

ENERGY PLAN
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Gotham Township Community Energy Plan



APRIL 2023





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NJCEP, established on January 22, 2003, in accordance with the Electric Discount and Energy Competition Act (EDECA), provides financial and other incentives to the State's residential customers, businesses and schools that install high-efficiency or renewable energy technologies, thereby reducing energy usage, lowering customers' energy bills and reducing environmental impacts. The program is authorized and overseen by the New Jersey Board of Public Utilities (NJBPU).

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Sustainable Jersey is a certification program for municipalities in New Jersey. Launched in 2009, Sustainable Jersey is a nonprofit, nonpartisan organization that supports community efforts to reduce waste, cut greenhouse gas emissions, and improve environmental equity. It provides tools, training and financial incentives to support and reward communities as they pursue sustainability programs. Sustainable Jersey is one hundred percent voluntary and each town can choose whether it wants to get certified and the actions it wants to do in order to achieve enough points to get certified.

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**Strategy 5 of the New Jersey Energy Master Plan has not been included in Gotham's Community Energy Plan because Strategy 5 encourages changes to state-level energy distribution.*

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I. Introduction

Gotham Township is committed to addressing climate change and reducing greenhouse gas emissions. This Community Energy Plan details the specific strategies Gotham will pursue in the coming years to reduce greenhouse gas emissions from the local energy system. The plan covers municipal operations such as the municipal vehicle fleet and buildings, as well as public policies and programs designed to support the community in reducing emissions.

Gotham Township ratified this Community Energy Plan on April 19, 2023. During the creation of this plan, the township provided several opportunities for public input, taking care to enable low- and moderate-income residents to participate. In-person and virtual public comment sessions were held at different times of day to accommodate different work schedules.

Co-benefits of Sustainable Energy

The sustainable energy transition offers an opportunity to realize various co-benefits in our community and beyond. Besides reducing GHG emissions, implementing this plan will improve:

- › Public health
 - › Lower concentrations of ground-level outdoor air pollutants
 - › Removal of indoor air pollution sources
- › Social equity
 - › Better, affordable transportation
 - › More affordable renewable energy
- › Resiliency
 - › More dependable electric grid
 - › Decreased reliance on imported energy

Starting in July 2022, the Gotham Environmental Commission and green team began reviewing the Sustainable Jersey [Guide for Sustainable Energy Communities](#) and [Community Energy Plan Workplan Template](#) and meeting with municipal staff to determine how to prioritize and implement the high-impact initiatives. Relevant community data was gathered from the [Sustainable Jersey Data Center](#). The Environmental Commission presented the draft Community Energy Plan at public meetings on November 15, 2022 and February 4, 2023. The final Community Energy Plan was adopted by municipal resolution on April 19, 2023.

Gotham Township's Community Energy Plan establishes how the municipality will promote the transition to sustainable energy over the next several years. Initiatives were selected based on demonstrated effectiveness, unique local opportunities, and co-benefits for the community as a whole, such as improved local air quality, energy savings for residents, and workforce development.

Climate change is one of the greatest threats to our future prosperity in Gotham, and globally. New Jersey is both a significant source of greenhouse gas (GHG) emissions and a state particularly vulnerable to climate change. Increasing heat waves, intense storms, and sea-level rise caused by climate change will dramatically alter our coastal state for many years to come (NJDEP, *Scientific Report on Climate Change*).

According to the New Jersey Department of Environmental Protection's [NJ Greenhouse Gas Emissions Inventory Report](#), New Jersey adds almost 100 million metric tons of CO₂e to the atmosphere annually. New Jersey can mitigate the local and global impacts of climate change with a rapid transition from the current GHG-intensive energy system to one that optimizes energy use and produces energy with minimal GHG emissions.

Recognizing New Jersey's role in climate change mitigation, the State of New Jersey has established a goal of 100% clean energy in the state by 2050. [The New Jersey Energy Master Plan: Pathway to 2050](#) outlines the state's strategies for achieving that goal while also addressing issues of social and economic inequity. To promote action at the local level in support of the state's goals, the New Jersey Board of Public Utilities (NJBPU) launched the Community Energy Plan Grant Program, offering support and funding for municipalities to develop a Community Energy Plan. Gotham Township received the Community Energy Plan Grant and completed this plan as a participant of the grant program.



II. Community Overview

Gotham Township is a 7.2 square mile rural community of 3,792 households located in Richland County. According to the 2019 US Census American Community Survey, the racial composition of Gotham's 13,567 residents is 57% White, 18% Black, 5% Asian or Pacific Islander, and 20% multiracial or "other," and 9% of the population is Hispanic/Latinx.

Gotham's median household income is \$97,800, with 12% of households below the U.S. poverty threshold. Gotham's Municipal Revitalization Index (MRI) score, a measure of a municipality's economic conditions, is 25 out of a possible 100, which ranks 314th of New Jersey's 564 municipalities (Sustainable Jersey Community Profile Data by Municipality). In other words, Gotham's overall economic conditions are slightly better than most New Jersey municipalities.

1. POPULATION CHARACTERISTICS FOR GOTHAM TOWNSHIP

Population	Households	Median Household Income	Percent of Population in Poverty	NJ DCA MRI Score*	NJ DCA MRI Rank*
8,416	3,792	\$97,800	12%	25	314

Table 1. 2020 Population Characteristics

Source: Sustainable Jersey. Community Profile Data by Municipality

*MRI = Municipal Revitalization Index (MRI)

Electricity and Natural Gas Usage

Most electricity and natural gas use is currently associated with buildings. Utility companies generally organize electricity and natural gas use into four sectors – residential, commercial, industrial, and street lighting. The commercial sector includes nonprofits and government entities such as schools and municipal buildings, as well as businesses.

As illustrated in the charts below, the residential sector accounts for the majority of electricity and natural gas use in Gotham. In other words, residential buildings present the greatest opportunity for energy use reductions.

1. AMOUNT OF ELECTRICITY PURCHASED BY SECTOR (kWh)

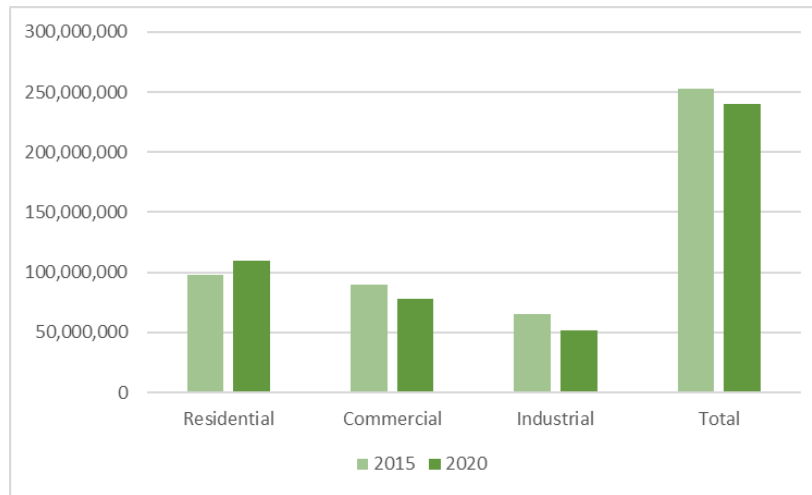


Chart 1. Amount of Electricity Purchased by Sector (kWh)

Source: Sustainable Jersey. Aggregated Community-Scale Utility Energy Data

2. AMOUNT OF NATURAL GAS PURCHASED BY SECTOR (THERMS)

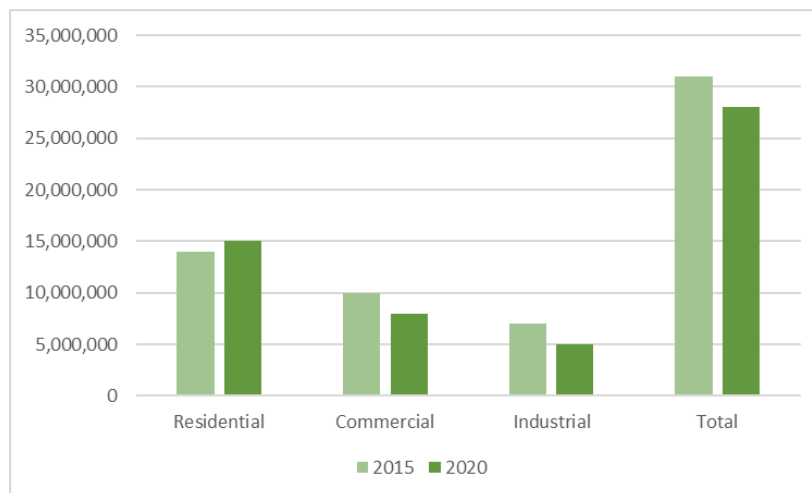


Chart 2. Amount of Natural Gas Purchased by Sector (Therms)

Source: Sustainable Jersey. Aggregated Community-Scale Utility Energy Data

Community GHG Emissions from Energy Use

In 2020, the total community-wide greenhouse gas emissions from electricity, natural gas/heating fuel, and transportation energy use in Gotham was 126,681 metric tons CO₂e. The largest share of community emissions came from on-road vehicles, followed by residential natural gas usage.

