects at GWCC that would impact air quality could include all of the projects listed above as they could each require at least some construction. Most projects would require minimal construction equipment, likely a few extra vehicles to the site each day for the construction workers, resulting in short-term negligible adverse impacts to air quality. There would be long-term beneficial impacts to air quality from projects that increase energy efficiency throughout the campus, including the chiller replacements, building envelope/weatherization, demand response, and lighting upgrades. The proposed action alternative would contribute short-term minor adverse and long-term beneficial impacts, resulting in overall short-term minor and long-term beneficial cumulative impacts to air quality.

Sustainability

The impact of foreseeable future projects, along with the installation of a solar photovoltaic array at GWCC, would result in a cumulative beneficial impact to the sustainability efforts of GWCC and the USDA.

Water Resources, Stormwater Management, and Coastal Zone Management

There are no present or reasonably foreseeable future cumulative actions that would impact water resources, stormwater management, or coastal zone management, therefore no cumulative impacts to these resources.

4.6.3 No Action Alternative

Implementation of the no action alternative would avoid new impacts for all resource areas, except sustainability. The no action alternative would have a long-term minor adverse impact on the USDA's efforts to increase sustainability as a result of failing to meet the requirements of the EPAct 2005, EISA,

and EO 13423 and the USDA's commitment to operating in a sustainable manner set forth by the goals outline it its SSPP. In combination with proposed future ECMs, the no action alternative would have a minor adverse, cumulative impact on the USDA's effort to meet its sustainability goals.

5.0 REFERENCES, PREPARERS, ACRONYMS, AND GLOSSARY

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5.2 Preparers

USDA

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OLBN

Tina Li, Project Manager
Scott Paden, Program Manager

The Louis Berger Group

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Julie Eitner, Environmental Planner – Coastal Zone Management
Rebecca Byron, Environmental Planner – Air Quality
Rebecca Hott, Environmental Planner and GIS Specialist – Sustainability
David Plakorus, Environmental Planner – Soils
Denise Short, Editor
Rea Wilson, Editor

5.3 Acronyms

Air Quality Control Regions	AQRs
Air Quality Index	AQI
Best Management Practices	BMPs
Carbon dioxide	CO2
Carbon dioxide equivalent	CO2e
Chlorofluorocarbons	CFCs
Carbon monoxide	CO
Clean Air Act	CAA
Clean Air Act Amendments	CAAA
Clean Water Act	CWA
Coastal Zone Management Program	CZMA
Code of Federal Regulations	CFR
Council on Environmental Quality	CEQ
Detailed Feasibility Study	DFS
Direct current	DC
Direct Digital Control Assessment Tool	(DDC
Electronic Product Environmental	EPEAT
Energy Conservation Measures	ECMs
Energy Independence and Security Act of 2007	EISA
Energy Policy Act	EPAct
Energy savings performance contracts	ESPCs
Environmental Assessment	EA
Executive Order	EO
George Washington Carver Center	GWCC
Global Warming Potential	GWP
Graphic User Interface	GUI

Green infrastructure	GI
Greenhouse gases	GHGs
Hydrocarbons	HCs
Kilowatt	kW
Lead	Pb
Low impact development	LID
Maryland Coastal Zone Management Plan	CZMP
Megawatt hours	MWh
Methane	CH_4
Metropolitan Washington Council of Governments	MWCOG
National Air Monitoring Stations	NAMS
National Ambient Air Quality Standards	NAAQS
National Environmental Policy Act	NEPA
National Historic Preservation Act	NHPA
National Pollutant Discharge Elimination System	NPDES
National Resources Conservation Service	NRCS
National Wetlands Inventory	NWI
Nitrogen dioxide	NO_2
Nitrogen oxide	NOx
Nitrous oxide	N_2O
Ozone	O_3
Particulate matter	PM_{10}, $PM_{2.5}$
Perchloroethylene	PERC
Potomac Electric Power Company	Pepco
Prevention of Significant Deterioration	PSD
State and Local Air Monitoring Stations	SLAMS
Strategic Sustainability Performance Plan	SSPP
Sulfur dioxide	SO_2
Tons per year	TPY
U.S. Department of Agriculture	USDA
U.S. Environmental Protection Agency	USEPA
Volatile organic compounds	VOCs
Washington Metro Area Transit Authority	WMATA

5.4 Key Word Glossary

Affected Environment — The existing environment to be affected by a proposed action and alternatives.

Best Management Practices — Methods that have been determined to be the most effective, practical means of preventing or reducing pollution or other adverse environmental impacts.

Council on Environmental Quality — Established by Congress within the Executive Office of the President with passage of the NEPA of 1969. The CEQ coordinates federal environmental efforts and works closely with agencies and other White House offices in the development of environmental policies and initiatives.

