

RESOLUTION 2281-24

A RESOLUTION OF THE CITY COMMISSION OF THE CITY OF WINTER PARK, FLORIDA, AMENDING THE SUSTAINABILITY ACTION PLAN ADOPTED BY RESOLUTION 2267-23; PROVIDING FOR SEVERABILITY, NON-LIMITATION OF AUTHORITY, AND AN EFFECTIVE DATE.

WHEREAS, in January 25, 2023, the City adopted the Sustainability Action Plan that promotes, "responsible and proactive decision-making that minimizes negative impacts and maintains balance between social, environmental, and economic growth to ensure a desirable planet for all species now and in the future"; and

WHEREAS, the purpose of the Sustainability Action Plan is to create a roadmap depicting where the City is today and where it would like to be in the future, in regards to achieving sustainability goals and targets by a specific time frame; and

WHEREAS, based upon the results from the feasibility study, the target dates in the Climate Resiliency section of the Sustainability Action Plan has been revised to replace 'TBD' with specific target goals of 80% renewable energy supply by 2035, 89% renewable energy supply by 2042 to include an update on technologies available, and 100% renewable energy supply by 2050; and

WHEREAS, it is the intention that the City will conduct the following safeguard measures to ensure meaningful emission reduction goals:

- regularly re-evaluate renewable targets and integrated resource plans for its electric energy supply at 3-year maximum intervals, and adjust such targets and plans accordingly should continuing on a path to 100% renewable energy prove too costly in future years such that the associated retail electric rates would exceed either a) 105% of state Florida municipal electric companies or b) 95% of Duke Energy; and,
- establish short-term, mid-term, and long-term goals in its roadmap to 80% and 100% renewable energy; and,
- Ensure purchased renewable energy comes from site specific renewable energy sources in the region so that regional carbon reduction is achieved without relying on purchasing carbon credits or purchasing premiums.

WHEREAS, the Sustainability Action Plan and revision is supported by the Keep Winter Park Beautiful and Sustainable Advisory Board and the Utility Advisory Board; and

WHEREAS, the Sustainability Action Plan is a living document intended to evolve over time and contains long-term objectives and short-term actions for helping the City achieve targets related to sustainability; and

WHEREAS, the objectives are intended to be quantifiable so that progress can be measured on an annual basis.

NOW, THEREFORE, be it resolved by the City Commission of the City of Winter Park, Florida that:

SECTION 1. Recitals. The foregoing recitals are hereby ratified and confirmed as being true and correct and are hereby made a part of this Resolution.

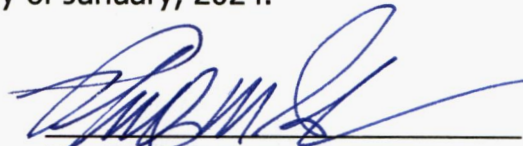
SECTION 2. Sustainability Action Plan. The City Commission hereby adopts the amendment to the Sustainability Action Plan attached to this Resolution in order to achieve sustainability goals.

SECTION 3. Severability. If any section, subsection, sentence, clause, phrase, word or provision of this Resolution is for any reason held invalid or unconstitutional by any court of competent jurisdiction, whether for substantive, procedural, or any other reason, such portion shall be deemed a separate, distinct and independent provision, and such holding shall not affect the validity of the remaining portions of this Resolution.

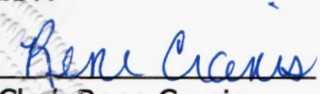
SECTION 4. Non-limitation of Authority. This Resolution shall not be construed to limit City Commission authority or discretion over whether or how to budget, allocate, or spend moneys for any purpose. The Sustainability Action Plan is a target-based plan and is subordinate to the City's Comprehensive Plan, the City's land development regulations, and other legally binding requirements of the City's Code.

SECTION 5. Effective date. This Resolution and the Sustainability Action Plan shall become effective immediately upon adoption of this Resolution by the City Commission of the City of Winter Park, Florida.

ADOPTED at a regular meeting of the City Commission of the City of Winter Park held in City Hall, Winter Park on this 24th day of January, 2024.


Mayer Phillip M. Anderson

ATTEST:


City Clerk Rene Cranis

Resolution 2281-24

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City of Winter Park Sustainability Action Plan

January 24th, 2024

Presented by:

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Mia Brady, Sustainability Specialist

Keep Winter Park Beautiful & Sustainable Advisory Board

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Background

Vision and Purpose

The 2022 Sustainability Action Plan (SAP) updates and expands upon the City of Winter Park's 2015 SAP. The purpose of the SAP remains the same, to create a roadmap depicting where the city is today and where it would like to be in the future, in regard to sustainability.