3.

2020 COMMUNITY-SCALE ENERGY-RELATED GHG EMISSIONS BY SECTOR AND ENERGY TYPE (MT CO₂e)

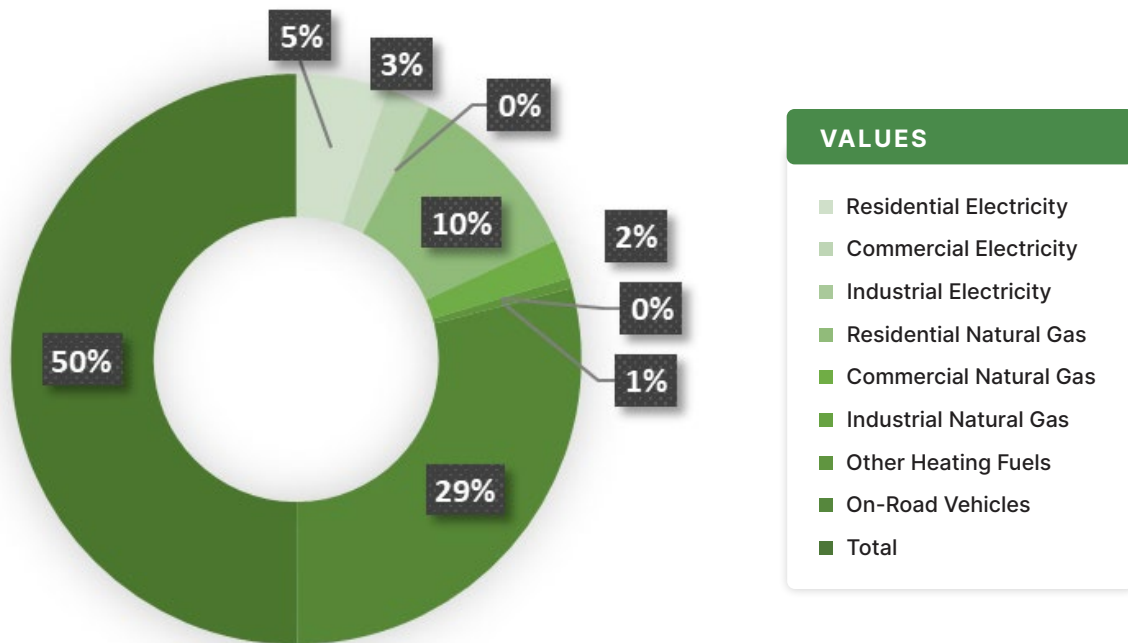


Chart 3. Overall GHG Emissions of Gotham by Subsector

Source: Sustainable Jersey. Community-Scale Greenhouse Gas (GHG) Emissions Data

Municipal Operations GHG Emissions

In 2019, Gotham's municipal buildings produced 3,579 metric tons of CO₂e (Chart 4 below), and Gotham's municipal fleet produced 927 metric tons of CO₂e (Chart 5 on page 12), for a **total of 4,507 metric tons of CO₂e**.

4.

GHG EMISSIONS FROM ELECTRICITY AND NATURAL GAS USE FOR MUNICIPAL OPERATIONS

Municipality:		Gotham	<i>complete applicable cells highlighted in yellow, grey cells contain formulas</i>				
STEP 1: Establish a Baseline Year							
Year (Select from dropdown):	2019						
Electricity Factorset (lb CO ₂ e/MWh)	719.875						
STEP 2: Scope 1 Emissions from Stationary Fuel Consumption in Baseline Year							
Municipal Operation - Natural Gas	Total Therms	converted to Million BTU	CO ₂ Emissions (lbs)	CO ₂ (Metric Tons CO ₂ e)	CH ₄ (Metric Tons CO ₂ e)	N ₂ O (Metric Tons CO ₂ e)	Total Emissions (Metric Tons CO ₂ e)
Building & Facilities	270865	27086.5	3171287.42	1438.472823	3.3858125	0.8071777	1442.665814
Street Lights & Traffic Signals	0	0	0	0	0	0	0
Water & Wastewater Treatment Facilities	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0
<i>Natural Gas Total</i>	270865	27086.5	3171287.42	1438.47282	3.3858125	0.8071777	1442.665814
STEP 3: Scope 2 Emissions from Purchased or Acquired Electricity in Baseline Year							
Municipal Operation - Electricity	Total Kwh	Total MWh	CO ₂ e Emissions (lbs) *	CO ₂ e (Metric Tons)			Total Emissions (Metric Tons CO ₂ e)
Building & Facilities	3480016	3480.016	2505176.518	1136.329781			1136.329781
Street Lights & Traffic Signals	3065118	3065.118	2206501.82	1000.853118			1000.853118
Water & Wastewater Treatment Facilities	0	0	0	0			0
Other	0	0	0	0			0
<i>Electricity Total</i>	6545134	6545.134	4711678.338	2137.1829			2137.182899
<i>* includes CO₂, CH₄ and N₂O emissions preconverted to carbon dioxide equivalents (CO₂e)</i>							
TOTALS							
							(Metric Tons CO ₂ e)
MUNICIPAL CARBON FOOTPRINT							3579.84871

Chart 4. Municipal Facilities 2019 GHG Emissions

Source: Sustainable Jersey. [Municipal Carbon Footprint Calculator](#) populated with 2019 data

III. Work Plan

The Gotham Township Community Energy Plan is primarily an implementation and action plan. This section details the initiatives selected as township priorities for the next four years (2023-2027). These initiatives will generate significant greenhouse gas emissions reductions for both municipal operations and the wider community while providing numerous local co-benefits, such as improved air quality and creation of local jobs.

The initiatives are organized by the Strategies of the [New Jersey Energy Master Plan: Pathway to 2050](#). Each Strategy section includes one or more initiatives. Implementation details are provided for each initiative, including the initiative lead person/entity, the time frame for implementation, and any significant obstacles to successful implementation.

1 STRATEGY 1

Reduce Energy Consumption and Emissions from the Transportation Sector

- 1.1 Adopt Supportive Zoning and Regulations for EV Infrastructure
- 1.2 Train First Responders on EVs and EVSE
- 1.5 Improve Municipal Fleet Efficiency
- 1.6 Install Public EV Charging Infrastructure

2 STRATEGY 2

Accelerate Deployment of Renewable Energy and Distributed Energy Resources

- 2.1 Adopt Supportive Zoning and Permitting for Solar
- 2.6 Install On-Site Municipal Renewable Generation
- 2.9 Institute a Community-wide Solar Purchasing Program

3 STRATEGY 3

Maximize Energy Efficiency and Conservation and Reduce Peak Demand

- 3.1 Upgrade Energy Efficiency for Municipal Facilities
- 3.2 Residential Energy Efficiency Outreach Campaign
- 3.4 Conduct Energy Efficiency Outreach to Large Energy Users

4 STRATEGY 4

Reduce Energy Consumption and Emissions from the Building Sector

- 4.1 Construct New Municipal Buildings as Model Green Buildings

6 STRATEGY 6

Support Community Energy Planning and Action with an Emphasis on Encouraging and Supporting Participation by Low- and Moderate-Income and Environmental Justice Communities

- 6.2 Conduct Energy Efficiency Outreach to Low- and Moderate-Income Residents
- 6.3 Support Shared Mobility Programs
- 6.4 Support Low- and Moderate-Income Community Solar Subscriptions

7 STRATEGY 7

Expand the Clean Energy Innovation Economy

- 7.1 Adopt Energy Storage Policies

Strategy 1: Reduce Energy Consumption and Emissions from the Transportation Sector

Transportation accounts for over 40% of New Jersey's greenhouse gas emissions, primarily due to on-road gasoline consumption (NJDEP, "Transportation & Emissions"). Fossil fuel-powered transportation also produces local air pollution that significantly harms

the health and quality of life of residents. Gotham can electrify municipal fleet vehicles and promote transportation electrification in the community to lessen the negative impact of our transportation system on our community and the world.



