



COMMUNITY PLANNING FOR SUSTAINABILITY, RESILIENCE AND GROWTH IN THE 21ST CENTURY

PA Municipal League
SW District Meeting
April 20, 2023
Forest Hills Borough

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<https://patriciademarco.com>



April 20, 2023

A CASE STUDY IN MUNICIPAL CLIMATE ACTION: FOREST HILLS BOROUGH



<https://patriciademarco.com>

April 20, 2023

SEQUENCE OF ACTIONS:



2016 - 2018- New Municipal Building Decision



2017 - 2019- Updated Comprehensive Plan for Development

Adopted December 2019



2018 - 2020 Climate Action Plan

GESA adopted April 2023 for Borough Buildings to net zero



2021 – 2022 Active Transportation Plan

Complete Streets Policy adopted July 2022
35 MPH on Ardmore Boulevard adopted January 2023
Public Stairways and trails grant \$726,000 awarded March 2023



SITUATION ASSESSMENT

- **Forest Hills Climate vulnerabilities**
- **Drawn from:**
- **IPCC 2019 Report – global perspective**
- **Fourth National Climate Assessment- 2019.**
- **Pennsylvania Climate Action Plan**



ANSWERING A CHALLENGE: YOUTH LEAD!

- In 2016 Planning for the Centennial Celebration in 2019
- Updating the Comprehensive Plan from 2003
- Students from WHHS **successfully challenged the School Board to adopt a Climate Action Plan**
- They have organized annual Climate Summit Conferences for Pittsburgh area high school students. Over 500 attended this year in the David Lawrence Convention Center



Woodland Hills High School AWESOME 2018 Climate Action Team!

VISION STATEMENT

The Borough of Forest Hills carries a tradition of innovation as the community grows in leadership toward a resilient future.

The community values the natural beauty of its environment and enjoys the inclusiveness and diversity of its citizens, offering cultural, recreational, and educational services for all generations in safe and secure neighborhoods.

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Westinghouse “Atom Smasher” research center

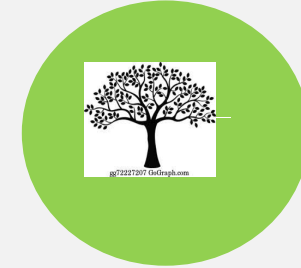
*Forest Hills Comprehensive Plan for Development
January 19, 2020*

April 20, 2023

Comprehensive Plan Goals for Development



**INFRASTRUCTURE
BUILDING AND
ZONING GOALS**



**COMMUNITY
ENVIRONMENTAL
GOALS**



**BUSINESS
DEVELOPMENT
GOALS**

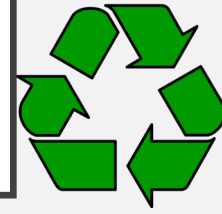


**GOVERNANCE
GOALS**

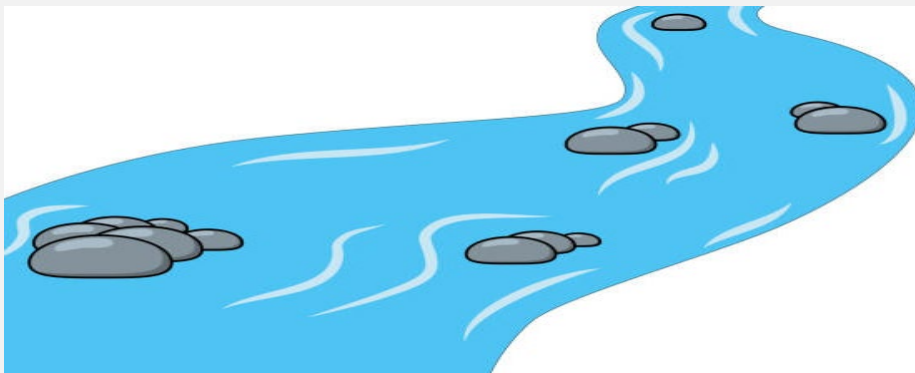


**COMMUNITY
ENGAGEMENT
GOALS**

COMMUNITY ENVIRONMENTAL GOALS



- **Address resilience and advanced planning for changes due to climate warming.**
- **Maintain leadership position expressed in the Net Zero Energy Borough Building and maintaining Tree City status**
- **Address concerns for recycling and permanent management of waste streams through regional collaboration**
- **Develop contingency and emergency management plans for storm water crises and infrastructure deterioration.**
- **Establish a Walkable Neighborhoods and trails access policy.**



BUSINESS DEVELOPMENT GOALS

- Develop capacity for marketing and to form public-private partnerships.
- Develop desirable attributes to attract “Cradle of Innovation” businesses
- Create destinations within Forest Hills
- Develop a uniform and welcoming street facade along Ardmore Boulevard



I See
Opportunity
There!