The city defines sustainability as responsible and proactive decision-making that minimizes negative impact and maintains balance between social, environmental, and economic growth to ensure a desirable environment for all species now and into the future.

By integrating elements of this plan, Winter Park will:

- Increase quality of life while improving individual and community health
- Become more independent from energy derived from fossil fuels
- Protect and enhance air quality, water quality, and natural systems
- Save money
- Increase economic value

It is the intention of this document to provide high level objectives that are conceptually approved by the City Commission and leadership. The actions listed under each category are put forth as possible avenues for achievement of the approved goals, and do not represent required or prescriptive measures. The plan is a living document intended to evolve over time as the city experiences both progress and challenges.

A progress report will be presented to the City Commission on an annual basis. This annual report will include:

- Summary of progress made toward the previous year's indicators and actions
- Proposed project/action list
- Estimated project costs
- City staff and budget allocations
- Outside funding opportunities

History

On January 14, 2008, the Winter Park City Commission passed a resolution stating the City would pursue measures to become a certified Green Local Government through the [Florida Green Building Coalition](#) (FGBC). In 2009, Public Works Director Troy Attaway hired Tim Maslow to coordinate the city's sustainability efforts and to develop a plan for achieving the certification. In 2011, after working with each department on a multitude of new projects, policies and programs, the city was officially certified as a Green Local Government at the Gold level, also earning the highest score for a local government that year. The SAP was originally drafted based upon the structure provided by the Green Local Government certification.

In 2012, the city's Environmental Review and Keep Winter Park Beautiful (Keep America Beautiful affiliate since 1993) boards merged with a shared focus of improving community sustainability and achieving the Green Local Government Platinum certification. The new Keep Winter Park Beautiful and Sustainable (KWPB&S) Advisory Board held monthly workshops in addition to their regularly scheduled monthly board meetings in an effort to develop and refine the SAP with community involvement. The 2015 SAP, presented by Kris Stenger, Assistant Director of Building, Permitting and Sustainability and Abby Gulden, Sustainability and Permitting Coordinator, was accepted by unanimous vote of the City Commission on February 9, 2015.

2012-2013 KWPB&S Board Members		2014-2015 KWPB&S Board Members	
Mary Dipboye, Chair	James (Bob) Robinson	Michael Poole, Chair	Mark Roush
Stephen Pategas, V. Chair	Pat Schoknecht	Stephen Pategas, V. Chair	Bruce Thomas
Michele Hipp	Julia Tensfeldt	Michele Hipp	Steven DiClemente
Michael Poole	Kent Tse	Raymond Randall	Mary Dipboye
Raymond Randall	Laura Walda	Pat Schoknecht	John Tapp
John Rife	Carol Kostick	Julia Tensfeldt	Fred Kosiewski
Lucy Roberts	Mark Roush	Laura Walda	Cathy Blanton
Joseph Robillard		Carol Shenck (Kostick)	

About the 2022 SAP Update

Overview

The year 2020 was the first target year for many of the 2015 SAP metrics. Due to the COVID-19 pandemic, data from 2020 is not comparable to previous years. For this reason, trend data for the 2021 document were only expressed through the year 2019 (pre-COVID-19 pandemic). The city's progress toward the 2015 SAP Objectives, Indicators, and Actions through 2020 is provided in the 2020 Annual Report available at cityofwinterpark.org/sap.

The 2021 SAP revises baselines, where necessary, for more complete and accurate data collection and analysis. It also includes a new category, Climate Resiliency, to help the City better understand and withstand weather and climate-related risks and vulnerabilities. The update also includes actions to apply a [racial equity lens](#) to ensure a future where race can no longer be used to predict life outcomes and where outcomes for all groups are improved.

During 2021, many programs and goals were suspended due to prior sustainability staff no longer employed at the city. In 2022, the Sustainability Program was moved to the newly created Natural Resources and Sustainability Department. The 2022 SAP revision contains edits made to the 2021 SAP being implemented by the Sustainability Division consisting of the Sustainability Specialist, Sustainability Manager, and Natural Resources and Sustainability Director.

In addition, as a result of the above-mentioned delays, the Department of Natural Resources and Sustainability conducted a comprehensive inventory of all SAP metric

indicators to benchmark city status in effort to give the new Department a starting point on data trend and analysis moving forward. This information is presented in subsequent tables labeled as “**2021 Status**”.

