

# *WEST CAMPUS SOLAR PROJECT*

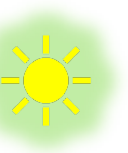
SUBMISSION TO DC ZONING COMMISSION  
OCTOBER 18, 2021

## MEETING DC'S RENEWABLE ENERGY CHALLENGE

# A SOLAR ENERGY RESEARCH, LEARNING & PRODUCTION FACILITY

Unique public + private partnership to create the largest community solar array in the District of Columbia and greater DMV

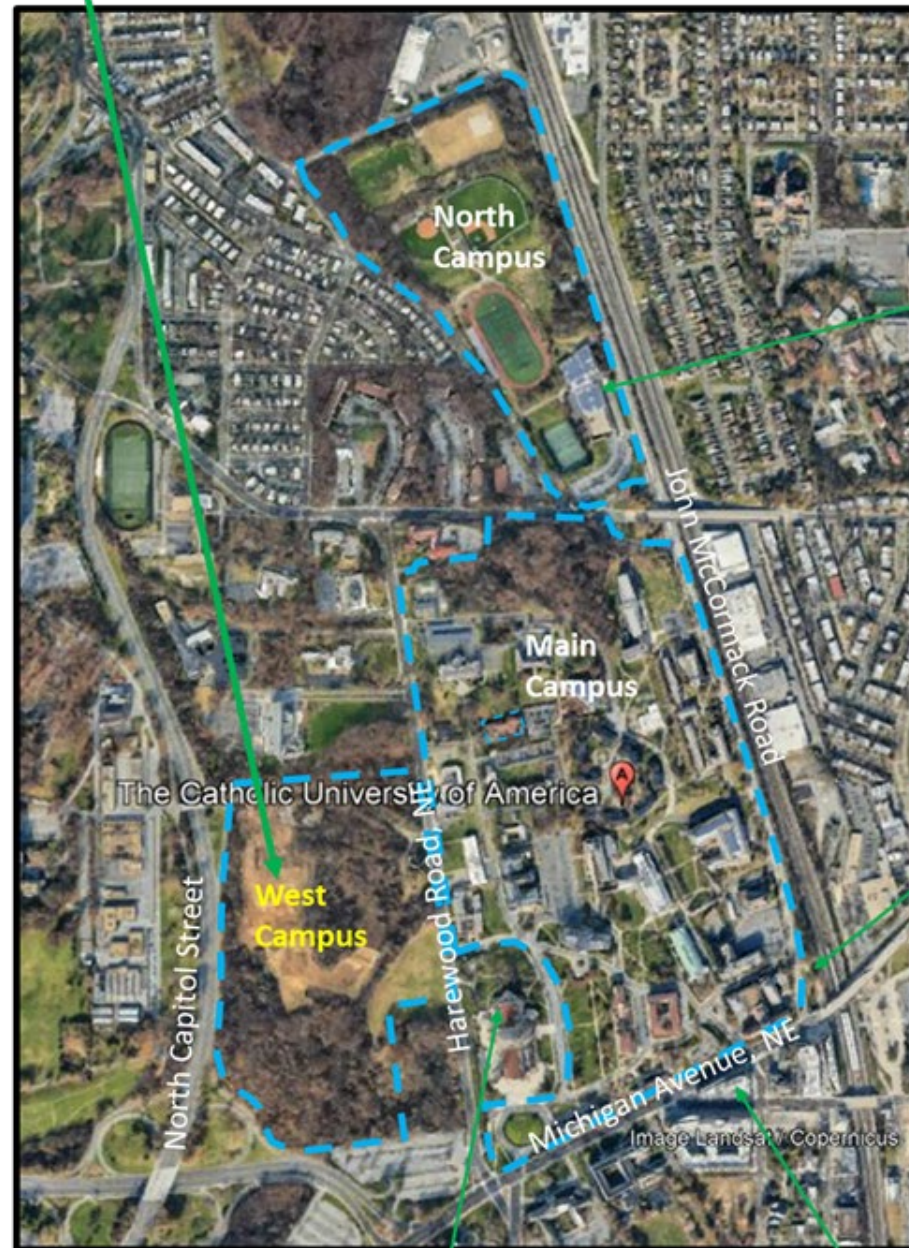
- Supports achievement of the District's renewable energy goals
- Creates learning and research opportunities for Ward 5 high school and university students
- Increases the supply of renewable energy to the local utility grid