THE BOROUGH OF
FOREST HILLS
PENNSYLVANIA



Ardmore Boulevard

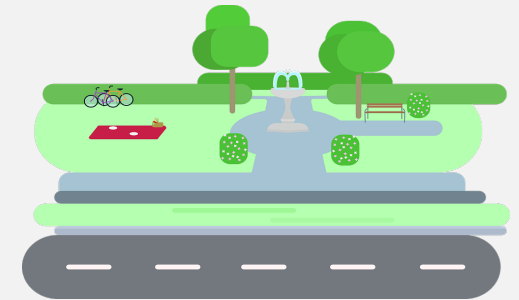
WELCOME HERE

INFRASTRUCTURE: BUILDING AND ZONING GOALS

- Increase mixed use zoning, especially in the business district. Expand small business options intermixed in neighborhoods to increase convenience and **pedestrian access to local destinations.**
- Update parking requirements to allow shared use of parking areas among businesses, residences and visitors.
- **Preserve open space and park areas and consider vacant space for future park amenities.**



2030 Eco-District



FOREST HILLS MUNICIPAL COMPLEX



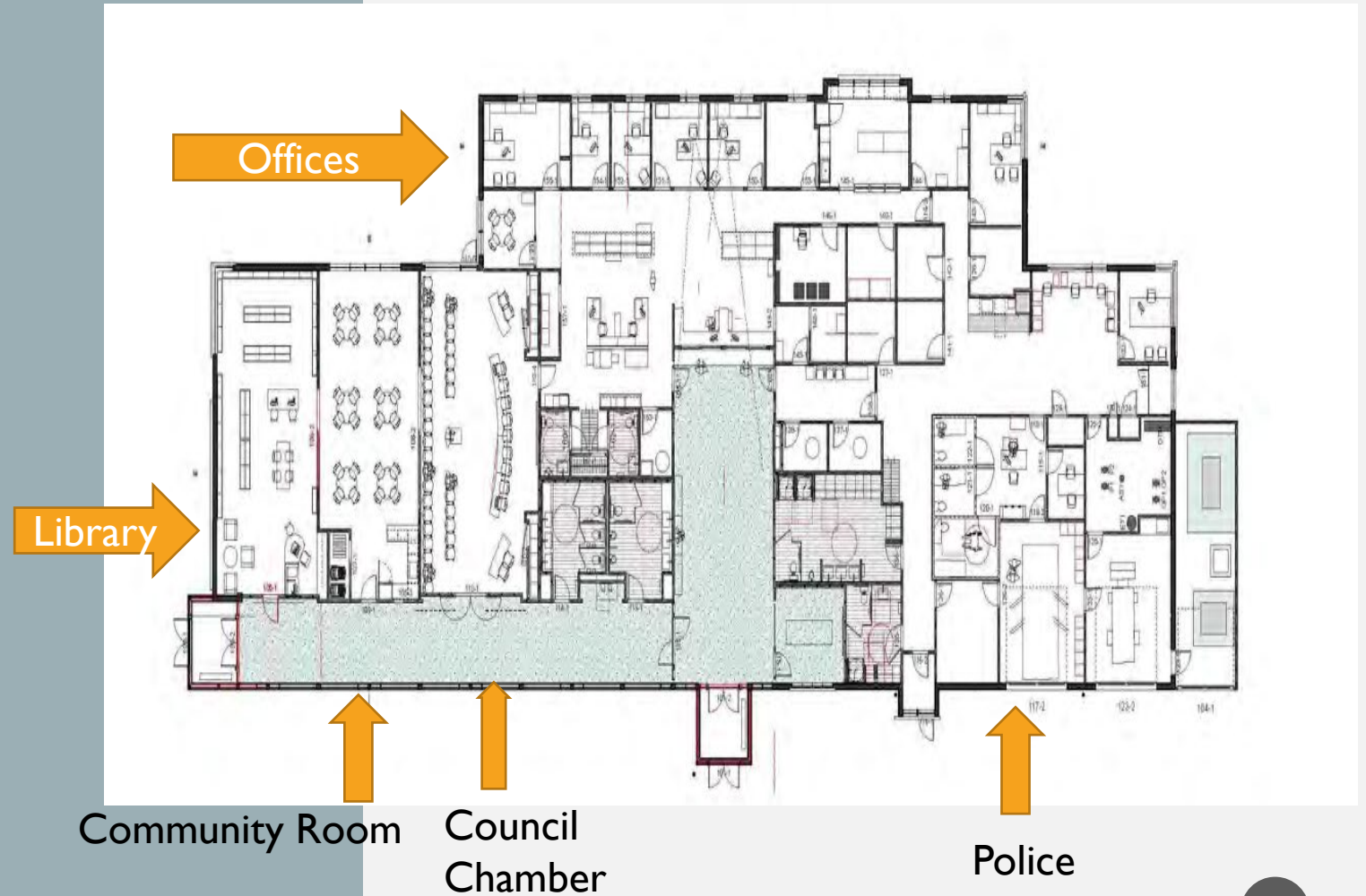
Opened for business | January 2018

April 20, 2023

Multi-Functional Space 12,748 square feet

Administration
Council Chamber
Police Station
CC Mellor Library
Community Room

Flexible walls



Passive Solar Design

Oriented to gain greatest sun exposure throughout the year

Required zoning variance for diagonal orientation of south-facing roof



Photovoltaic Roof:

Solar Panels (175 kW)
from EIS Solar

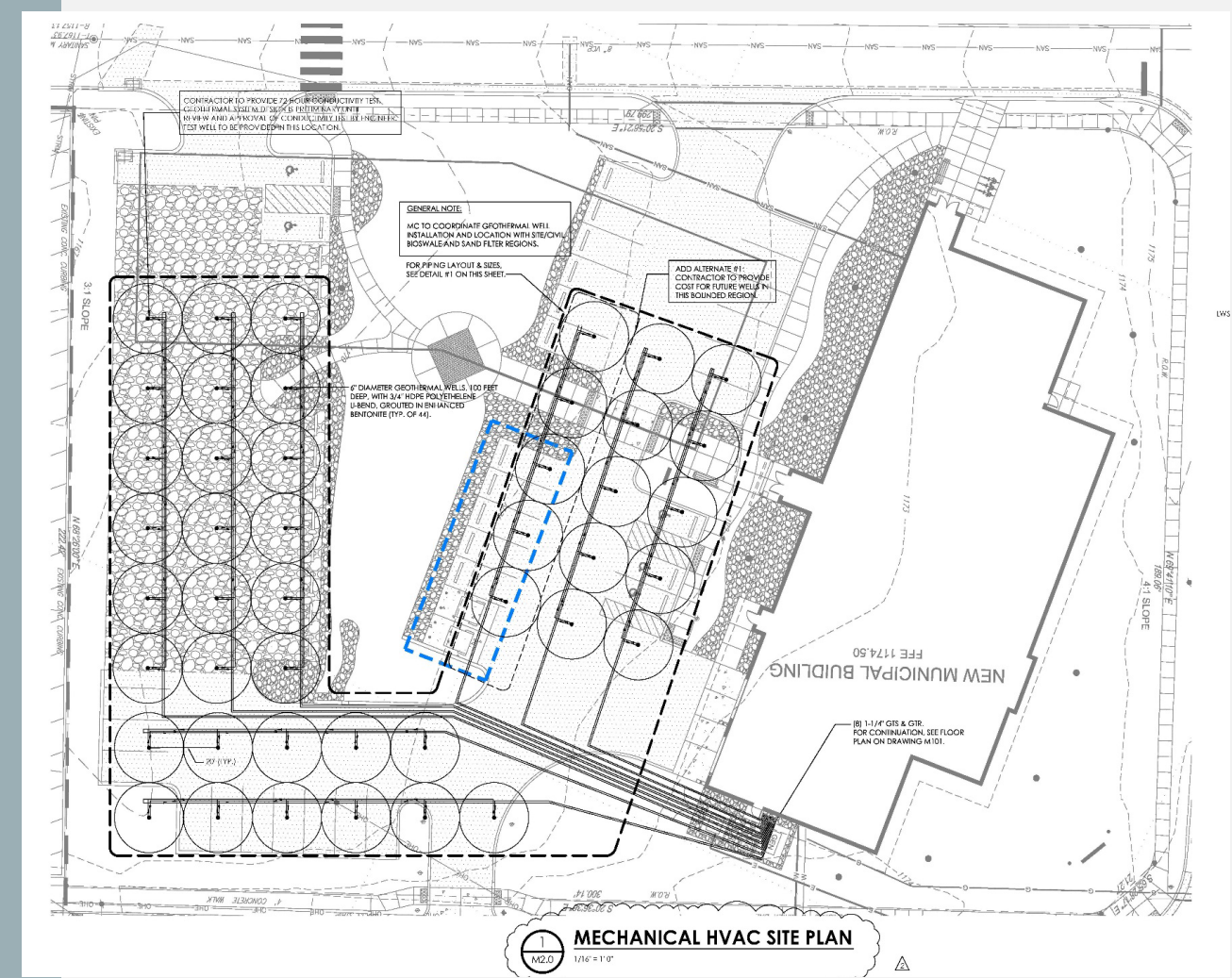
Cover South-Facing
Roof



Geothermal Wells

40 Geothermal Wells
90 feet below Parking Lots

Provide Heating and Cooling



Efficient Design:

Super-Insulated
“SIPS Panels

Increased Insulation
Values:

R-52 Roof
R-32 Walls



Modular Construction:

“SIPS” Panels

Allow Walls and Roof

Assembly in Sections

Glue-Lam beams



Natural Materials

Wood structures

Non-Toxic Finishes

Recycled Components

(Carpet tiles)

Polished concrete floors



Net Zero Energy:

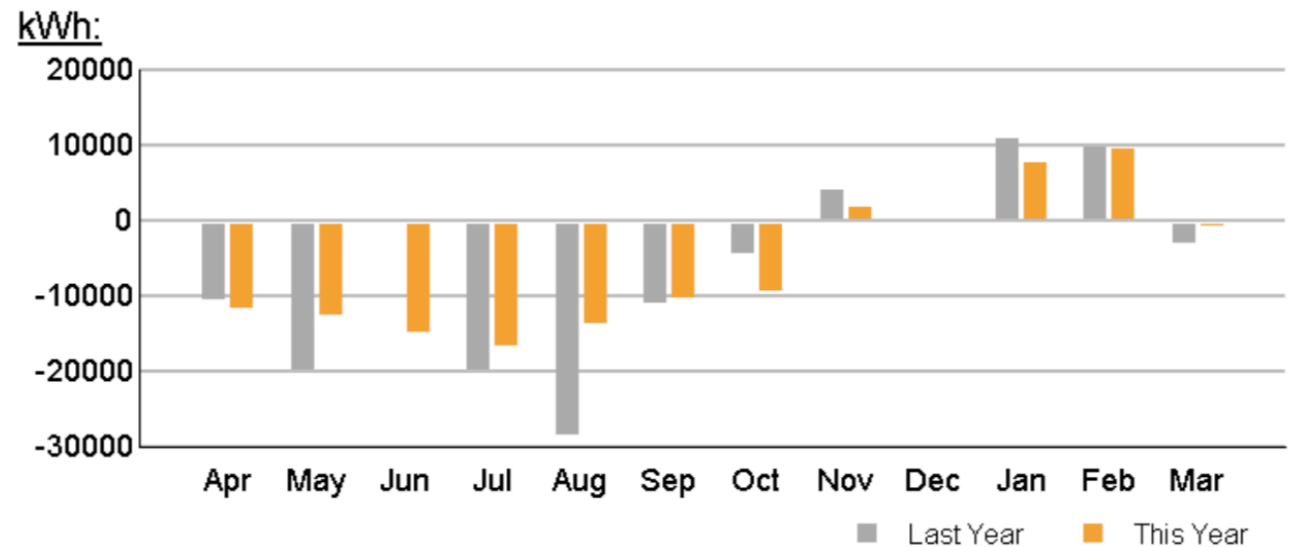
The building uses electricity from the DLC grid when requirements exceed Solar PV output

Solar generation exceeds building energy use on annual basis



Usage and Demand

Period	Total kWh Usage	Avg Daily kWh Usage	# of Days	Avg Daily Temp (F)
Current Month	-889	0	29	39
Last Month	10125	0	29	26
Same Month Last Year	-3043	0	28	39



Net Zero Energy:

The Net Billing Tariff
allows annual averaging

Bill Summary

Bill ID: 273014586831

Date Prepared: 03/17/2022

Previous Account Balance	-\$3,906.99
Payment(s) Received	\$0.00
Balance Forward	-\$3,906.99
DLC Charges	\$353.14
Supply Charges	\$68.15
NEW ACCOUNT BALANCE	-\$3,485.70
AMOUNT DUE BY 04/04/2022	\$0.00