Cumulative Impacts — Under NEPA regulations, the incremental environmental impact or effect of an action together with the effects of past, present, and reasonably foreseeable future actions, regardless of what agency or person undertakes such other actions (40 CFR §1508.7).

Endangered Species — Any species that is in danger of extinction throughout all or a significant portion of its range. The lead federal agency for the listing of a species as endangered is the USFWS, and it is responsible for reviewing the status of the species on a five-year basis.

Environmental Assessment — An environmental analysis prepared pursuant to NEPA to determine whether a federal action would significantly affect the environment and thus require a more detailed environmental impact statement.

Executive Order — Official proclamation issued by the President that may set forth policy or direction or establish specific duties in connection with the execution of federal laws and programs.

Floodplain — The flat or nearly flat land along a river or stream or in a tidal area that is covered by water during a flood.

National Environmental Policy Act — The act, as amended, articulates the federal law that mandates protecting the quality of the human environment. It requires federal agencies to systematically assess the environmental impacts of their proposed activities, programs, and projects including the no action alternative of not pursuing the proposed action. NEPA requires agencies to consider alternative ways of accomplishing their missions in ways that are less damaging to the environment.

National Historic Preservation Act of 1966 (16 USC 470 et seq.) — An Act to establish a program for the (PL 89-665; 80 STAT. 915; 16 USC 470, as amended by PL 91-243, PL 93-54, PL 94-422, PL 94-458, PL 96-199, PL 96-244, PL 96-515, PL 98-483, PL 99-514, PL 100-127, and PL 102-575).

Scoping — Scoping, as part of NEPA, requires examining a proposed action and its possible effects; establishing the depth of environmental analysis needed; and determining analysis procedures, data needed, and task assignments. The public is encouraged to participate and submit comments on proposed projects during the scoping period.

Solar Photovoltaic Array — A solar photovoltaic system is an arrangement of components designed to supply usable electric power using the sun as a power source.

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APPENDICES

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Appendix A: Agency Coordination

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United States
Department of
Agriculture

Office of the
Assistant Secretary
for Administration

Office of Operations

1400 Independence
Avenue SW

Washington, DC
20250-9800

July 23, 2013

TO: Ms. Genevieve LaRouche, Field Supervisor
U.S. Fish & Wildlife Service
Chesapeake Bay Field Office
177 Admiral Cochrane Drive
Annapolis, MD 21401

FROM: Edward Murtagh
Sustainable Operations Manager

SUBJECT: PROPOSED SOLAR POWER ARRAY AT GEORGE WASHINGTON CARVER CENTER, BELTSVILLE, MARYLAND

Dear Ms. LaRouche:

The United States Department of Agriculture (USDA) is preparing an Environmental Assessment (EA) to determine the potential effects associated with the proposed installation of solar power arrays at the George Washington Carver Center (GWCC) in Beltsville, Maryland. The proposed action would include the installation and operation of approximately 10 acres of solar photovoltaic arrays at two sites at GWCC in support of a Solar Photovoltaic Energy Service Agreement between USDA and Washington Gas Light Company. The proposed actions will help the USDA meet Federal legislative requirements to save energy and increase the use and purchase of renewable energy.

A biological survey was completed by a Resources Conservationist at Natural Resources Conservation Service (NRCS) in support of the ongoing EA effort (see enclosure). A site evaluation determined that the proposed sites for the solar panel installation are composed entirely of frequently mowed lawn and contains no threatened or endangered species. Prior to the establishment of lawn during construction of the GWCC, the land at the proposed solar panel sites was used for agricultural. The existing vegetation at the proposed sites is primarily introduced turf grasses and weeds. Consistent with the Maryland Natural Heritage Program database indicates that no threatened or endangered species are known to exist within the site area.

We are requesting a current list of state and federal listed threatened or endangered species that are known to occur, or that could potentially occur on, or in the vicinity of the project sites proposed for the development solar power arrays. We would also like to know if there are any other sensitive natural resources or ecosystems that should be considered during the development of

the EA. The project sites being considered for the proposed solar arrays are provided in the enclosure.