# PROJECT LOCATION: CATHOLIC UNIVERSITY'S WEST CAMPUS



Location of Proposed Solar Project



DuFour Athletic Center

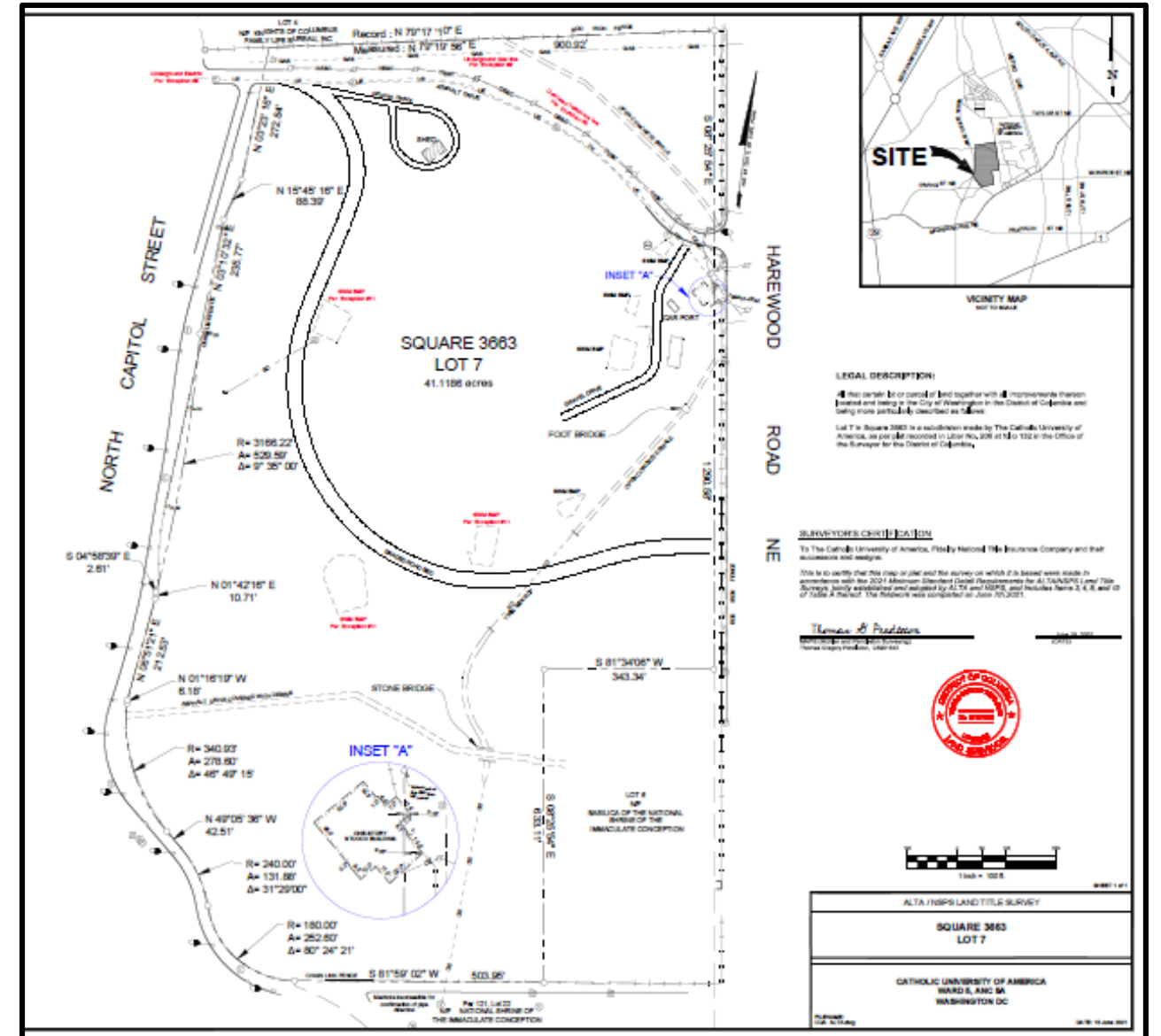
Brookland - CUA Metro Station

Basilica of the National Shrine of the Immaculate Conception

Monroe Street Market

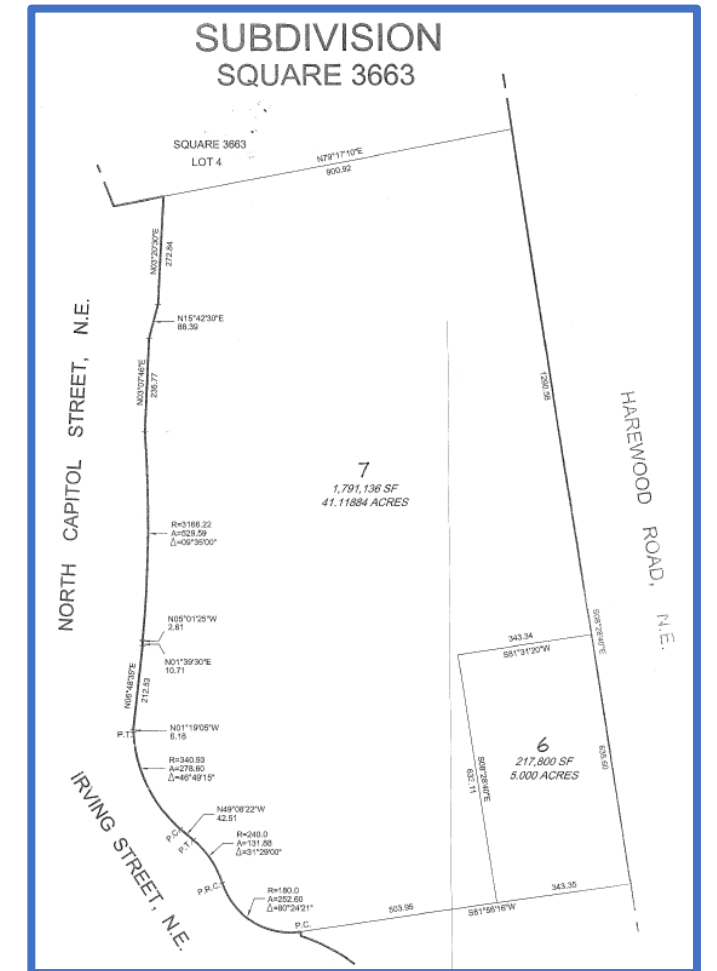
## West Campus: SQUARE 3663 LOT 7

Bordered by:  
 St. John Paul II Shrine to the north;  
 Harewood Road and Main Campus on the east; Prayer Garden and parking lot for the Basilica to the south; and North Capitol Street to the west





# WEST CAMPUS SITE BACKGROUND AND HISTORY



**May 2012:** ZC No. 12-01 approved the University's 15-year Campus Master Plan (2012-2027); cited the pending sale of 5 acres in the southeast corner of West Campus to the Basilica; introduced a new vehicular approach to Main Campus through West Campus from North Capitol Street; allowed for temporary surface parking.

**July 2012:** The University sold 5 acres to the Basilica, subdividing Parcel 121/29 of Square 3663 into Lot 6 (5 acres) and Lot 7 (41.12 acres).