Initiative 1.1: Adopt Supportive Zoning and Regulations for EV Infrastructure

DESCRIPTION:

Pass NJDCA's Model Statewide Municipal EV Ordinance specifying electric vehicle charging stations as a permitted accessory use, establishing the permitting process for charging stations, and requiring Make-Ready and EVSE (Electric Vehicle Supply Equipment) parking in new multifamily developments and parking lots. Modify the model ordinance standards for safety, signage, etc. as needed.

LEAD: Environmental Commission

START DATE: December 2023

PRIORITY: Medium

ANTICIPATED LENGTH: 6 months

FUNDING SOURCES: N/A

DEPARTMENTS INVOLVED:

- Code Enforcement
- Municipal Attorney

OBSTACLES/BARRIERS:

- No significant barriers were identified

COMMUNITY NOTES:

The Model Statewide Municipal EV Ordinance went into effect in September 2021 as specified by state law, but the policies in the ordinance are not integrated into Gotham's municipal code. Code Enforcement currently requires applications for new developments to comply with the Model Ordinance.

As of 2019, 1% of passenger vehicles in Gotham were electric. As EV adoption accelerates, demand for charging infrastructure will also accelerate.

Vehicles and Electric Vehicles in Gotham			
Year Updated	Estimated Total Passenger Vehicles	# of EVs	% Electric
2015	3,394	17	.5%
2019	3,519	35	1%

Table 2. Vehicles and Electric Vehicles in Gotham

Source: Sustainable Jersey. Community Profile Data by Municipality

MEASURES OF SUCCESS:

The goals for this initiative are new regulations regarding EVSE site design, such as accessibility and signage, and integration of the Model Statewide Municipal EV Ordinance into Gotham's land-use code and permitting documents.

NEXT STEPS:

1. Elected representative directs municipal attorney to add Gotham-specific information to Model Statewide Municipal EV Ordinance and edit the "Reasonable Standards" section to fit municipal needs.
2. Elected representative introduces ordinance to elected body for review and approval.
3. Township Administrator works with code official to post permitting application and inspection processes on the municipal website.

Initiative 1.2: Train First Responders on EVs and EVSE

DESCRIPTION:

Require training for local first responders on electric vehicles and associated infrastructure, furthering public confidence and maintaining emergency preparedness.

LEAD:	Police Chief
START DATE:	June 2023
PRIORITY:	Medium
ANTICIPATED LENGTH:	One training event, every 3 years
FUNDING SOURCES:	Police operating budget

DEPARTMENTS INVOLVED:

- Emergency Medical Services
- Police Department
- Fire Department

OBSTACLES/BARRIERS:

- Municipal staff may perceive additional training as an unnecessary burden.

POTENTIAL SOLUTIONS:

- The Police Chief will build support for EV safety training by creating awareness that EVs have unique first-response protocols.

COMMUNITY NOTES:

No first responder departments have undergone training specific to electric vehicles and EV charging equipment. As of 2019, there were 35 passenger electric vehicles in Gotham; the number of EVs in town has likely increased since then (Sustainable Jersey, Electric Vehicle Ownership Data). There are also two public EV charging stations in the township (NJDEP, Charging Map).

MEASURES OF SUCCESS:

The goal of this initiative is that all first responders will be regularly trained in how to deal with emergencies involving electric vehicles and EV infrastructure.

NEXT STEPS:

1. Police Chief purchases National Fire Protection Association online electric vehicle training for emergency responders.
2. Police Chief distributes training to Police Department, Fire Department, and EMS, and works with department heads to determine deadline for all staff to complete it. Messaging emphasizes the unique danger presented by EV and EVSE emergencies.
3. Police Chief sets the next date that the training will be distributed (in 2026-27).

Initiative 1.5: Improve Municipal Fleet Efficiency

DESCRIPTION:

Coordinate the strategic replacement (or retirement) of vehicles, scheduling of preventative maintenance, and improvement of driver efficiency to reduce the GHG footprint of all municipal fleets – public works, police, fire, etc. Requires tracking of fleet data such as age of vehicles, duty cycle, and use patterns.

LEAD:	DPW Fleet Manager
START DATE:	January 2024
PRIORITY:	Medium
ANTICIPATED LENGTH:	3 months for procurement plan, then 3 years to implement plan
FUNDING SOURCES:	NJBPU Clean Fleets Electric Vehicle Incentive Program; NJEDA Zero-Emission Incentive Program

DEPARTMENTS INVOLVED:

- All departments operating fleet vehicles
- Finance Department

OBSTACLES/BARRIERS:

- Some vehicle users may be concerned that EVs don't have enough range for their needs.

POTENTIAL SOLUTIONS:

- Prior to procurement, DPW Fleet Manager will use fleet analysis to show that incoming EVs have sufficient range for their intended uses.

COMMUNITY NOTES:

Gotham's municipal fleet currently consists of 69 vehicles: 56 passenger cars and light duty trucks, 12 heavy-duty vehicles and one electric vehicle. A fleet inventory was completed in 2020 (see Chart 5 below), which estimated 2020 fleet GHG emissions at 927.25 metric tons of CO₂e.

A fleet electrification analysis, done using the [Atlas Public Policy's DRVE Tool](#), shows that six vehicles from the current fleet could be cost-effectively replaced with electric vehicles. In other words, the total cost of ownership for each vehicle would be less than the total cost of purchasing an ICE (internal combustion engine) counterpart.

FLEET GHG EMISSIONS

Fleet Summary		
# Passenger Cars	38	
# Light Duty Trucks	18	
# Heavy Duty Vehicles	9	
# Construction Equipment	3	
# Electric Vehicles	1	
Total Fleet Size:	69	
Total Mileage	185,054	
Total Fuel Costs	\$156,232.00	
Fuel Consumption & CO2e Emissions by Fuel Type and CO2e by Vehicle Type		
Fuel Type	Total Fuel	CO2e (Metric Tons)
Motor Gasoline (gallons)	54937	547.89
Diesel Fuel (gallons)	37308	388.28
Electricity (kWhrs)	3450	1.08
Natural Gas (GGE)*	0	0.00
Biodiesel B20 (gallons)	0	0.00
Propane (gallons)	0	0.00
Other 1 specify fuel (units)		
Other 2 specify fuel (units)		
Other 3 specify fuel (units)		
Vehicle Type	CO2e (Metric Tons)	
ICE Passenger Car	368.06	
ICE Light-Duty Truck	235.63	
ICE Heavy-Duty Truck	286.51	
Electric Vehicle	1.08	
Total Emissions		
	Emissions	CO2e (Metric Tons)
ICE CO2	404.9630000	923.75
ICE CH4	0.0067600	0.1419600
ICE N2O	0.0087368	2.7084080
Electric CO2e	1.0800000	1.08
Total CO2e		927.25

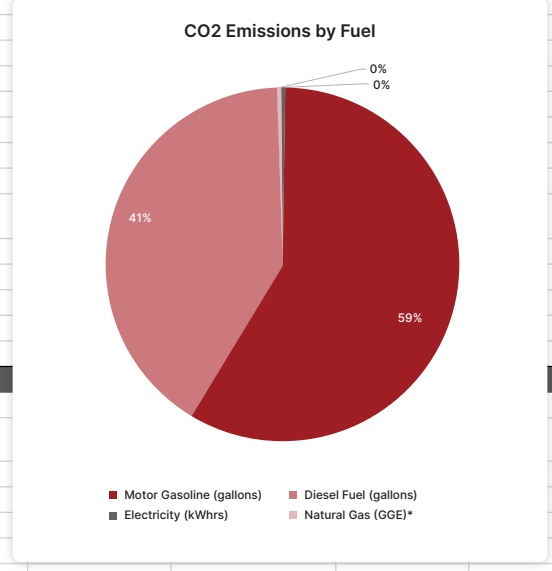
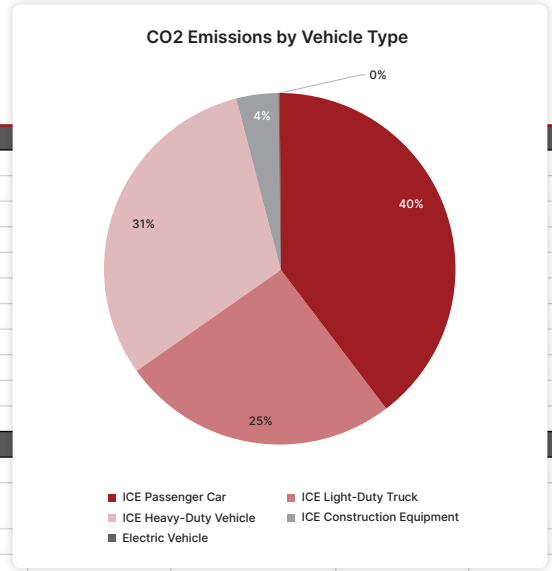


Chart 5. Municipal Fleet 2020 GHG Emissions

Source: Sustainable Jersey. [Fleet Inventory Spreadsheet](#) populated with 2020 data.