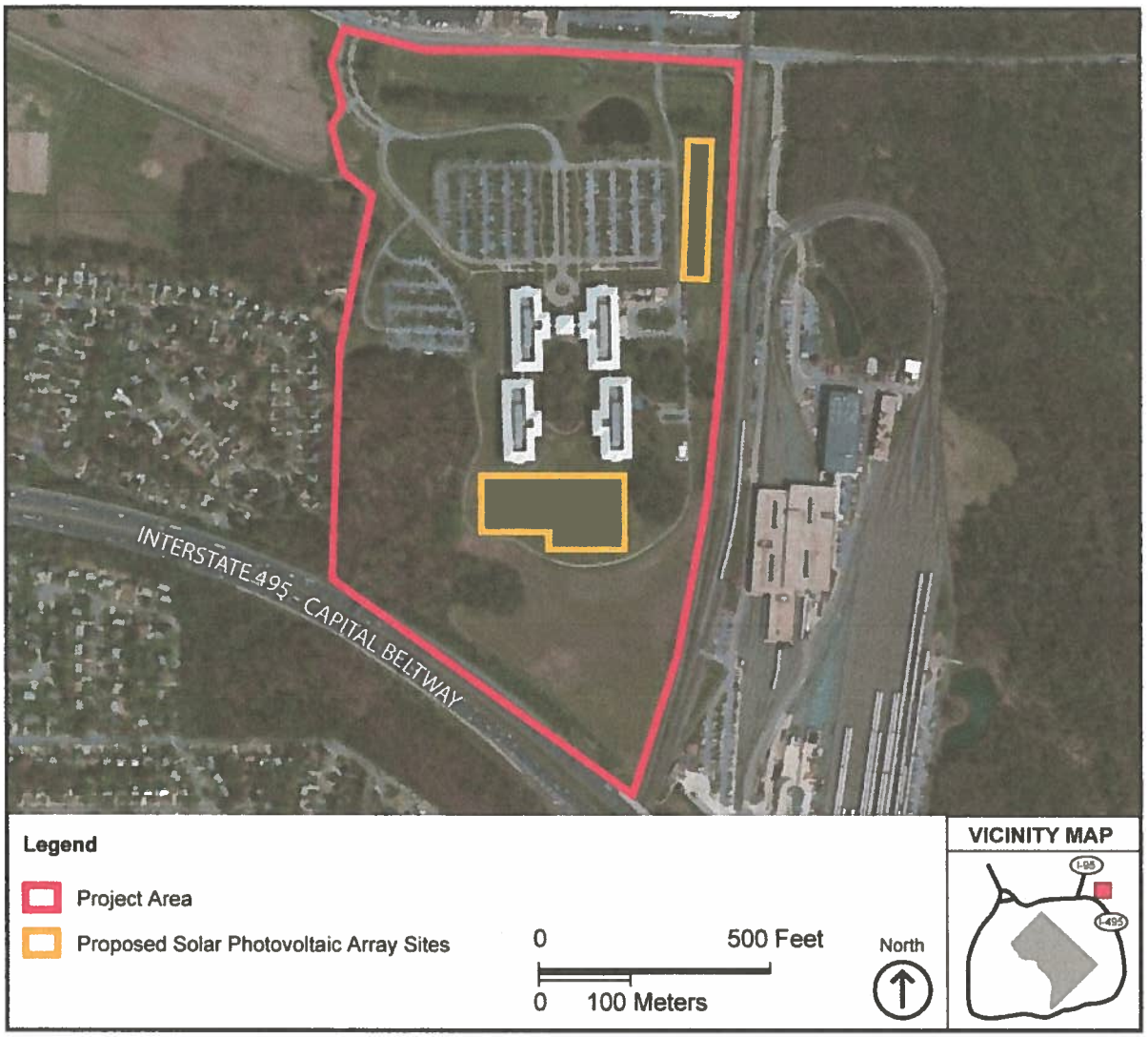
Please direct all correspondence to Mr. Edward Murtagh, Sustainable Operations Manager, Office of Operations, U.S. Department of Agriculture, 1400 Independence Ave., SW, Suite 1444 South Building, Washington, D.C. 20250. For more information, please contact Mr. Murtagh at 202.720.5961.

Sincerely,

Edward Murtagh

Enclosures: Proposed Sites for Solar Power Arrays
NRCS Biological Survey for GWCC

Proposed Project Sites for the Development of Solar Power Arrays
George Washington Carver Center, Beltsville, Maryland



United States Department of Agriculture

USDA

NRCS Natural Resources Conservation Service

Norman A. Berg
National Plant Materials Center
Building 509, BARC-East
Beltsville, MD 20705

Office: (301) 504-8175
Fax: (301) 504-8741
RJay.Ugiansky@md.usda.gov

March 26, 2013

TO: Edward Murtagh, P.E., CEM
Sustainable Operations Manager
Office of Operations
U.S. Department of Agriculture

FROM: R Jay Ugiansky, Resource Conservationist

SUBJECT: .GWCC Biological Survey for solar panel installation

A biological survey was requested as part of an update to the George Washington Carver Center's (GWCC) environmental assessment (EA) in preparation for solar panel installation. I conducted a site evaluation and determined that the proposed sites for the solar panel installation is composed entirely of frequently mowed lawn and contains no threatened or endangered species. Prior to the establishment of lawn during construction of the GWCC, the land at the proposed solar panel sites was used for agricultural. The existing vegetation at the proposed sites is primarily introduced turf grasses and weeds. Consistent with the original EA for the GWCC, the Maryland Natural Heritage Program database indicates that no threatened or endangered species are known to exist within the site area. See attached map.