NET ZERO

Rain Gardens

Water from building drains into wells and surrounding pebble bed

Plantings tolerate dry and wet conditions

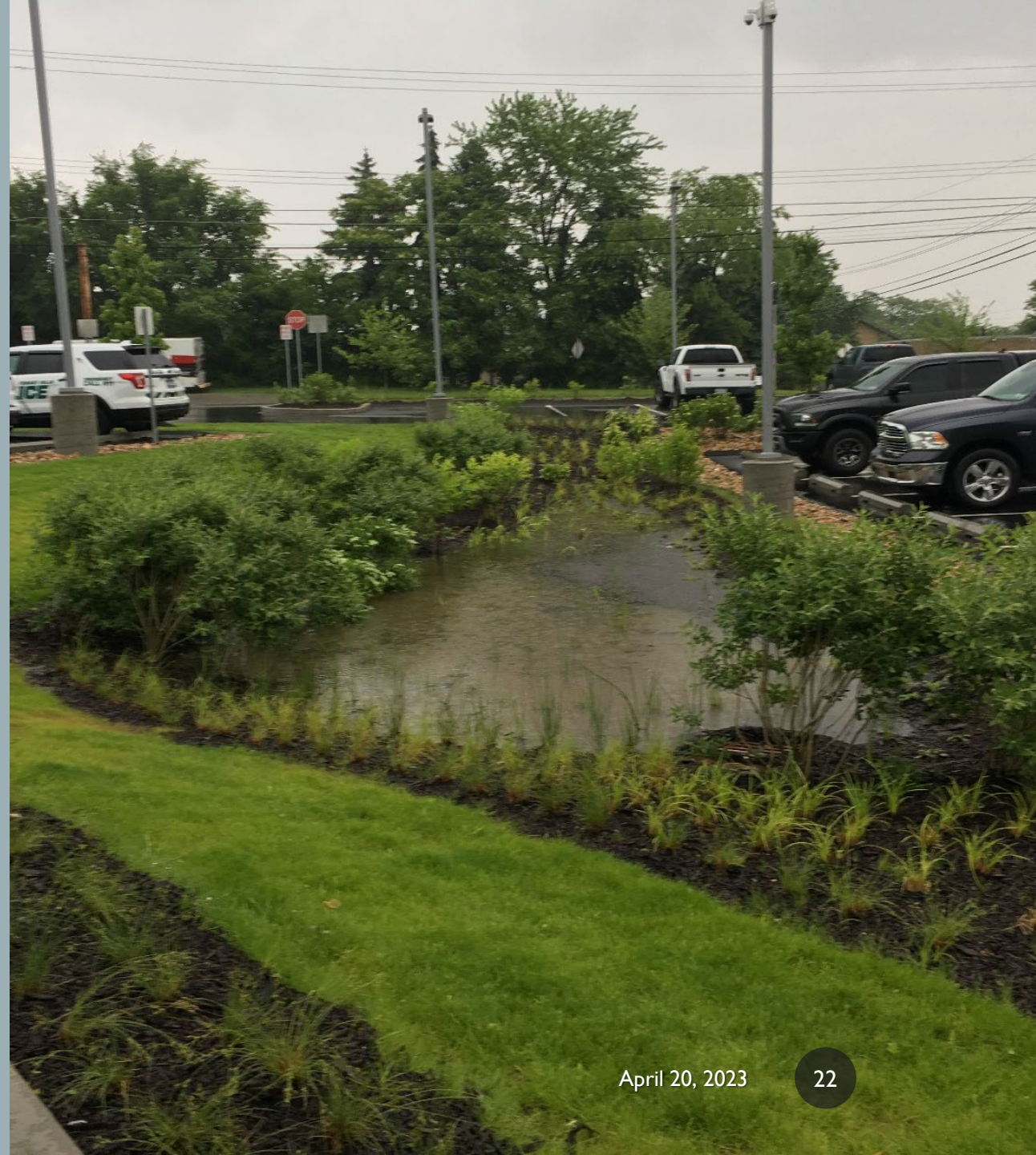


Bio-Swales:

Parking lots slope into
bio-swales.

In heavy rains, water can
pond and drain slowly into
the ground

No stormwater leaves the
site



4400 Greensburg Pike Open for Business

January 2018



Safer Improved Police Functions

Secure access for suspects

Separate areas for public,
witnesses and officer work areas

Modern technology for testing and
monitoring



Much improved Library

CC Mellor Library- Forest Hills
Increased users by 200%

Accessible, convenient parking

Public computers and WiFi



Thanks to the Team!

Rob Pfaffmann & Associates- Architect

Volpatt Construction – General Contractor

EIS Solar for PV system interface

Steve Morus- Forest Hills Borough Manager

Forest Hills Borough Council

2016-2023



FOREST HILLS CLIMATE COMMITMENT

Resolution adopted
April 18, 2018

“We’re still IN the
Paris Climate
Accord!”

- *It is imperative that the world know that in the U.S., the people that will provide the leadership necessary to meet our Paris Accord commitment are found in city halls, state capitals, borough buildings, colleges and universities, and businesses. Together, we will remain actively engaged with the international community as part of the global effort to hold warming to well below 2 °C and to accelerate the transition to a clean energy economy that will benefit our security, prosperity, and health.*
- *Now, therefore be it resolved, that I, Frank Porco, Mayor of the Borough of Forest Hills, in collaboration with the Forest Hills Borough Council are joining forces for the first time to declare that we will continue to support climate action in our community and declare **“We Are Still In” the Paris Climate Accord.**”*

Ratified by unanimous vote of Council

CLIMATE ACTION PLANNING PROCESS:

Council Assigned to
Operations and Policy
Committee

Delegated to Environmental
Advisory Council to
implement

ICLEI /DCNR Grant for
modeling and data tools

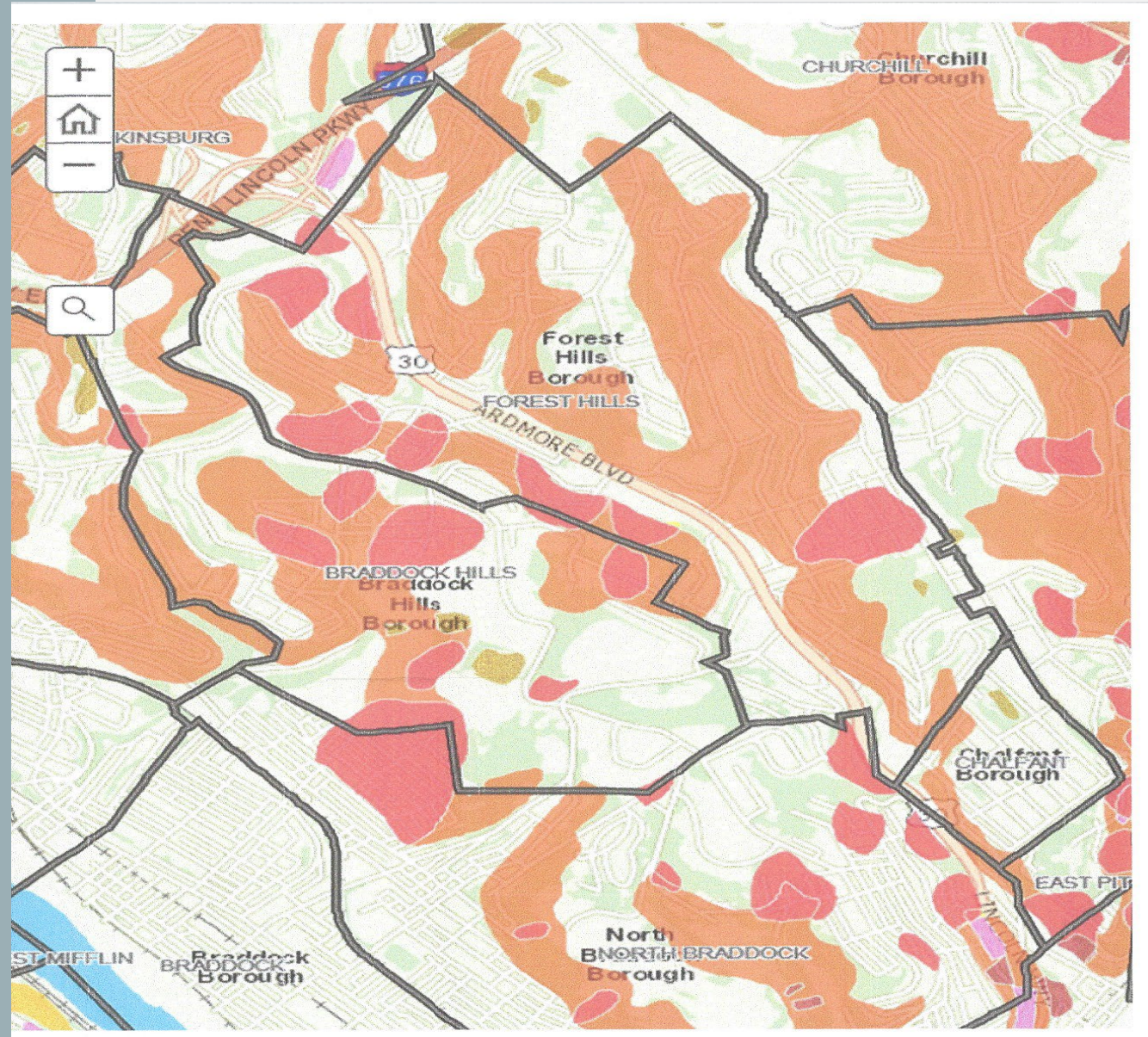


FOREST HILLS CLIMATE VULNERABILITIES

Drought and warmer than normal weather

More frequent and severe storms- both summer and winter

Landslides and flooding from storm surges- *40% of land area subject to landslides*



LANDSLIDE VULNERABILITY

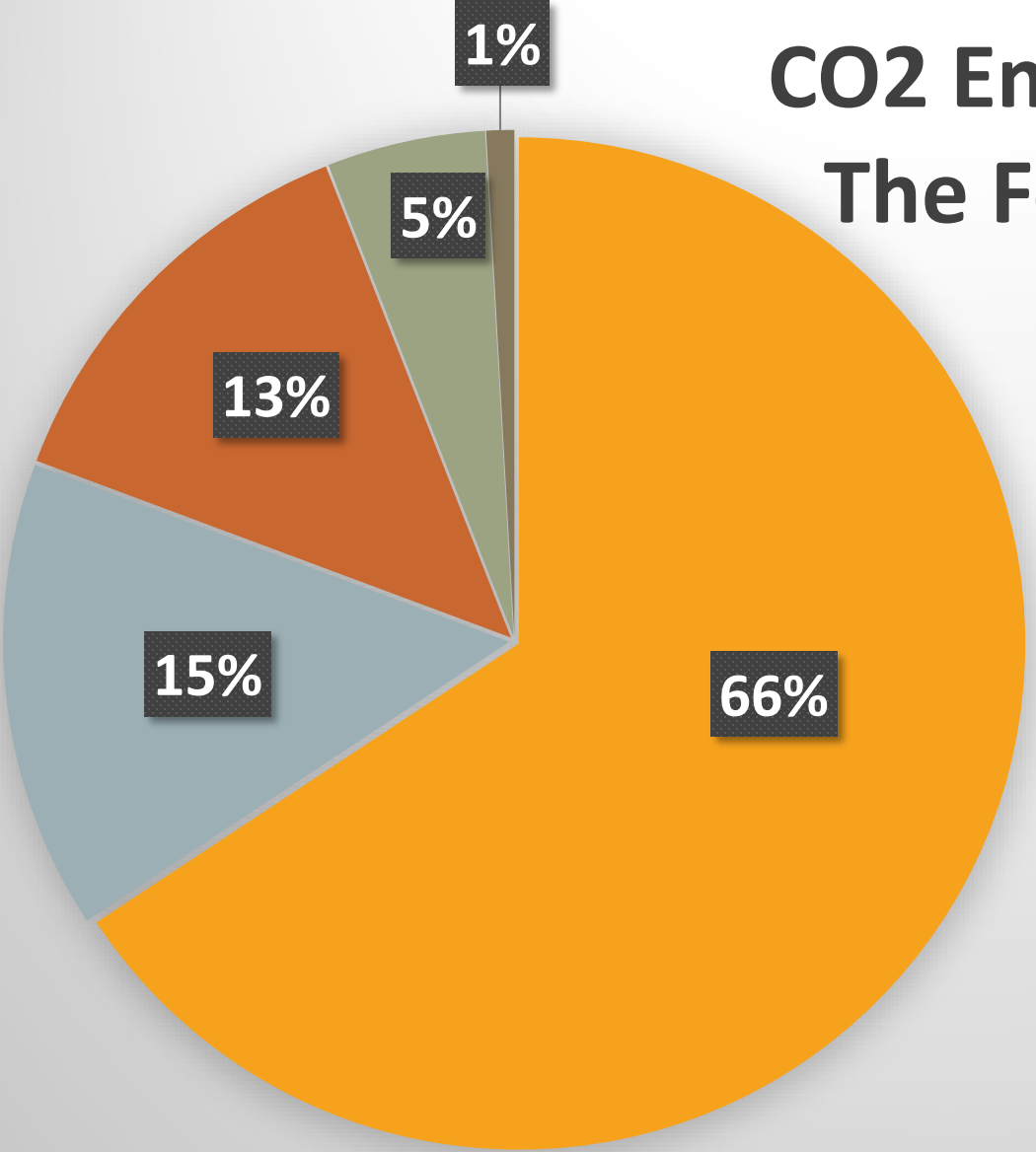
Route 30 closed for two months to repair landslide that took down an apartment building and damaged three houses and caused evacuation of 31 people.