MEASURES OF SUCCESS:

The goal of this initiative is to reduce annual municipal fleet GHG emissions by 20% by 2027. Based on the 2020 fleet inventory, Gotham must achieve annual fleet emissions of less than 742 metric tons of CO₂e by 2027.

NEXT STEPS:

1. DPW Fleet Manager establishes process for annual fleet inventory, including tracking system for fuel usage and mileage of every vehicle in the municipal fleet.
2. DPW Fleet Manager creates three-year procurement plan that includes requirement that all vehicles be replaced with plug-in or fully electric counterparts, when deemed cost-effective per Atlas Public Policy's DRVE Tool. Procurement plan will also include EV charging infrastructure.

Initiative 1.6: Install Public EV Charging Infrastructure

DESCRIPTION:

Install electric vehicle charging infrastructure; including chargers, signage, and safety and accessibility features, for public use.

LEAD:	Purchasing Agent
START DATE:	April 2024
PRIORITY:	Medium
ANTICIPATED LENGTH:	6 months
FUNDING SOURCES:	It Pay\$ to Plug In, Gotham Electric Make-Ready Incentives

DEPARTMENTS INVOLVED:

- Department of Public Works
- Finance Department
- Engineering Department

OBSTACLES/BARRIERS:

- There may be objections to funding charging of community EVs with taxpayer money.

POTENTIAL SOLUTIONS:

- Besides utilizing installation incentives to reduce initial costs, the township will charge a fee for use of the charging station to gradually recuperate the costs.

COMMUNITY NOTES:

There are two Level 2 public EV charging stations within Gotham and one within a five-mile radius. There are no Level 3/DCFC public EV charging stations within five miles of Gotham.

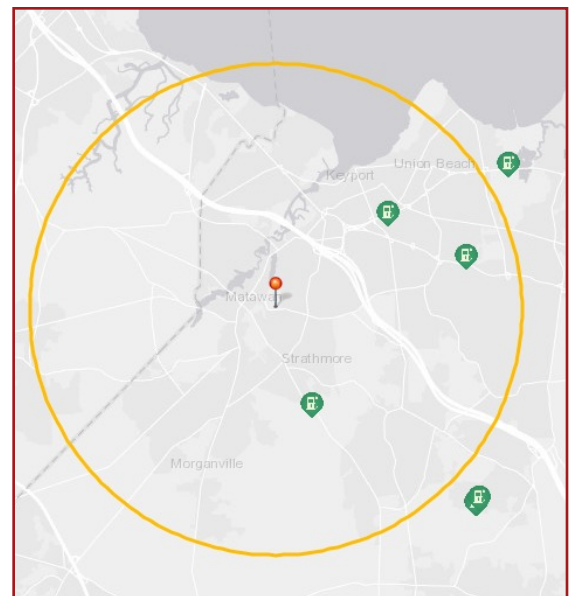
Public EV Charging Station Locations:

1. Walmart - 123 Route 14, Gotham, NJ
2. McDonald's - 456 Route 14, Gotham, NJ
3. Civic City Courthouse - 79 Route 130, Civic City, NJ

MEASURES OF SUCCESS:

The goal of this initiative is to install an additional public charging station in Gotham.

PUBLIC EV CHARGING STATIONS IN GOTHAM AREA



Map 1. Public EV Charging Stations in Gotham Area

Source: NJDEP. Public EV Charging Locator Map

NEXT STEPS:

1. Township Administrator sets up meeting with DPW, Environmental Commission, and township engineer to discuss charger type and siting options.
2. DPW and township engineer determine which aspects of installation can be completed in-house and report to Township Administrator.
3. Finance Department finalizes analysis of costs and consults with Township Administrator to determine site selection.
4. Grant writer applies for It Pay\$ to Plug In grant.
5. Purchasing agent finalizes purchase of charging station.

Strategy 2: Accelerate Deployment of Renewable Energy and Distributed Energy Resources

Expanding renewable energy generation is necessary to eliminate greenhouse gas emissions from our energy system. New Jersey's most readily available renewable resource is sunlight, which more and more utility customers can now access

thanks to declining prices and new systems like community solar. Gotham can continue to refine local policies regarding solar and other renewable resources to promote local growth of renewable generation capacity.



Initiative 2.1: Adopt Supportive Zoning and Permitting for Solar

DESCRIPTION:

Provide clear guidance/standards for solar developers and limit barriers to solar adoption such as lengthy permitting and multiple reviews.

LEAD:	Municipal Planner
START DATE:	January 2024
PRIORITY:	High
ANTICIPATED LENGTH:	3 months
FUNDING SOURCES:	N/A

DEPARTMENTS INVOLVED:

- Code Enforcement
- Township Clerk
- Municipal Attorney

OBSTACLES/BARRIERS:

- Some residents may want to keep aesthetic regulations on rooftop solar PV.

POTENTIAL SOLUTIONS:

- Township press release will cite studies that show solar panels create less glare than other common building materials such as steel and glass ([NREL](#)).

COMMUNITY NOTES:

The township has a solar ordinance (1654-16) that does not allow rooftop solar arrays that are visible from the street or create glare for neighboring properties. The solar ordinance also includes standards for setbacks and height that follow best practices from [Sustainable Jersey Guidance for Creating a Solar-Friendly Ordinance](#). The township has no special permitting process for solar system applications.

MEASURES OF SUCCESS:

The goal of this initiative is a new ordinance that removes aesthetic restrictions on rooftop solar and establishes flat fees for solar permitting.

NEXT STEPS:

1. Municipal planner updates municipal ordinance to remove restrictions on visibility and glare of rooftop solar systems and establish flat fees for solar permitting.
2. Municipal attorney reviews and sends ordinance to Town Council for approval.
3. New permitting fees implemented.
4. Notice published in township newsletter regarding the new regulations.

2.6 Initiative 2.6: Install On-Site Municipal Renewable Generation

DESCRIPTION:

Host a solar, wind, or geothermal project on municipal property to generate renewable energy for municipal facilities. Such projects can be leased from a developer or purchased and owned outright.

LEAD:	Purchasing Agent
START DATE:	September 2024
PRIORITY:	Medium
ANTICIPATED LENGTH:	18 months
FUNDING SOURCES:	N/A

DEPARTMENTS INVOLVED:

- Department of Public Works
- Finance Department
- Engineering Department
- Municipal Attorney

OBSTACLES/BARRIERS:

- Municipal budget may not be able to cover upfront costs.

POTENTIAL SOLUTIONS:

- Staff will consider alternative ownership models that minimize upfront costs.

COMMUNITY NOTES:

Gotham has two on-site solar systems that together generate 6% of annual electricity used by municipal buildings.

MUNICIPAL ON-SITE SOLAR INSTALLATIONS		
Address	Interconnection Date	Total System Size (kW)
30 Park Pl	3/19/2013	217.68
1 Gotham Sq.	3/25/2013	120.96

MEASURES OF SUCCESS:

The goal of this initiative is a contract to install onsite solar arrays supplying at least an additional 5% of the total annual electricity used for municipal operations.

NEXT STEPS:

1. Purchasing agent works with DPW and Finance Department to determine which ownership model to pursue.
2. Purchasing agent uses American Cities Climate Challenge template to create RFP for solar PV array(s) that includes site feasibility analysis.
3. Purchasing agent sends RFP to municipal attorney for review and presents to Town Council for approval to release.
4. Construction contract awarded.