# WEST CAMPUS SITE DESCRIPTION



## EXISTING CONDITIONS AND SITE CHARACTERISTICS:

- Remnant forest is a dominant characteristic of southwestern third of property
- Remaining portion characterized by open space and second growth; open space most recently used as a temporary soil stockpile area for the recently completed Energy Infrastructure project on Main Campus
- Some possible waters of the US and intermittent stream
- Special and heritage trees have been inventoried
- Tree nursery staging area in northwest corner
- Existing, small maintenance/storage facilities near private drive (“Scale Gate Road”)
- Existing vacant gate house near curb cut on Harewood Road just inside iron fence and gate
- Existing rough-graded road bed aligning with the 2012 Campus Master Plan future North Capitol Street approach drive
- Fully surrounded by institutional uses and no adjacent residences



# WEST CAMPUS SOLAR PROJECT IN CONTEXT OF THE 2012 CAMPUS MASTER PLAN



**2012 Campus Master Plan indicates an interim use of a portion of the West Campus as a parking area with a new access road to Campus from the west**

- Existing gates to private drive (“Scale Gate Road”) from North Capitol Street ramp and from Harewood Road provide access for the University, first responders, and utility easement access
- Parking area proposed in the Campus Master Plan has not been implemented
- Controlled access to the site for the University’s use in support of our educational mission and campus operations, including:
  - Tree nursery staging area in NW corner supporting the University’s partnership with Casey Trees
  - Maintenance/storage facilities (mainly snow removal equipment and salt storage)
  - Sponsored educational, research, demonstration, and passive activities on a scheduled basis in appropriate areas of the property
- Interim uses are removed at the end of their intended function



# EXISTING SOLAR PROGRAM AT CATHOLIC UNIVERSITY

Catholic University currently has **2,600 solar panels** on 7 different flat-roofed buildings and the O'Boyle Parking Lot. At the time of its installation, it was one of the largest solar installations in the District of Columbia at **677 kW of installed capacity**.

The program was established through a 20-year agreement signed in 2009 between the University and Washington Gas Energy Services.



*Solar panels on roof of Gibbons Hall*



*Solar canopy at O'Boyle Parking Lot*



*Solar panels on roof of DuFour Athletic Facility*

**Green Campus Map**

- 1 AQUINAS HALL SOLAR PANELS AND GREEN ROOF**  
Two-thirds of the roof of Aquinas Hall are covered with 103 kW of solar panels. The other one-third is a green roof that absorbs rainwater and provides insulation for the building.
- 2 COLUMBUS SCHOOL OF LAW LAWN**  
This area is the green roof of an underground parking garage.
- 3 RAYMOND A. DUFOUR ATHLETIC CENTER SOLAR PANELS**  
A 318 kW solar array is on the roof of the Raymond A. DuFour Athletic Center. It produces enough energy to power 35 homes.
- 4 FATHER HALL SOLAR PANELS**  
Father's 35kW rooftop array could power 4 homes a year.
- 5 GIBBONS HALL SOLAR PANELS**  
On the roof of Gibbons Hall, a 30kW array of solar panels. This array could power 3 homes a year.
- 6 FATHER O'CONNELL HALL LEED BUILDING**  
Father O'Connell Hall is Leadership in Environmental and Energy Design (LEED)-certified. In the renovation of this building, 95% of the existing structure was reused and 75% of demolition waste was diverted from the landfill. Low-flow plumbing fixtures achieved a 30% indoor water-use reduction. On the northeast section of Father O'Connell Hall is a green roof.
- 7 GROUNDS AND MAINTENANCE SOLAR PANELS**  
This building's roof has a 9kW array.
- 8 PANGBORN HALL SOLAR PANELS**  
This 11kW rooftop array can power the equivalent of 1 home annually.
- 9 COMMUNITY GARDEN**  
As part of a student-led effort, the University opened its community garden in 2021. The garden features vegetables and flowers for pollinators. Students, faculty, and staff can volunteer to maintain the garden.
- 10 EDWARD M. CROUGH CENTER FOR ARCHITECTURAL STUDIES LEED BUILDING**  
The Crough Center is notable as the first student-led LEED-certified building and as the first-ever LEED-certified architecture school. The building features many best practices such as efficient lighting and controls, rain gardens and cisterns, building management policies, occupant feedback and encouragement, and water-efficient plumbing fixtures.
- 11 POPE LEO LANE RAIN GARDEN**  
Pope Leo Lane features traditional bio-retention structures to mitigate stormwater runoff on campus. The gardens run alongside Pangborn Hall and feature native and adaptive plants and flowers.
- 12 MALONEY HALL LEED BUILDING**  
Maloney Hall, the recently renovated home to the Busch School of Business is LEED Gold. Its features include but are not limited to a rainwater collection system to supply the building; LED lighting to minimize electricity use; and, temperature, light, and occupancy sensors to adapt to internal and external changes thereby maintaining optimal comfort.
- 13 OPUS HALL LEED BUILDING**  
The building is 11% more energy-efficient than average residence halls. 75% of spaces have access to view and/or adequate daylight. Water fixtures are 20% more efficient than standard indoor plumbing fixtures. The building achieved a 50% reduction in potable water used for landscaping.
- 14 EDWARD J. PRYZBYLA UNIVERSITY CENTER COMPOSTING**  
Composting is available to the campus community at the Pryzbyla Center. The receptacles contain real-life displays that explain which items should be recycled, composted, or landfilled.
- 15 O'BOYLE HALL SOLAR PARKING LOT CANOPY**  
This parking lot has 714 solar panels that cover over 70 parking spaces. This parking lot installation also includes an electric car-charging station.