Please let me know if you have questions or if I can provide further assistance.

Sincerely,

R. Jay Ugiansky

R Jay Ugiansky, Resource Conservationist

United States
Department of
Agriculture

Office of the
Assistant Secretary
for Administration

Office of Operations

1400 Independence
Avenue SW

Washington, DC
20250-9800

July 23, 2013

TO: Ms. Lori Byrne
Maryland Dept. of Natural Resources
Tawes State Office Building
580 Taylor Avenue
Annapolis, MD 21401

FROM: Edward Murtagh
Sustainable Operations Manager

SUBJECT: PROPOSED SOLAR POWER ARRAY AT GEORGE WASHINGTON CARVER CENTER, BELTSVILLE, MARYLAND

Dear Ms. Byrne:

The United States Department of Agriculture (USDA) is preparing an Environmental Assessment (EA) to determine the potential effects associated with the proposed installation of solar power arrays at the George Washington Carver Center (GWCC) in Beltsville, Maryland. The proposed action would include the installation and operation of approximately 10 acres of solar photovoltaic arrays at two sites at GWCC in support of a Solar Photovoltaic Energy Service Agreement between USDA and Washington Gas Light Company. The proposed actions will help the USDA meet Federal legislative requirements to save energy and increase the use and purchase of renewable energy.

A biological survey was completed by a Resources Conservationist at Natural Resources Conservation Service (NRCS) in support of the ongoing EA effort (see enclosure). A site evaluation determined that the proposed sites for the solar panel installation are composed entirely of frequently mowed lawn and contains no threatened or endangered species. Prior to the establishment of lawn during construction of the GWCC, the land at the proposed solar panel sites was used for agricultural. The existing vegetation at the proposed sites is primarily introduced turf grasses and weeds. Consistent with the Maryland Natural Heritage Program database indicates that no threatened or endangered species are known to exist within the site area.

We are requesting a current list of state and federal listed threatened or endangered species that are known to occur, or that could potentially occur on, or in the vicinity of the project sites proposed for the development solar power arrays. We would also like to know if there are any other sensitive natural resources or ecosystems that should be considered during the development of

the EA. The project sites being considered for the proposed solar arrays are provided in the enclosure.