2.9 Initiative 2.9: Institute a Community-wide Solar Purchasing Program

DESCRIPTION:

Partner with solar installers or a solar marketplace to offer special pricing on solar installations to residents and/or businesses for a limited time. Solicit bids for a solar installer partner with a Request for Proposals, then award the contract and advertise the offering to the community. Alternatively, partner with a competitive online solar marketplace to offer residents a custom online webpage to receive quotes.

LEAD: Environmental Commission

START DATE: March 2024

PRIORITY: N/A

ANTICIPATED LENGTH: 18 months

FUNDING SOURCES: N/A

DEPARTMENTS INVOLVED:

- Township Clerk

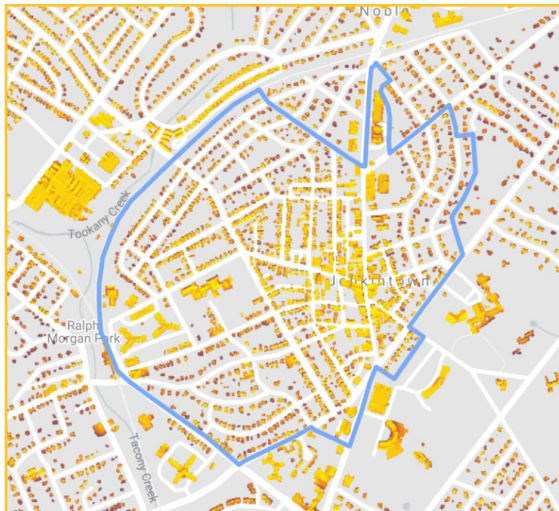
OBSTACLES/BARRIERS:

- No significant barriers were identified

COMMUNITY NOTES:

In 2019, there were 75 customer-owned solar systems, including 40 residential systems and 35 commercial/nonprofit solar systems in Gotham. The total generation of these systems was 573 kW (Sustainable Jersey, Solar Installation Data).

2. SOLAR POTENTIAL IN GOTHAM



According to [Google's Project Sunroof](#), 80% of buildings in Gotham are viable for rooftop solar. That amounts to 816,000 square feet of suitable rooftop area for solar, enough for 11.6 MW of generation capacity and 135,000 MWh of electricity generation per year.

Darker shades indicate shady rooftop area and lighter shades indicate sunny rooftop area.

Map 2. Solar Generation Potential

Source: [Google Sunroof](#)

Initiative 2.9: Cont'd

As part of the Solar Challenge, Gotham partnered with online solar marketplace EnergySage to create an online marketplace specific to Gotham residents. The website still exists but has not been updated since 2017.

As seen in Chart 6, Gotham's solar installations increased significantly between 2015 and 2019, suggesting the Solar Challenge was a success and thus the township has significant influence on local solar adoption (Sustainable Jersey, Solar Installation Data). After the Solar Challenge, the Environmental Commission identified collaboration with neighboring towns as a potential method to reduce the workload of implementing outreach.

SOLAR INSTALLATIONS IN GOTHAM 6.

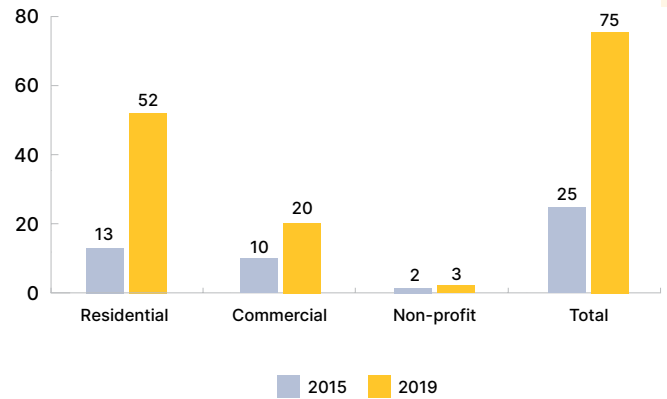


Chart 6. Solar Installations in Gotham

Source: Sustainable Jersey. Solar Installation Data

MEASURES OF SUCCESS:

The goal of this initiative is to create a multi-municipality solar outreach campaign utilizing a localized competitive solar online marketplace.

NEXT STEPS:

1. Environmental Commission contacts neighboring towns to seek collaborators on the initiative, creating a multi-municipality campaign if possible.
2. Environmental Commission creates draft plan for the campaign. Commission members reach out to EnergySage to inquire about updating the 2016-17 campaign website (or creation of new website).
3. Environmental Commission drafts municipal resolution of support for the outreach campaign and sends to Town Council for approval.
4. Environmental Commission creates outreach plan involving multiple forms of media.

Strategy 3: Maximize Energy Efficiency and Conservation and Reduce Peak Demand

Energy efficiency and conservation are the most cost-effective methods of reducing greenhouse gas emissions from the energy system. Improving energy efficiency also generates local jobs, reduces local pollution, improves health and comfort, and

adds resiliency to the energy system. Gotham can utilize energy efficiency to lower costs in municipal operations and encourage the community to follow suit to realize these many benefits.



3.1 Initiative 3.1: Upgrade Energy Efficiency for Municipal Facilities

DESCRIPTION:

Upgrade municipal facilities to be more energy efficient. New Jersey's Clean Energy Program and electric and natural gas utilities offer incentive programs that guide municipalities through the upgrade process, starting with free audits to establish the most effective measures to reduce energy use. Following implementation, showcase upgrades in energy efficiency outreach to local businesses.

LEAD:	Administration
START DATE:	January 2024
PRIORITY:	Medium
ANTICIPATED LENGTH:	18 months
FUNDING SOURCES:	Richland Gas commercial energy efficiency incentive programs

DEPARTMENTS INVOLVED:

- All departments

OBSTACLES/BARRIERS:

- No significant barriers were identified

COMMUNITY NOTES:

The township currently owns seven buildings. Chart 7 shows the energy use intensity (the annual amount of energy used per square foot) of the township's buildings compared to the national median for the corresponding property type. Energy usage is tracked monthly in the township's ENERGY STAR Portfolio Manager account.

7. ENERGY USE INTENSITY (kBtu/ft²) OF MUNICIPAL BUILDINGS VS. NATIONAL MEDIAN OF BUILDING TYPE

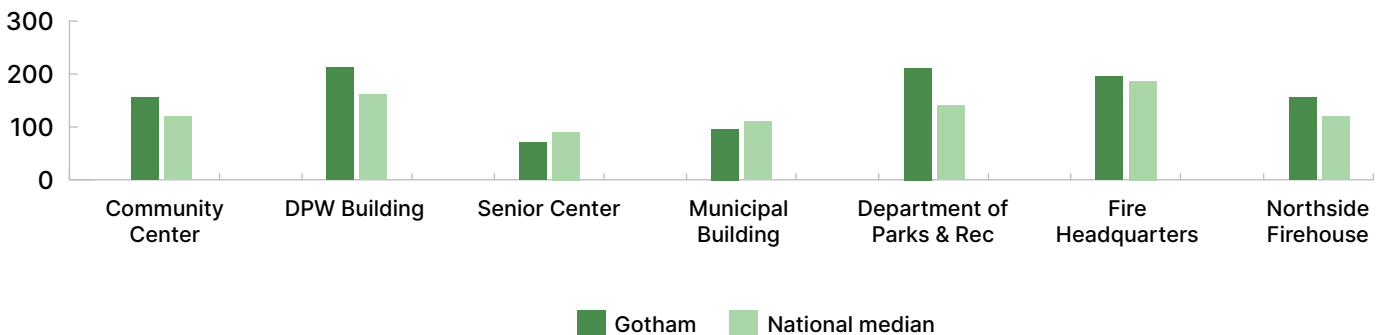


Chart 7. Energy Use Intensity of Gotham's Municipal Buildings vs. National Median of Building Type

Source: Gotham ENERGY STAR Portfolio Manager account

Initiative 3.1: Cont'd

All buildings were audited in 2015 via the Local Government Energy Audit program. The township last upgraded energy efficiency in municipal buildings in 2016-2017 using the NJCEP Direct Install (DI) program (see Table 3 below).