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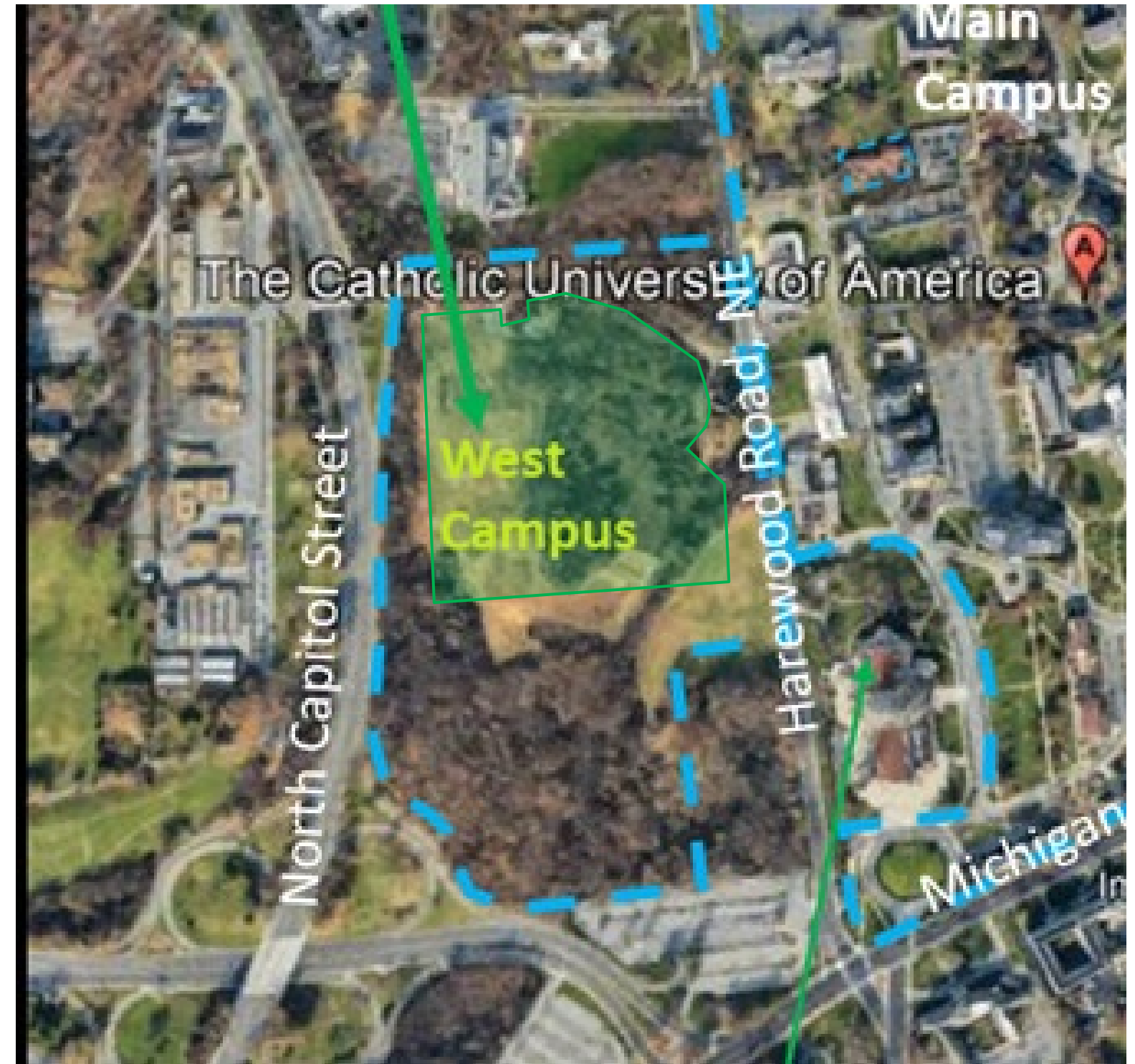