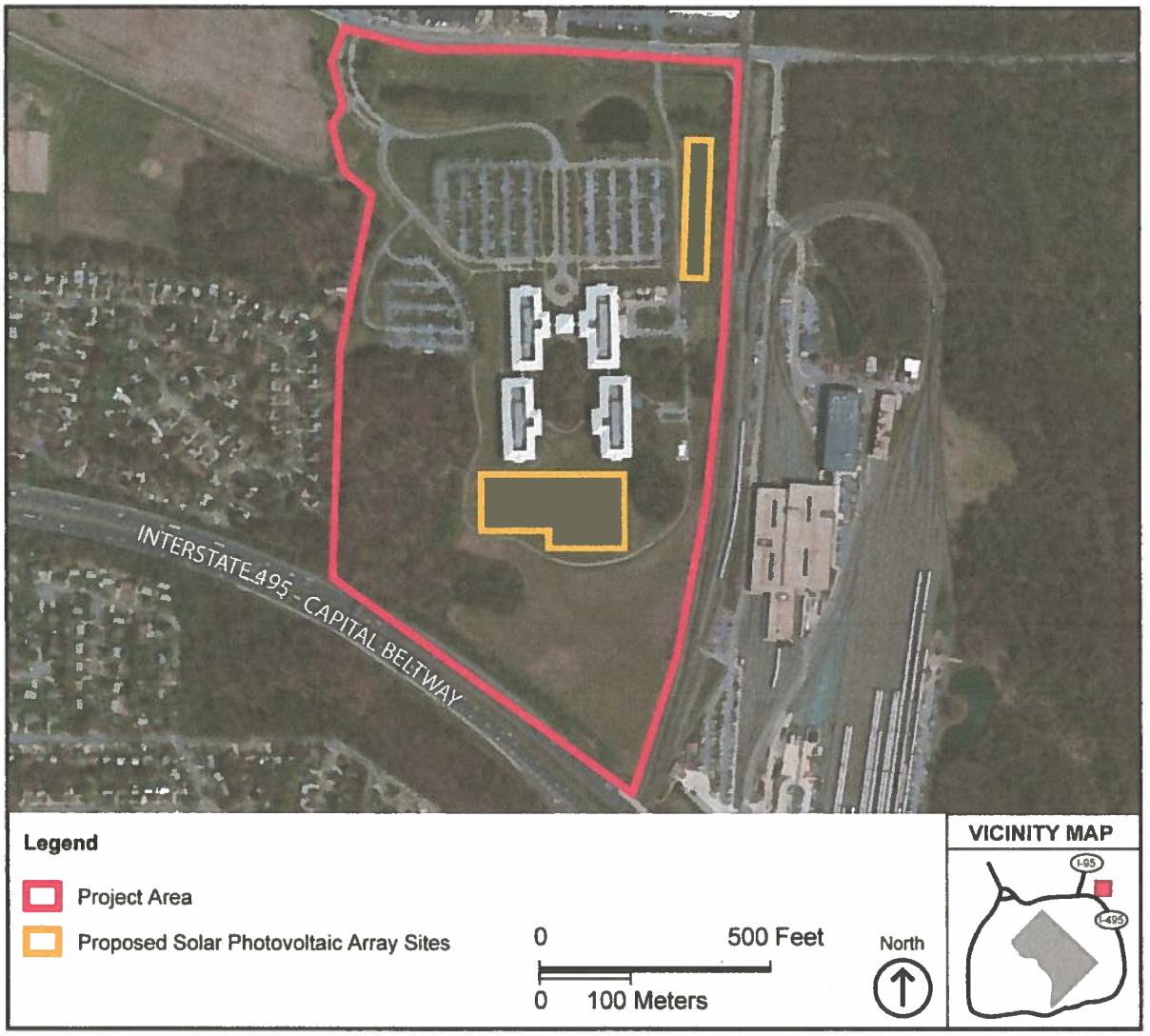
Please direct all correspondence to Mr. Edward Murtagh, Sustainable Operations Manager, Office of Operations, U.S. Department of Agriculture, 1400 Independence Ave., SW, Suite 1444 South Building, Washington, D.C. 20250. For more information, please contact Mr. Murtagh at 202.720.5961.

Sincerely,

Edward Murtagh

Enclosures: Proposed Sites for Solar Power Arrays
NRCS Biological Survey for GWCC

Proposed Project Sites for the Development of Solar Power Arrays
George Washington Carver Center, Beltsville, Maryland



United States Department of Agriculture

USDA

NRCS Natural Resources Conservation Service

Norman A. Berg
National Plant Materials Center
Building 509, BARC-East
Beltsville, MD 20705

Office: (301) 504-8175
Fax: (301) 504-8741
RJay.Ugiansky@md.usda.gov

March 26, 2013

TO: Edward Murtagh, P.E., CEM
Sustainable Operations Manager
Office of Operations
U.S. Department of Agriculture

FROM: R Jay Ugiansky, Resource Conservationist

SUBJECT: .GWCC Biological Survey for solar panel installation

A biological survey was requested as part of an update to the George Washington Carver Center's (GWCC) environmental assessment (EA) in preparation for solar panel installation. I conducted a site evaluation and determined that the proposed sites for the solar panel installation is composed entirely of frequently mowed lawn and contains no threatened or endangered species. Prior to the establishment of lawn during construction of the GWCC, the land at the proposed solar panel sites was used for agricultural. The existing vegetation at the proposed sites is primarily introduced turf grasses and weeds. Consistent with the original EA for the GWCC, the Maryland Natural Heritage Program database indicates that no threatened or endangered species are known to exist within the site area. See attached map.

Please let me know if you have questions or if I can provide further assistance.

Sincerely,

R. Jay Ugiansky

R Jay Ugiansky, Resource Conservationist

Appendix B: Record of Non-Applicability

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GENERAL CONFORMITY – RECORD OF NON-APPLICABILITY

Project/Action
Name: USDA GWCC Solar Power Array Installation – USDA Beltsville

AUG 14 2013

Project/Action
Point of Contact: Edward Murtagh

General Conformity under the Clean Air Act, Section 176 has been evaluated for the project described above according to the requirements of 40 CFR 93, Subpart B. The General Conformity Rule applies to federal actions occurring in regions designated as being in nonattainment for the National Ambient Air Quality Standards (NAAQS) or attainment areas subject to maintenance plans (maintenance areas). Threshold (*de minimis*) rates of emissions have been established for federal actions with the potential to have significant air quality impacts. If a project/action located in an area designated as nonattainment exceeds these *de mimimis* levels, a general conformity analysis is required. Prince George's County is designated as a moderate ozone (8-hour) nonattainment area in an ozone transport region, and a nonattainment area for particulate matter (2.5 microns) thus the NOx, VOC, PM2.5, and SO2, thresholds apply.