ENERGY EFFICIENCY INCENTIVES UTILIZED IN GOTHAM'S MUNICIPAL BUILDINGS

Property	Street Address	Year Built	Year of Last Upgrade	NJCEP Program	Invoiced Incentive	Premise Sq. Ft.
Community Center	651 Richland Ave	1985	--	--	--	3,300
DPW Building	651 Brighton Ave	1954	2017	Direct Install	\$23,900	10,200
Senior Center	98 Main St	1960	2018	Direct Install	\$6,500	7,500
Municipal Building	1 Gotham Sq	2002	2018	Direct Install	\$22,000	15,500
Parks & Recreation	30 Park Pl	1978	--	--	--	22,000
Fire Headquarters	28 Oswald Rd	1961	2017	Direct Install	\$6,200	1,800
Northside Firehouse	100 Northside Ave	1965	--	--	--	6,200

Table 3. Energy Efficiency Incentives Utilized in Gotham's Municipal Buildings

Source: Sustainable Jersey. NJCEP Local Government Projects 2008-2021

In 2022, Sustainable Jersey began offering technical assistance to Gotham staff to determine next steps for improving energy efficiency in municipal facilities. Sustainable Jersey staff and Gotham staff gathered 14 months of recent utility data to review for upgrade opportunities. Together, they determined Direct Install assessments are appropriate for all Gotham buildings.

Gotham intends to achieve the Sustainable Jersey Gold Star in Energy, which requires reducing greenhouse gas emissions from municipal operations and facilities by at least 3.6% per year for three consecutive years. Based on 2019 municipal emissions, for example, Gotham would need to reduce emissions from municipal operations by 162 metric tons CO₂e per year from 2019 to 2022.

MEASURES OF SUCCESS:

The goal of this initiative is to schedule energy assessments for all municipal buildings and take advantage of incentives programs to perform recommended efficiency upgrades.

NEXT STEPS:

1. Administration works with Finance Department and Sustainable Jersey to fill out and submit applications for all Gotham buildings for Richland Gas Direct Install program.
2. Administration coordinates with DPW to complete Direct Install assessment process.
3. Administration brings together DPW, Finance, and Engineering departments to review Scope of Work proposals.
4. Administration meets with Richland Gas energy efficiency representatives and Sustainable Jersey staff to determine next steps.

3.2 Initiative 3.2: Residential Energy Efficiency Outreach Campaign

DESCRIPTION:

Implement an outreach effort to help residents take advantage of energy efficiency incentive programs offered by New Jersey's electric and natural gas utilities, including Home Performance with ENERGY STAR and Comfort Partners.

LEAD:	Green Team
START DATE:	July 2024
PRIORITY:	Medium
ANTICIPATED LENGTH:	8-12 months
FUNDING SOURCES:	N/A

DEPARTMENTS INVOLVED:

- Health Department
- Township Clerk
- Municipal Planner

OBSTACLES/BARRIERS:

- Only 32% of Gotham residents own their home and are eligible for utility incentive programs.

POTENTIAL SOLUTIONS:

- Outreach campaign will emphasize that renters must work with building owners to get enrolled in utility incentive programs.

COMMUNITY NOTES:

Chart 3 “Overall GHG Emissions of Gotham by Subsector” on page 5 shows that the residential building sector is the second most significant source of emissions for Gotham, behind only transportation.

Home Performance with ENERGY STAR (HPwES) is a comprehensive residential energy efficiency program offered by Gotham Electric and Richland Gas. The program offers participants a home energy audit and incentives for completing recommended energy efficiency upgrades. Residential utility customers in buildings with four or fewer units are eligible for HPwES.

Twenty residential energy efficiency projects were completed in Gotham from 2008 to 2021, which is 2.22% of the 3,792 housing units. This number includes projects from the Home Performance with ENERGY STAR, Comfort Partners, and PSEG Whole House programs (Sustainable Jersey, Lifetime Residential Energy Efficiency Program Participation Rate (2021)).

MEASURES OF SUCCESS:

The goal of this initiative is to implement an outreach campaign promoting utility residential energy efficiency incentive programs.

NEXT STEPS:

1. Green Team identifies residents that have already utilized residential energy efficiency programs to be advocates in outreach campaign.
2. Green Team finds venue to hold workshop and coordinates with utility representatives and advocates to determine date/time of workshop.
3. Green Team develops flyers and digital materials for distribution to promote residential incentive programs and advertise the workshop.
4. Green Team hosts workshop.
5. Green Team provides text about residential incentive programs to township clerk to publish on municipal website.

3.4 Initiative 3.4: Conduct Energy Efficiency Outreach to Large Energy Users

DESCRIPTION:

Contact large energy users in the community to prompt interest in managing energy use, including participating in utility commercial energy efficiency incentive programs like Engineered Solutions and PJM's Demand Response program.

LEAD:	Township Clerk
START DATE:	August 2023
PRIORITY:	Medium
ANTICIPATED LENGTH:	6 months
FUNDING SOURCES:	N/A

DEPARTMENTS INVOLVED:

- Economic Development Office
- Township Clerk

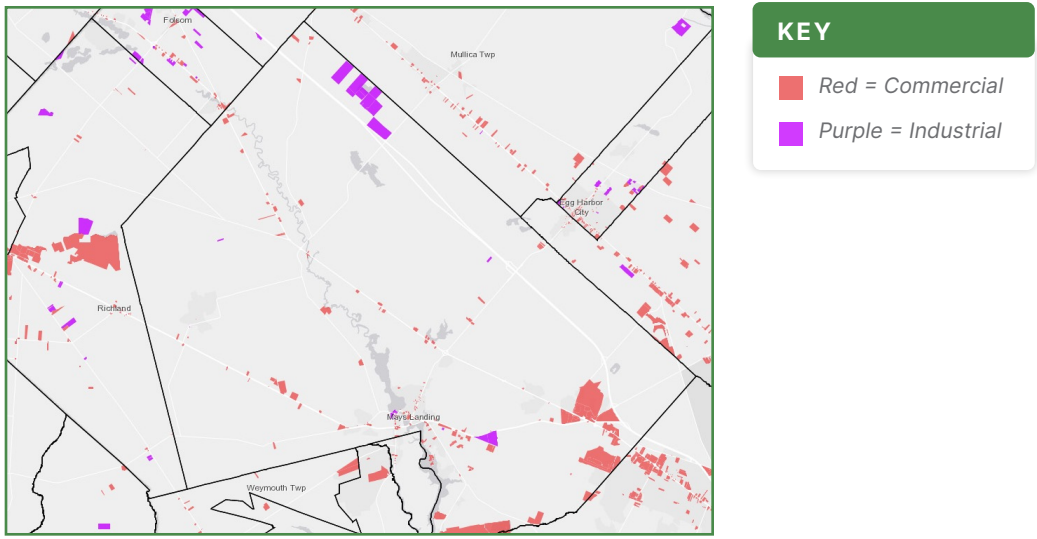
OBSTACLES/BARRIERS:

- No significant barriers were identified

COMMUNITY NOTES:

As of 2019, there are 23 commercial and industrial properties in Gotham. The majority are located on Route 14. There are also some larger farms and agricultural processing facilities on Route 130. These properties may be well suited for commercial renewable energy generation and energy efficiency programs such as NJCEP's Large Energy Users Program (LEUP) or Energy Management solutions programs offered by the utility.

3. COMMERCIAL AND INDUSTRIAL PROPERTIES OF GOTHAM



Map 3. Commercial and Industrial Properties of Gotham
 Source: Sustainable Jersey. NJ Commercial & Industrial Properties Map

Initiative 3.4: Cont'd

The township does not currently provide any information or support to large energy users about energy efficiency or demand response/demand side management.

MEASURES OF SUCCESS:

The goal of this initiative is to implement outreach to Gotham's large energy users promoting energy efficiency and energy management programs.

NEXT STEPS:

1. Township clerk establishes commercial energy efficiency outreach coordinator.
2. Outreach coordinator finds venue to hold workshop for large energy users to learn about utility incentive programs, NJCEP's Large Energy Users Program (LEUP), and PJM's Demand Response program.
3. Outreach coordinator contacts NJBPU and/or utility companies to request representatives to attend the workshop, then coordinates with reps to determine date/time of workshop.
4. Outreach coordinator calls largest energy users in Gotham, according to New Jersey's Energy Benchmarking program.
5. Workshop held for large energy users.

Strategy 4: Reduce Energy Consumption and Emissions from the Building Sector

According to New Jersey's Energy Master Plan, 62% of the state's total end-use energy consumption is associated with buildings, with space heating, water heating, appliances, and industrial uses accounting for 28% of New Jersey's greenhouse gas emissions. Decisions made during

new construction and building retrofits have significant and long-lasting impacts on this energy use. Gotham can reduce energy use and emissions from buildings by prioritizing green design in new construction and utilizing municipal buildings as models for the community.



