



## Executive Director's Recommendation

Commission Meeting: February 1, 2018

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**PROJECT**

**Ground-Mounted Solar Array**

National Institute of Standards  
and Technology  
100 Bureau Drive  
Gaithersburg, Maryland

**NCPC FILE NUMBER**

7927

**NCPC MAP FILE NUMBER**

3115.10(38.30)44641

**SUBMITTED BY**

United States Department of Commerce  
National Institute of Standards and  
Technology

**APPLICANT'S REQUEST**

Approval of preliminary and final  
site development plans

**PROPOSED ACTION**

Approve with comments

**REVIEW AUTHORITY**

Federal Projects in the Environs  
per 40 U.S.C. § 8722(b)(1)

**ACTION ITEM TYPE**

Consent Calendar

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### PROJECT SUMMARY

The United States Department of Commerce, National Institute of Standards and Technology has submitted preliminary and final site development plans to install a ground-mounted solar array as part of an Energy Savings Performance Contract with a private solar power provider. The project site is approximately 15.4 acres in area, consisting of approximately 14,700 solar panels, two 10x30-foot concrete pads for electrical equipment, two gravel roadways to enable maintenance access, and a chain-link fence surrounding the site. The project will enable the campus to meet multiple federal energy and sustainability goals in the future.

### KEY INFORMATION

- The National Institute of Standards and Technology is a bureau within the United States Department of Commerce, housed on a 579-acre scientific research campus in Gaithersburg, Maryland. The campus contains 64 buildings with over 3.5 million gross square feet of research, office, and support space.
  - The applicant has a 20-year lease agreement with a solar power developer to design, construct, operate, and maintain the solar array. The National Institute of Standards and Technology will own the array after the lease expires.
  - The project will supply approximately 5% of the campus's electrical requirements, which equates to 6,799 megawatts of electricity annually.
  - Long-term environmental impacts to air emissions will be positive, reducing the campus's greenhouse gas emissions by over 3,700 tons of carbon dioxide (CO<sub>2</sub>) per year, and reducing campus power costs by \$700,000 annually.
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## RECOMMENDATION

**Approves** the preliminary and final site development plans for a ground-mounted solar array on the campus of the National Institute of Standards & Technology (NIST) in Gaithersburg, Maryland.

## PROJECT REVIEW TIMELINE

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|---|-------|
| <b>Previous actions</b>                   | None. |
| <b>Remaining actions</b><br>(anticipated) | None. |

## PROJECT ANALYSIS

### Executive Summary

The project will help the campus attain several federal sustainability goals in the future and result in air quality benefits, economic benefits to the local economy, and help reduce the campus's dependence upon off-site energy sources. In addition, the applicant will mitigate the project's tree removal based on replacement ratios that will increase the overall number of trees on campus. Many of the existing trees are in poor health due to age and previous wind/storm damage. Staff finds that the project is consistent with the Comprehensive Plan for the National Capital, in particular the Federal Environment Element. Therefore, staff recommends that the Commission **approve the preliminary and final site development plans for a ground-mounted solar array on the campus of the National Institute of Standards & Technology in Gaithersburg, Maryland.**

### Analysis

The proposed 15.4-acre undeveloped project site is located in the southeastern part of the National Institute of Standards and Technology campus, existing of rolling grassy hills and small clusters of trees. The rectangular site was selected based on its undeveloped nature, close proximity to existing development, and potential ease of connecting into the campus's electrical system. The site is situated as far from the campus perimeter fence (along Muddy Branch Road) as possible to minimize visual impacts off-campus (to the southeast) through vegetation and topography. The site is constrained to the north, west, and south by various building restrictions, incompatible terrain, and future planned development.

The solar panels will be installed at a slanted, 25-degree, south-facing angle, between 3-5-feet above ground level to maximize sun-exposure. The panel orientation is roughly parallel to the nearest campus edge along Muddy Branch Road, which will minimize their visual impact to off-site perspectives. Black vinyl chain-link fencing (eight feet in height) will surround the array to prevent deer from damaging the array equipment. The site will remain pervious grass with the

exception of two 10x30-foot concrete pads for electrical equipment and two bisecting 12-foot wide gravel maintenance access roads. The project submission includes existing ground-view photo-simulations to replicate future views of the project area.

The project will remove 52 mature trees, approximately half of which are in poor health due to age, disease, or storm/wind damage according to an official agency assessment. The applicant will replace the trees based on ratios that are consistent with State policies, with larger trees that have a trunk width of greater than 24-inches replaced at a 3:1 ratio, and smaller trees with a trunk width of less than 24-inches replaced at a 2:1 ratio. As a result, the number of replacement trees will total 145, thereby increasing the total number of trees on campus once planted. The applicant will monitor the new trees for a year after planting to ensure their survival. By comparison, NCPC's tree replacement policy is intended to ensure no net tree loss from projects on federal campuses, which is less stringent than the proposed tree replacement plan.

While staff recognizes that the removal of mature trees is reducing an existing environmental benefit (habitat, absorption of carbon dioxide, and shade) to provide for another environmental benefit (renewable energy and reduction in greenhouse gas emissions), staff finds that the renewable energy production and planting of 145 new trees outweighs the loss of the mature tree removal, especially over time as the new trees mature.

The project was not anticipated in the 2009 master plan, however, NIST has included it in their updated master plan which the Commission will review as a draft in April. Staff finds that the selected location of the photovoltaic array would not change in any of the alternatives for the master plan due to specific siting requirements, which include: full sun exposure, proximity to the campus electrical system but far enough away from development to prevent shadows, desire for minimal tree removal and minimal viewshed impacts from surrounding development.

## **CONFORMANCE TO EXISTING PLANS, POLICIES AND RELATED GUIDANCE**

### **Comprehensive Plan for the National Capital**

As noted above, this project meets basic goals of the Comprehensive Plan.

### **Relevant Federal Facility Master Plan**

The project is not included in the current master plan for the campus, which approved by the Commission in 2009. However, the project was unforeseen at the time of the update, and the applicant considered the campus's larger development goals when deciding where to locate the project. The array is reflected in the campus plan update, which is on-going, and will be submitted to NCPC for draft review in April 2018.

### **National Historic Preservation Act**

In July 2017, the applicant coordinated a review of the project with the Maryland Historical Trust, and the Trust concurred with a finding of "no adverse effects" to historic sites, which is reflected in the Environmental Assessment for the project. For projects within the Environs, outside of the

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District of Columbia, NCPC does not have a formal review responsibility under the National Historic Preservation Act.

### **National Environmental Policy Act**

The National Institute of Standards and Technology undertook an Environmental Assessment to analyze the potential impact to the natural and manmade environments, concluding in a Finding of No Significant Impact issued on January 5, 2018. For projects within the Environs, outside of the District of Columbia, NCPC does not have a formal review responsibility under the National Environmental Policy Act.

### **CONSULTATION**

The project was referred out to the Maryland Department of Planning clearinghouse, which forwarded the project to the following agencies: Maryland Department of Natural Resources, Maryland Department of Transportation, Maryland Department of the Environment, Maryland Department of Planning, and Maryland Historical Trust. Each of the review agencies found the project to be generally consistent with their plans, programs, and objectives, with no significant comments provided.

### **ONLINE REFERENCE**

The following supporting documents for this project are available online:

- Submission Letter
- Narrative
- Environmental Assessment (NEPA)
- Environmental Assessment – Finding of No Significant Impact

Prepared by Michael Weil  
01/19/2018

### **POWERPOINT (ATTACHED)**