A General Conformity Analysis of this project/action is not required because maximum annual direct and indirect emissions from this project/action would not exceed the *de minimis* levels established in 40 CFR 93.153 (b) of:

NOx: 100 tons; VOC: 50 tons; PM2.5: 100 tons; SO2: 100 tons

The project/action is not considered regionally significant under 40 CFR 93.153 (i).

Prince George's County is in attainment for criteria pollutants CO, NO2, SO2, PM10, and Pb and therefore these pollutants are not subject to conformity review.

Supporting documentation and emissions estimates can be found in Section 3.2 and 4.2 and Appendix B of the Environmental Assessment document.

Edward J. Hogberg
Director
Safety, Sustainability and Emergency Operations

Appendix C: Federal Consistency Determination

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United States Department of Agriculture

Office of the Assistant Secretary for Administration

Office of Operations

1400 Independence Avenue SW

Washington, DC 20250-9800

TO: Mr. Elder A. Ghigiarelli, Jr.
Deputy Program Administrator
Coastal Zone Consistency Division
Wetlands and Waterways Program
Maryland Department of the Environment
Montgomery Park Business Center
1800 Washington Boulevard, Suite 430
Baltimore, MD 21230-1708

AUG 14 2013

SUBJECT: PROPOSED CONSTRUCTION OF SOLAR POWER ARRAYS AT GEORGE WASHINGTON CARVER CENTER IN BELTSVILLE, MARYLAND

Dear Mr. Ghigiarelli:

Pursuant to Section 307 of the Coastal Zone Management Act (CZMA), 16 U.S.C. § 1456, as amended, and its implementing regulations at 15 C.F.R. Part 930, this is a Federal Consistency Determination for the referenced proposed action regarding the proposed construction and operation of solar power arrays at the George Washington Carver Center (GWCC) in Beltsville, Maryland. Under the CZMA, federal agencies must determine whether their activities have a direct or indirect foreseeable effect over coastal uses or resources of states with approved coastal management programs. If no coastal effects are foreseeable, a negative determination is warranted. If effects are foreseeable, a determination of consistency with the enforceable policies of the approved plan is required. The State of Maryland has a federally approved Coastal Zone Management Plan (CZMP), which includes the Maryland Critical Area Law as part of this plan.

Figure 1 shows the area being proposed for construction and operation of solar power arrays at GWCC under the Preferred Alternative.

The proposed action would install solar photovoltaic arrays at two sites, totaling approximately 10 acres, on the GWCC campus. These activities represent minimal foreseeable indirect effects over Maryland coastal resources in that impervious surfaces, erosion, sedimentation, and stormwater runoff may increase due to soil disturbance. The proposed action would be consistent with the Maryland CZMP under 15 CFR 930.36 in that all activities would be conducted in accordance with the Maryland erosion and sediment control regulations, Maryland stormwater regulations, and applicable federal and state permit requirements, as explained in more detail below.

AN EQUAL OPPORTUNITY EMPLOYER

Proposed Action and Alternatives

USDA is proposing to construct and operate solar photovoltaic arrays at two sites, totaling approximately 10 acres, on the GWCC campus. One site is located on a lawn panel directly east of the GWCC parking lot and the other site is located on a large lawn panel directly south of the GWCC buildings. The solar photovoltaic arrays would be a total of 914 kilowatt direct current in size and provide a year 1 estimated output of approximately 1,258 megawatt hours. The arrays would be mounted at 180-degree azimuth with a 25-degree tilt. The exact size of the arrays would be finalized in the detailed design phase of this project.

The following two alternatives are under evaluation:

Proposed Action Alternative (The Preferred Alternative) – Construction and operation of the proposed solar photovoltaic arrays would include the installation of the aforementioned solar arrays on two site totaling approximately 10 acres.

No Action Alternative - The No Action Alternative maintains the current energy production and consumption patterns at GWCC would remain the same. Pepco would continue to provide the campus with electricity to meet its demand. No solar photovoltaic arrays would be installed or operated

Enforceable Provisions

Enforceable provisions relevant to the proposed action include the Maryland Erosion and Sediment Control Regulations (COMAR 26.17.01), the Maryland Stormwater Management Plan Regulations (COMAR 26.17.02), guidelines and permit requirements, and Maryland provisions established pursuant to the National Pollution Discharge and Elimination System (NPDES) Phase II stormwater permit requirements.