4.1 Initiative 4.1: Construct New Municipal Buildings as Model Green Buildings

DESCRIPTION:

Implement a policy encouraging or requiring consideration of green building practices for any new municipal construction project. Highlight incentives from NJCEP's New Construction Energy Efficiency program. Following construction, showcase green building features with on-site kiosks and digital webpages to encourage others to follow suit.

LEAD:	Environmental Commission
START DATE:	December 2023
PRIORITY:	Low
ANTICIPATED LENGTH:	4 months to pass policy, then ongoing
FUNDING SOURCES:	N/A

DEPARTMENTS INVOLVED:

- Administration
- Engineering Department
- Department of Public Works
- Procurement Department

OBSTACLES/BARRIERS:

- Some residents may oppose adding more cost to construction of municipal facilities.

POTENTIAL SOLUTIONS:

- Environmental Commission will distribute materials explaining the benefits of green building practices.

COMMUNITY NOTES:

The township has no official green building policy for construction of municipal buildings. The only building with LEED certification is the Senior Center. Energy efficiency features of the Senior Center are described in a poster at the building entrance and on the municipal website. Since the township has an aging building portfolio (see Table 3 on page 22), the administration is considering construction of new facilities, but no official plans exist.

MEASURES OF SUCCESS:

The goal of this initiative is to create an official Green Building Policy for new construction of municipal facilities.

NEXT STEPS:

1. Environmental Commission drafts Green Building Policy for municipal new construction, using the Sustainable Jersey Sample Municipal Resolution.
2. Environmental Commission presents draft to Township Administrator, DPW, Engineering Department, and municipal attorney for feedback.
3. Environmental Commission finalizes Green Building Policy and presents to the Town Council for approval.

Strategy 6: Support Community Energy Planning and Action with an Emphasis on Encouraging and Supporting Participation by Low- and Moderate-Income and Environmental Justice Communities

New Jersey's Energy Master Plan calls for Community Energy Plans like this one to drive a rapid shift to a clean energy system that specifically benefits low- and moderate-income (LMI) and environmental justice (EJ) residents. Under the current system, low- and moderate-income residents often struggle to afford energy resources such as electricity and gasoline. Meanwhile,

environmental justice communities suffer from health problems related to pollution from the fossil-fuel-based energy system. By integrating the needs of LMI and EJ communities with local energy initiatives, Gotham can alleviate burdens on these communities caused by the current system while mitigating global climate change.



Initiative 6.2: Conduct Energy Efficiency Outreach to Low- and Moderate-Income Residents

DESCRIPTION:

Promote state/utility energy efficiency programs for low- and moderate-income residents using community-serving institutions as messengers, providing non-English promotional materials where appropriate, and emphasizing co-benefits of energy efficiency upgrades (health, safety, and comfort).

LEAD:	Green Team
START DATE:	August 2024
PRIORITY:	High
ANTICIPATED LENGTH:	8 months
FUNDING SOURCES:	N/A

DEPARTMENTS INVOLVED:

- Code Enforcement
- Township Clerk
- Health Department

OBSTACLES/BARRIERS:

- Target audience may be skeptical of utility programs such as Comfort Partners.

POTENTIAL SOLUTIONS:

- Township will work with community organizations such as Habitat for Humanity and houses of worship.
- Outreach campaign will include materials featuring statements from Gotham residents that have participated in Comfort Partners.

COMMUNITY NOTES:

Data on the participation of Gotham's low- and moderate-income residents in residential energy efficiency programs is unavailable. However, overall participation in these programs has been low. Twenty residential energy efficiency projects were completed in Gotham from 2008 to 2021, which is 2.22% of the 3,792 housing units. This number includes projects from the Home Performance with ENERGY STAR, Comfort Partners, Weatherization Assistance Program, and PSEG Whole House programs (Sustainable Jersey, Lifetime Residential Energy Efficiency Program Participation Rate (2021).

The township has never conducted energy efficiency outreach specifically targeting low- and moderate-income residents. The township currently lists state resources for help with paying utility bills on the municipal website. However, the list does not include any resources for improving energy efficiency.

The Green Team will coordinate this initiative with outreach on Home Performance with ENERGY STAR (Initiative 3.2).

Initiative 6.2: Cont'd

MEASURES OF SUCCESS:

The goal of this initiative is to create awareness in Gotham of the energy efficiency and utility assistance resources available to low- and moderate-income residents.

NEXT STEPS:

1. Green Team contacts Comfort Partners outreach coordinator to request assistance in planning a Comfort Partners outreach campaign.
2. Green Team schedules meeting with representatives from at least three community organizations to discuss partnering on outreach to low- and moderate-income residents.
3. Green Team creates plan with timeline for completing several forms of outreach to inform residents about state/utility energy assistance and energy efficiency resources. Outreach will be integrated with broader residential outreach (Initiative 3.2) where possible.

6.3 Initiative 6.3: Support Shared Mobility Programs

DESCRIPTION:

Promote and develop shared transportation networks of buses, cars, bikes, etc. with design features that particularly assist low- and moderate-income (LMI) residents. Encourage shared transportation services to expand access in LMI neighborhoods and provide LMI membership options.

LEAD:	Township Administrator
START DATE:	August 2025
PRIORITY:	High
ANTICIPATED LENGTH:	2 years
FUNDING SOURCES:	NJDEP's eMobility grant

DEPARTMENTS INVOLVED:

- Environmental Commission
- Township Clerk
- Procurement Department

OBSTACLES/BARRIERS:

- Gotham staff have little experience related to creating and operating a shared e-mobility program.

POTENTIAL SOLUTIONS:

- Project leads will reach out to existing programs in New Jersey, such as the Trenton E-Mobility Pilot.

COMMUNITY NOTES:

Commuter data for Gotham from the US Census shows that as of 2020, 73% of Gotham's working adults commute by car. There is no passenger rail station within 15 miles of the town and there is only one bus line, NJ TRANSIT's line 27, which provides service to Philadelphia.

Chart 9 below illustrates the distribution of annual miles traveled for trips that start and/or end in Gotham. The total GHG emissions from vehicle miles associated with Gotham is 10,646 metric tons of CO₂e.

2020 MEANS OF TRANSPORTATION TO WORK

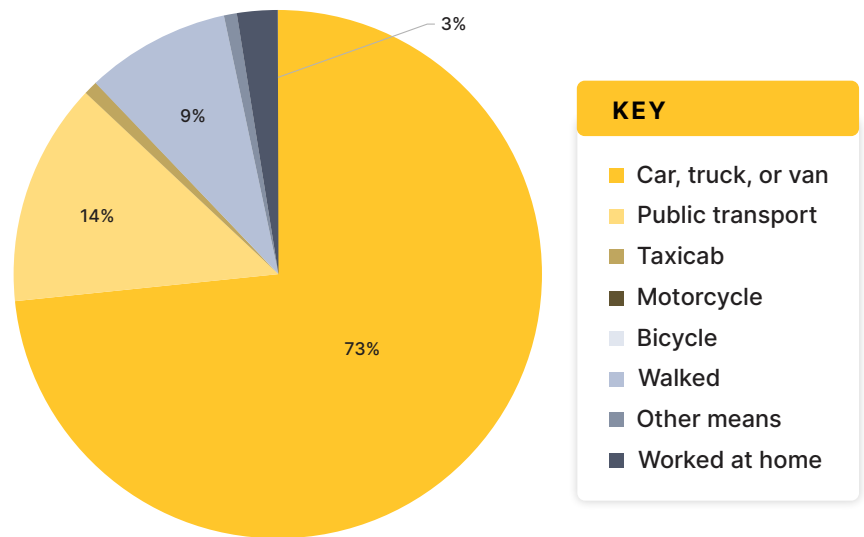


Chart 8. 2020 Means of Transportation to Work
Source: Sustainable Jersey. Community Profile Data by Municipality