No one was injured or killed in the event



April 7, 2018 Landslide on Rte 30

CO2 Emissions by Category for The Forest Hills Community



- Residential Energy: 23,992 Metric Tons
- Commercial Energy: 5,466 Metric Tons
- Transportation and Mobile Sources: 4,880 Metric Tons
- Solid Waste: 1,849 Metric Tons
- Water and Wastewater: 325 Metric Tons

CLIMATE ACTION FORECAST GOALS

Net Zero Carbon Emissions by 2050 for Borough Operations

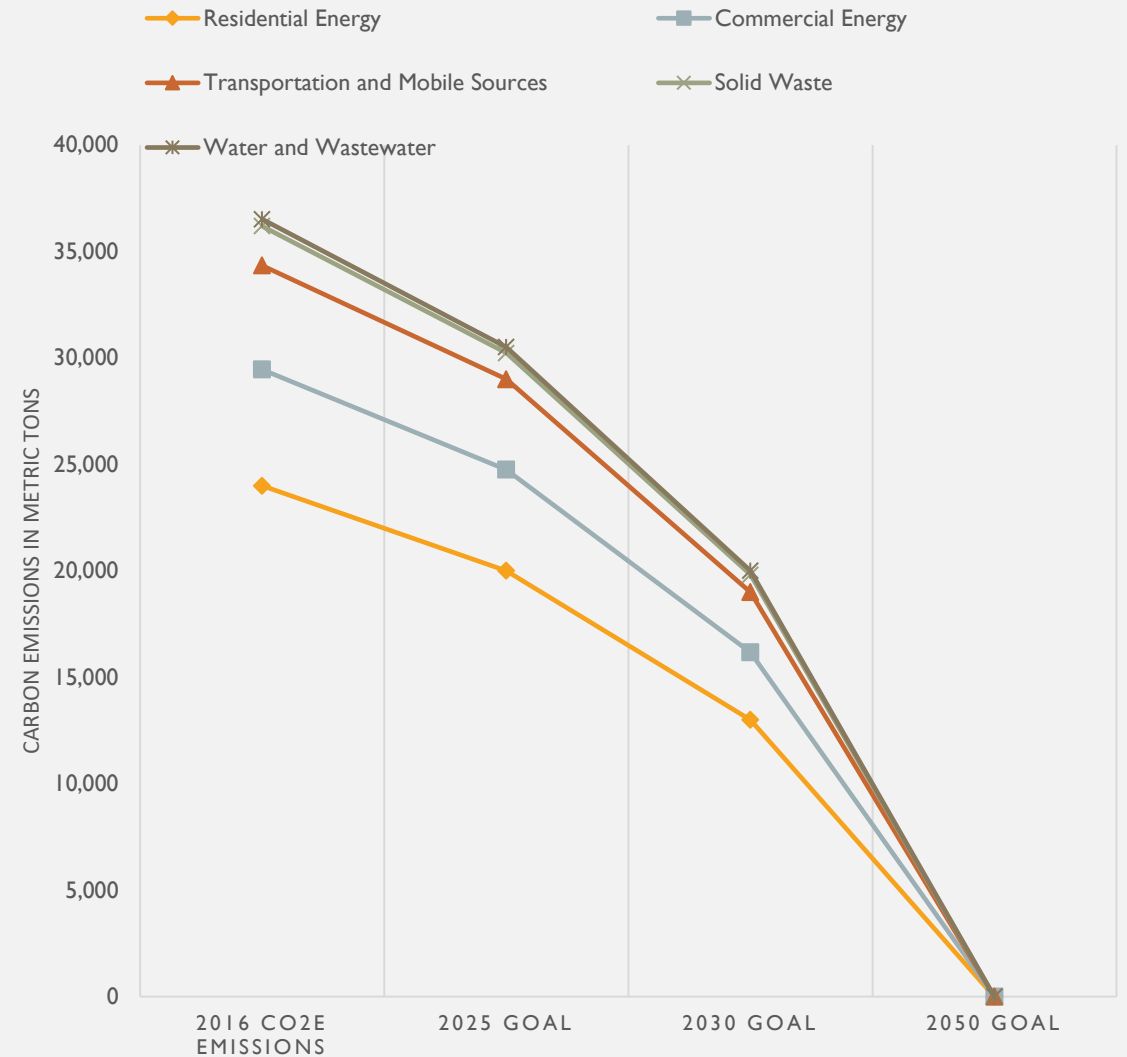
Strive for net zero emissions for entire community by 2050

Average 3% reduction from the base year in emissions each year

Set Goals for:

- * Short-term to 2025
- * Mid-term to 2030
- * Long-term to 2050

FOREST HILLS NET-ZERO EMISSIONS GOAL



SHORT-TERM ACTIONS TO REACH 15% REDUCTION CO₂E BY 2025

- **Residential:** Choose 100% renewable electricity provider; Weatherize doors and windows, convert lights to LED
- **Commercial:** Choose 100% renewable electricity provider; convert lighting to LED; install smart meters to track energy use
- **Transportation:** Increase pedestrian walkways, trail access and bicycle lanes to encourage non-motorized travel within one mile of residences
- **Waste Reduction:** Reduce single-use plastics; enhance recycling options
- **Water and Wastewater:** low-flow shower heads and toilets; cold water laundry and air-dry clothing; install rain barrels and plant native plants and trees



SHORT-TERM POLICIES FOR 2025 MILESTONES:



Next Steps:

A Net Zero Emissions goal for all Borough Buildings

Guaranteed Energy Savings
Contract with Siemens Industry, Inc. Smart Infrastructure



Siemens Industry, Inc. Community Pool



Siemens Industry, Inc. Municipal Building Parking Canopy

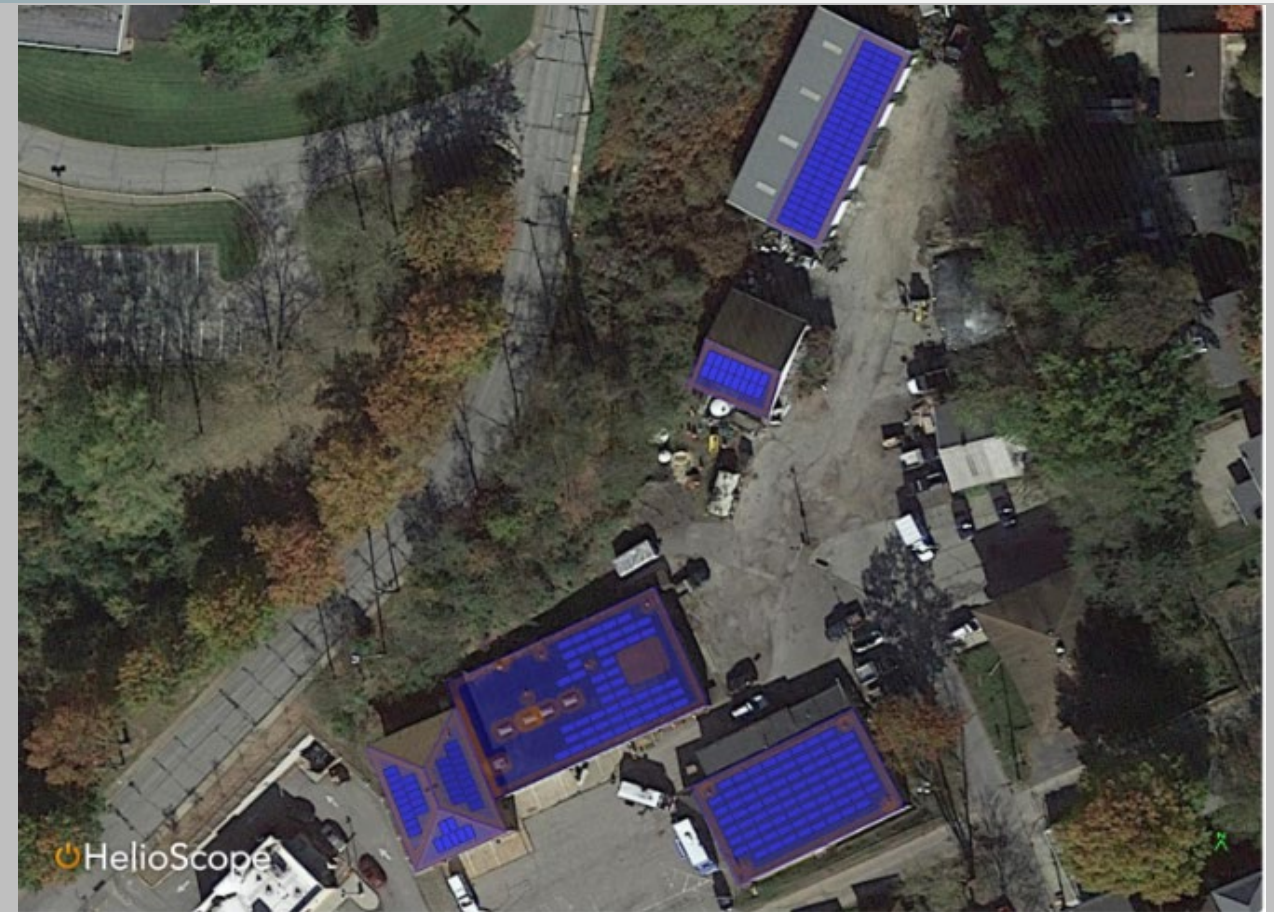
Next Steps:

Establish a Micro-Grid

Use Inflation Reduction Act funds

Solar on Four more locations
875 kW PV total!

A Net Zero Energy Borough!



Siemens Infrastructure Group