Coastal Effects and Consistency Determination for the Preferred Alternative

Based on the above description, the Preferred Alternative represents minimal foreseeable effects over coastal uses or resources in the State of Maryland. Construction activities in relation to the installation and operation of solar power arrays represent negligible impacts to surface water and would not impact wetlands. Under the Preferred Alternative, an estimated 10 acres of previously disturbed area could be impacted during construction. While the panels of the photovoltaic arrays would be considered impervious surfaces, there would, however, be limited impervious surfaces added to existing impervious surfaces at the GWCC, as a result of construction of the footers for the photovoltaic arrays. During construction, soils would be exposed, creating an increased potential for erosion and/or transport of surface pollutant into adjacent bodies of water. Prior to construction, a General Permit for construction activity would be obtained, which would include an approved sediment and erosion control plan. Appropriate site specific erosion and sediment control BMPs would be implemented to reduce surface erosion and control runoff of pollutants.

No impacts to wetlands are expected from the proposed action alternative because no wetland areas exist within the GWCC or the project sites. Additionally, no impacts to floodplains are expected because the project site is located outside of the 100-year floodplain. Best management practices and Maryland permit requirements will be followed to minimize impacts and make any impact consistent with Maryland CZMP and minimize potential impacts from runoff into the surface water.

USDA will comply with the Spill Prevention, Control & Countermeasures Rule (40 CFR 112) and existing groundwater protection protocols as required under the Safe Drinking Water Act (1974, with amendments 1986). To reduce the risk of adverse impacts to water quality from the use of construction vehicles and equipment, the contractor would submit a hazardous spill plan, stating the protocols to be taken in the event of a fuel leak or spill. This plan would incorporate preventative measures to reduce the likelihood of spills and to ensure that any spills that do occur are contained and do not enter any surface waters via either overland flows or stormwater conveyance systems.

USDA will adhere to stormwater management requirements in the technical guidance for Section 438 of the EISA, to include the use of the GI/LID infrastructure tools described in this guidance. LID measures would be considered in the design of stormwater management measures and implemented when practical. This could include such features as vegetated swales.

Construction and operation of the solar photovoltaic arrays under the Preferred Alternative would also be implemented in compliance with MDE regulations and the applicable requirements of the MDE Stormwater Design Manual, including the most current revisions. Prior to construction, a stormwater management plan must also be implemented by USDA and approved by MDE. This plan would address the increase in impervious surfaces and any potential increases in overland runoff by incorporating stormwater control designs into the project to manage the rate at which runoff and associated nutrients leave the site. This requirement has recently been made more stringent by Maryland's Stormwater Management Act of 2007, which requires that environmental site design, through the use of nonstructural best management practices and other better site design techniques, be implemented to the maximum extent practicable.

The Preferred Alternative site proposed for construction of the new solar photovoltaic arrays is located more than 1,000 feet from tidal waters and therefore, is not subject to the Critical Area Act and its requirements.

The Preferred Alternative site is located in a previously disturbed area that currently consists of lawn panels. Impacts to vegetation as a result of construction would not be expected to occur.

Consistency Determination

Erosion and sediment control plan and a stormwater management plan will be prepared and implemented as a component of the construction process. The erosion and sediment control plan will be developed consistent with Maryland's 2011 Standards & Specifications for Soil Erosion & Sediment Control and would be approved in accordance with requirements established in Title

4, Subtitle 1 of the Environment Article, Annotated Code of Maryland and in the Code of Maryland Regulations 26.17.01. The approved plan will include the location and design of erosion and sediment control measures, including best management practices, that would be implemented during construction activities to minimize potential effects to water quality associated with erosion and surface water runoff.

A stormwater management plan will also be developed, consistent with the provisions established in Maryland's 2001 Stormwater Management Guidelines for State and Federal Projects, and approved in accordance with the requirements established in Title 4, Subtitle 2 of the Environment Article, Annotated Code of Maryland and in the Code of Maryland Regulations 26.17.02. The plan will be implemented to ensure proper reduction and management of runoff both during and following construction. All required permits would be obtained by the developer prior to construction activities.

Construction of solar photovoltaic arrays minimizes potential affects to land or water resources in the State of Maryland's coastal zone and is consistent with Maryland's CZMP.

Coastal Effects and Consistency Determination for the No Action Alternative

Under the No Action Alternative, construction of the proposed solar photovoltaic arrays would not occur at the GWCC. The No Action Alternative would not affect land or water resources in the State of Maryland's coastal zone, is consistent with the applicable enforceable policies and mechanisms of Maryland's CZMP.

Conclusion

Based on the above information, data, and analysis, USDA finds that the proposed construction and operation of solar photovoltaic arrays and the No Action Alternative are consistent with the applicable enforceable policies and mechanisms of Maryland CZMP.