# WEST CAMPUS SOLAR PROJECT APPROACH

## A new interim use is proposed: West Campus Solar Project

- The surface parking lot and paving of the new campus access road indicated in the 2012 Campus Master Plan will not be implemented at this time
- The new Solar Array will cover approximately 60% of West Campus and the expected service life of the facility is 15 to 25 years
- No new curb cuts are proposed; gates on both ends of private drive to remain
- Highest quality tree stands and remnant forest will be preserved
- Heritage trees will be protected
- Landscape buffer plantings will be installed along Harewood Road to enhance street level views
- West Campus Solar Array area will support scheduled research, demonstration, and educational visits. The University will maintain remainder of property for other research, educational, and operational uses.



# WEST CAMPUS SITE DIAGRAM WITH SOLAR PROJECT OVERLAY

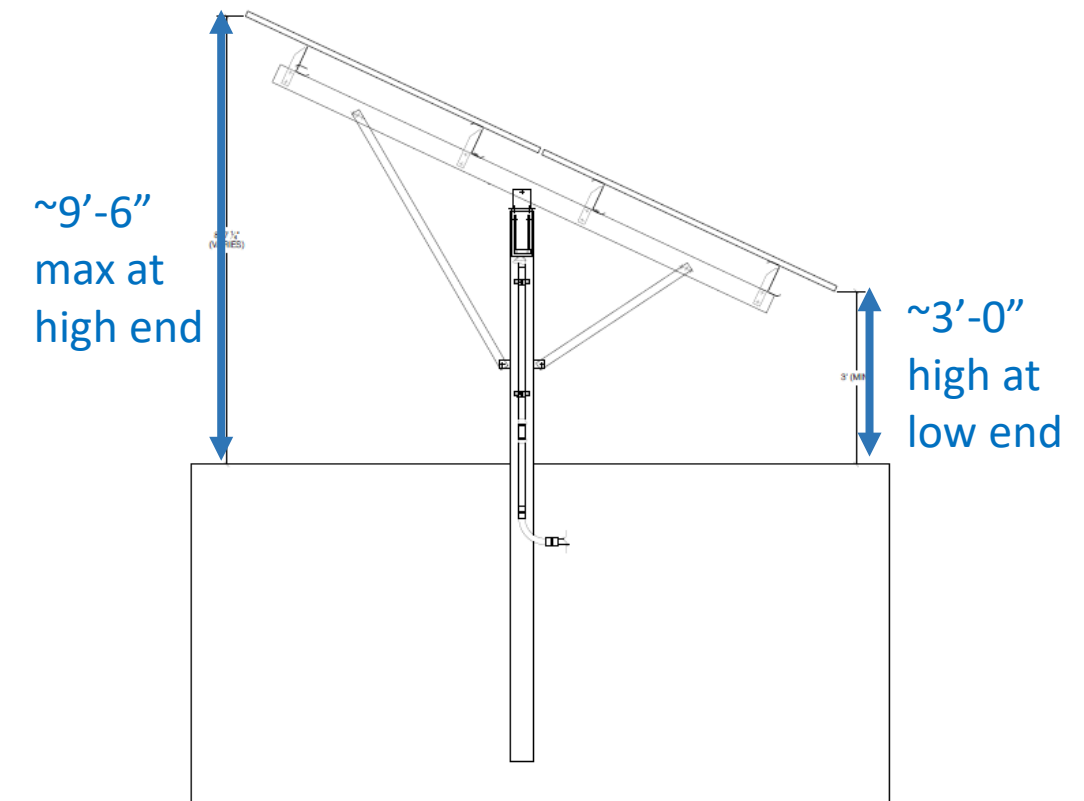
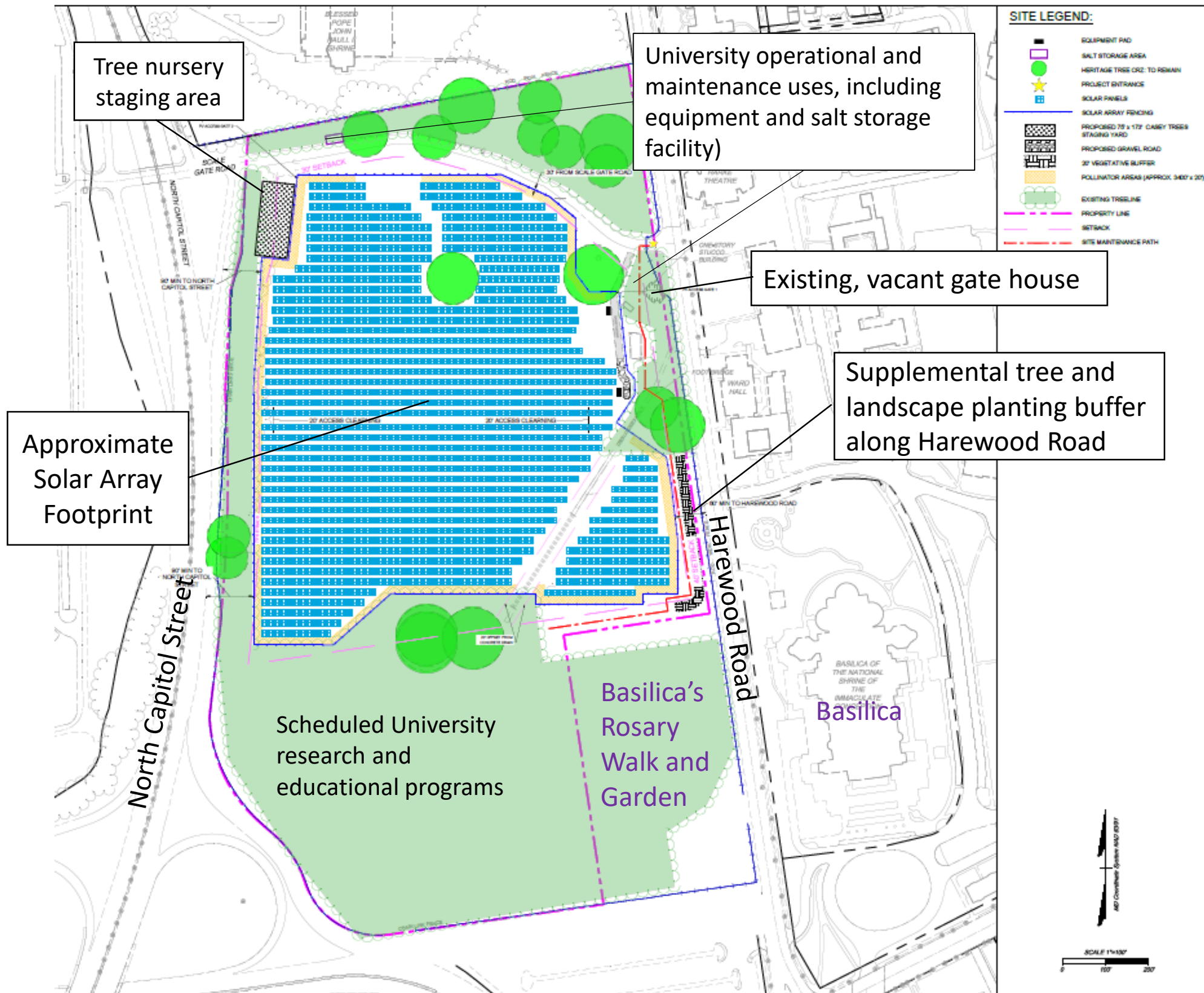