VEHICLE MILES TRAVELED BY VEHICLE TYPE

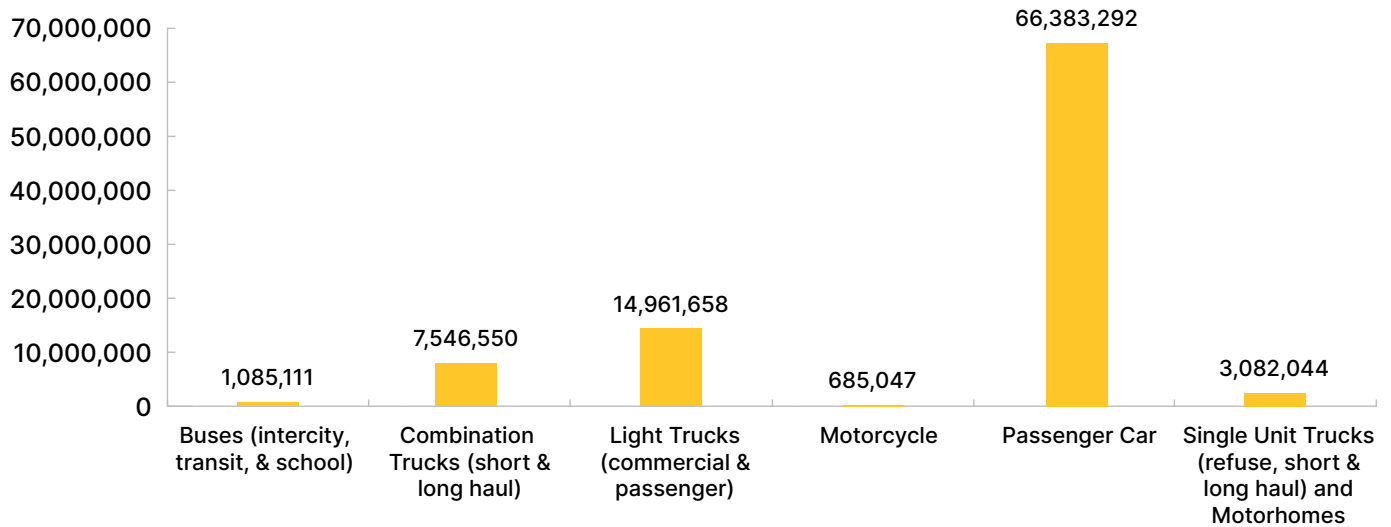


Chart 9. Vehicle Miles Traveled in 2020

Source: Sustainable Jersey. Vehicle Miles Traveled (VMT)/On-Road Vehicle GHG Emissions Data

Note: VMT data includes mileage from alternative fuel vehicles, such as electric vehicles.

MEASURES OF SUCCESS:

The goal of this initiative is to create a shared e-mobility program in Gotham.

NEXT STEPS:

1. Township Administrator forms shared mobility committee that includes township Clerk, Environmental Commission, Procurement Department, and community members.
2. Shared mobility committee decides on preferred type of shared mobility project that would qualify for NJDEP eMobility grant program.
3. Grant writer completes application for eMobility grant program.
4. Procurement Department creates and releases RFP for shared e-mobility project.

Initiative 6.4: Support Low- and Moderate-Income Community Solar Subscriptions

DESCRIPTION:

As a partner in a community solar project, implement a policy that reserves some project capacity for LMI residents and/or a discount for LMI subscribers to the project.

LEAD:	Environmental Commission
START DATE:	September 2025
PRIORITY:	High
ANTICIPATED LENGTH:	Ongoing
FUNDING SOURCES:	N/A

DEPARTMENTS INVOLVED:

- Department of Public Works
- Procurement Department
- Municipal Planner

OBSTACLES/BARRIERS:

- The Community Solar Energy Pilot Program is now closed.

POTENTIAL SOLUTIONS:

- New Jersey Board of Public Utilities is currently reviewing details for a permanent Community Solar Program.

COMMUNITY NOTES:

No community solar projects currently exist in Gotham. The township has received inquiries from community solar developers about creating projects in town, but no project proposals have been submitted to the Community Solar Energy Pilot Program.

MEASURES OF SUCCESS:

The goal of this initiative is to create an equity-focused community solar project in Gotham.

NEXT STEPS:

1. Environmental Commission forms community solar advisory committee that includes procurement staff, municipal planner, DPW, and community members.
2. Community solar advisory committee creates list of criteria for the municipality to endorse a community solar project, including requirements that over half of project capacity is reserved for low- and moderate-income residents, and that low- and moderate-income subscribers receive at least 15% discount on the rate.
3. Town Council approves list of criteria via municipal resolution.
4. Community solar advisory committee finds a partner to develop community solar project.

Strategy 7: Expand the Clean Energy Innovation Economy

Clean energy industries already employ thousands of residents in the state and will employ thousands more to implement the transition to 100% clean energy. Innovation in clean energy technology can generate further high-quality job growth while

developing new tools for tackling greenhouse gas emissions. Gotham can lead the charge in developing New Jersey's clean energy innovation economy through forward-thinking policies and development of clean energy resources.



Initiative 7.1: Adopt Energy Storage Policies

DESCRIPTION:

Adopt standards and establish requirements for permitting battery energy storage systems. Post information about energy storage regulations to the municipal website and ensure appropriate municipal staff are informed.

LEAD:	Municipal Attorney
START DATE:	January 2025
PRIORITY:	Low
ANTICIPATED LENGTH:	3 months
FUNDING SOURCES:	N/A

DEPARTMENTS INVOLVED:

- EMS, Fire, Police Departments
- Township Clerk
- Municipal Planner

OBSTACLES/BARRIERS:

- Familiarity with storage technology is low, leading to misconceptions about safety.

POTENTIAL SOLUTIONS:

- Energy storage ordinance will follow widely-accepted guidance on safety regulations. Corresponding press release will emphasize safety as priority.

COMMUNITY NOTES:

Gotham does not have any policies specific to battery energy storage systems. There have not been any permit requests for battery energy storage systems in the municipality.

MEASURES OF SUCCESS:

The goal of this initiative is to establish a permitting process for battery energy storage systems.

NEXT STEPS:

1. Municipal attorney uses NYSERDA's *Battery Energy Storage System Guidebook* to write a municipal ordinance establishing a process and requirements for permitting battery energy storage systems.
2. Municipal planner reviews and approves ordinance.
3. Municipal attorney brings the ordinance to Town Council for approval.
4. Township Clerk writes and publishes press release about battery energy storage system.
5. Training is provided to first responders regarding incident response involving energy storage systems.

IV. References

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V. Appendix. Data Sources

Almost all data used in this plan is sourced from the [Sustainable Jersey Data Center](#).

Community Overview Data

SECTION, MAP, OR TABLE	ORIGINAL SOURCE(S)	LINK TO DATA
General Information Section	U.S. Census American Community Survey (ACS)	SJ Community Profile Data by Municipality
Current Housing Units by Year Built Chart	U.S. Census ACS	SJ Community Profile Data by Municipality
Number of Units by Structure Type Chart	U.S. Census ACS SJ Community Profile Data by Municipality	SJ Community Profile Data by Municipality
Commercial & Industrial Properties Map	NJ MOD IV Tax Data	SJ Commercial & Industrial Properties Map
Commercial & Industrial Properties Data	NJ MOD IV Tax Data	SJ Commercial & Industrial Properties Data

Energy Use Data

SECTION, MAP, OR TABLE	ORIGINAL SOURCE(S)	LINK TO DATA
Amount of Electricity Used by Sector (kWh) Chart	NJ Investor-Owned Utilities	SJ Aggregated Community-Scale Utility Energy Data
Amount of Natural Gas Used by Sector (Therms) Chart	NJ Investor-Owned Utilities	SJ Aggregated Community-Scale Utility Energy Data
Number of Occupied Housing Units by Primary Heating Fuel	U.S. Census ACS	SJ Community Profile Data by Municipality
Greenhouse Gas (GHG) Emissions Charts	SJ GHG Emissions by Municipality	SJ Community-Scale Greenhouse Gas (GHG) Emissions Data

Energy Efficiency and Renewable Energy Data

SECTION, MAP, OR TABLE	ORIGINAL SOURCE(S)	LINK TO DATA
Solar Installations Chart	NJCEP Solar Installation Data	SJ Solar Installation Data
Commercial Energy Efficiency Program Participation Data	New Jersey Clean Energy Program (NJCEP) Data	SJ Energy Efficiency Program Participation (2008-2021) Data - Lifetime Commercial Participation
Residential Program Participation Data	NJCEP Data	SJ Energy Efficiency Program Participation (2008-2021) - Lifetime Commercial Participation
Energy Efficiency Projects Completed by Municipality Data	NJCEP Data	SJ NJCEP Local Government Projects 2008-2021