Pursuant to 15 C.F.R. § 930.41, the Maryland Coastal Management Program has 60 days from receipt of this letter in which to concur with or object to this Consistency Determination, or to request an extension, in writing, under 15 C.F.R. § 930.41(b). Maryland's concurrence will be presumed if its response is not received by the USDA on the 60th day from receipt of this determination. The state's response should be sent to:

Edward Murtagh, P.E.
Sustainable Operations Manager
Office of Operations
U.S. Department of Agriculture
1400 Independence Ave, SW
Suite 1444 South Building
Washington, DC 20250

If you have any questions concerning this consistency determination, please contact Mr. Murtagh at Ed.murtagh@dm.usda.gov or (202) 720-5961.

Thank you for your assistance.

Sincerely,

Edward J. Hogberg
Director
Safety, Sustainability, and Emergency Operations

Enclosure
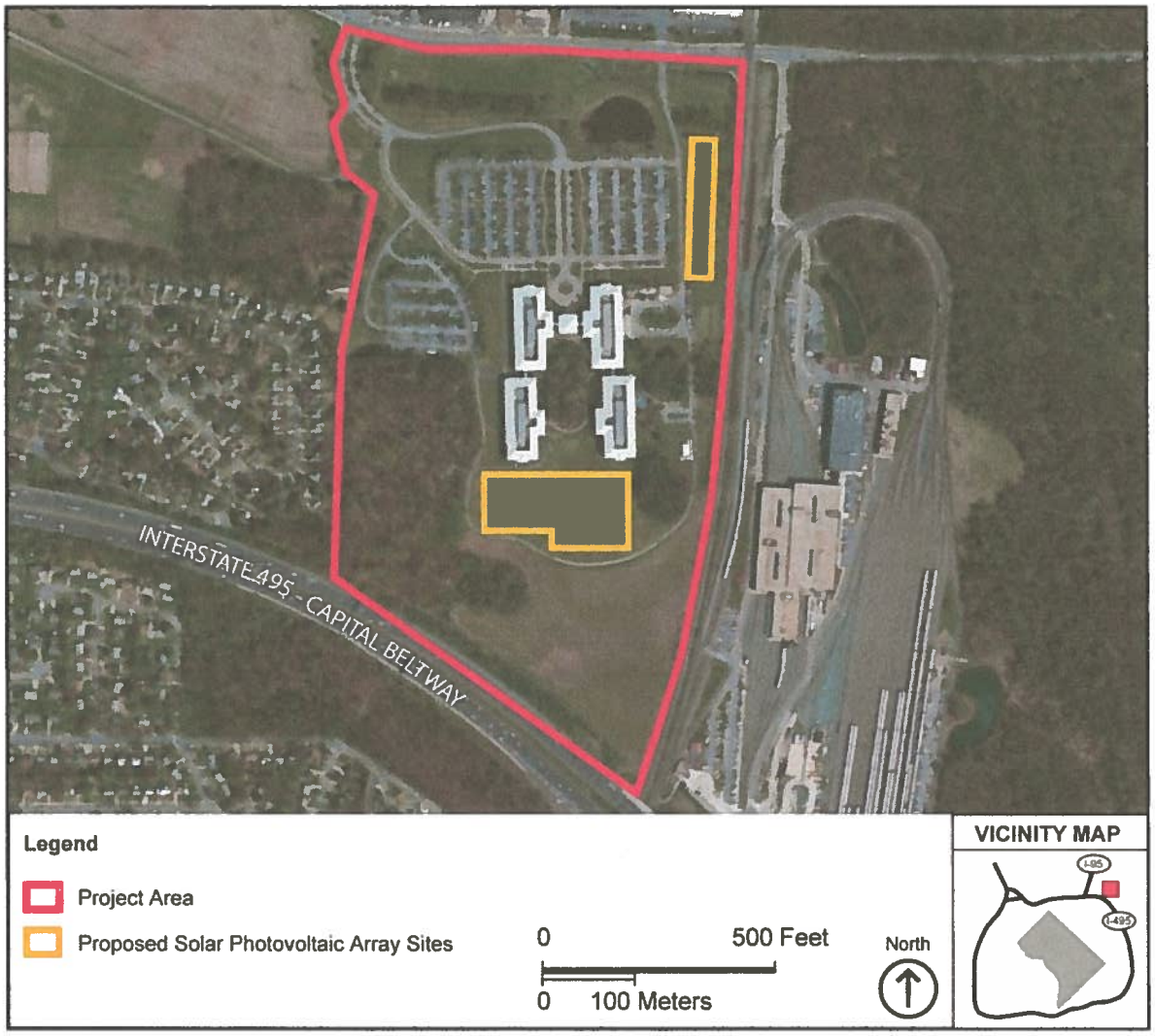
Figure 1: Proposed solar photovoltaic array sites.