Diagram of ground-based, fixed tilt solar panel



# WEST CAMPUS SOLAR PROJECT LANDSCAPE DIAGRAMS



- Existing iron West Campus property line fence to remain
- Solar array surrounded by interior perimeter security fencing and pollinator planting area
- Existing tree cover outside solar array perimeter to remain
- Existing heritage trees protected
- Additional tree and landscape buffer proposed along Harewood Road





# WEST CAMPUS SOLAR PROJECT VISUALIZATION



Existing View  
looking south along  
Harewood Road



5-10 year visualization of landscape buffer and pollinator growth



>10 year visualization of landscape buffer and pollinator growth



# WEST CAMPUS SOLAR PROJECT VISUALIZATION



Existing View  
looking north along  
Harewood Road



5-10 year visualization of landscape buffer and pollinator growth



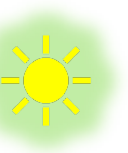
>10 year visualization of landscape buffer and pollinator growth



# WEST CAMPUS SOLAR PROJECT BENEFITS

## ENVIRONMENTAL STEWARDSHIP AND SUSTAINABILITY BENEFITS:

- Contributes significantly toward DC's goals of 50% Clean Power by 2032 and Carbon Neutrality by 2050
  - Increases the amount of solar energy generated within the District
  - 7,087 metric tons of Green House Gas (GHG) emissions avoided (equivalent to 1,541 passenger vehicles/year or CO2 emissions from 797,437 gallons of gasoline consumed)
  - Reduces air pollution by reducing electricity generated from fossil fuels
- Contributes significantly toward the University's Sustainability Plan and the environmental stewardship promoted in Pope Francis's Encyclical *Laudato Si'*
- Puts into sustainable use a large, undeveloped land parcel without additional vehicles or vehicle trips
- Provides storm water management enhancement and protects Heritage Trees on the West Campus
- Offers potential for pollinator-friendly cultivation among the solar panels that provides food and shelter for beneficial insects, birds and other wildlife
- Maintains and enhances picturesque character and visual aesthetic of the West Campus with setbacks and landscape screening; maintains attractive views and viewshed corridors
- The proposed large ground-based array generates significantly more green power than would be possible with individual roof installations on the University's Main Campus, where flat roofscape configurations are scarce
- Commits to sustainable practices in site clearing and construction



# WEST CAMPUS SOLAR PROJECT BENEFITS

## NEIGHBORHOOD, COMMUNITY, AND DC BENEFITS

- Contributes to advancing DC to prominence in clean power production among US cities
- Supplies locally-generated, renewable energy to surrounding community and District consumers, households, small businesses, nonprofits
- Promotes local economic development through opportunities for new jobs in solar facility design, construction and energy management
- Provides opportunities for Ward 5 and other District of Columbia businesses, suppliers, and residents
- Photovoltaic technologies and solar developments are not known to pose any public health dangers
- Provides learning opportunities for local K-12 students, inspiring younger generations and instilling appreciation for sustainability and environmental stewardship. Examples:
  - Ward 5 school field trips to see and experience the solar facility
  - Invites students to envision a future for themselves working in STEM and clean power technology
  - Provides real-time, web-based energy production monitoring as a teaching tool
- Enhances partnerships with Ward 5 high schools, including scholarships opportunities at Catholic University
- Enhances research opportunities and sustainability curriculums within many of the University's academic schools and departments, including Architecture, Engineering, STEM, Business, and Law