2021 SAP Update Community Engagement Process

The 2021 SAP integrates discussion and feedback from joint virtual KWPB&S Advisory Board work sessions, which allowed for public comments, with the following city advisory boards and respective staff liaisons: Economic Development, Lakes and Waterways, Parks and Recreation, Tree Preservation, Planning and Zoning, and Transportation and Utilities. Additional community input on SAP priorities were gathered using an online survey that had over 200 respondents (over two-thirds were identified as residents). Community input was also gathered from community organizations via an online survey from Hannibal Square Heritage Center, Ideas for Us Orlando, League of Women Voters Orange County, The Nature Conservancy, Winter Park Garden Club, Winter Park History Museum, and Winter Park Public Library.

Keep Winter Park Beautiful & Sustainable Advisory Board

The mission of Keep Winter Park Beautiful and Sustainable (KWPB&S) Advisory Board is to make recommendations to the city commission concerning matters to improve the quality, health, sustainability and aesthetics of our environment in order to create a healthier, more beautiful place to live, work, and play.

2022 KWPB&S Board Members	Appointed By	End of Term
Ben Ellis, Vice Chair	Mayor Anderson	2024
Carey Bond	Commissioner DeCiccio	2023
Mark J Yonker	Commissioner Cruzada	2025
Kay Hudson, Chair	Mayor Anderson	2024
Stephen Pategas	Commissioner Weaver	2025
Rishona S Teres	Commissioner Sullivan	2023
Laura Gustafson-Hullinger	Mayor Anderson	2024

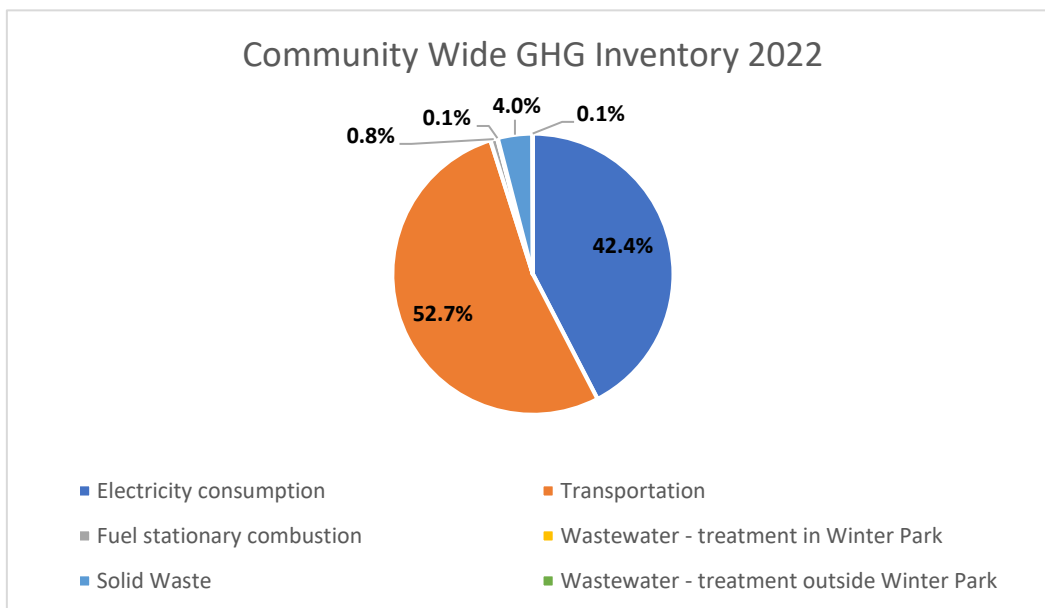
Highlights and Accomplishments

- [East Central Florida Regional Resilience Collaborative](#) Partner and Regional Greenhouse Gas Reduction Advisory Committee Member
- [Solar United Neighbors](#) Partner
- [America In Bloom's](#) 2020 Outstanding Achievement Award for Environmental Efforts
- [SolSmart](#) Gold Designee
- EV Charging Infrastructure Readiness Ordinances ([3203-21](#), [3204-21](#))
- Backyard Chicken Permit Pilot Program Ordinance ([3182-20](#))
- Single-use Products Policy for City Facilities Pilot Program Resolution ([2238-20](#))
- Electrified the Building & Permitting Department's entire fleet
- Purchased 20MW of utility-scale solar, expanding the city's renewable portfolio

- Launched [Green Business Recognition Program](#)
- Collaborations with UCF and Rollins College students on energy benchmarking and Green Business recruitment
- [Rollins College Bonner Leaders Program](#) Partner
- Awarded over \$100,000 in Florida Department of Transportation Keep America Beautiful Florida Affiliates Grants
- Single-stream Residential Recycling Program including [Schedule Reminding and Waste Lookup Tool Digital Service](#)
- Electric Vehicle Charging Stations available to the public throughout the city at no cost
- Residential audit and rebate programs encouraging [energy](#) and [water conservation](#)
- Gas-powered Leaf blower Ban Ordinance ([3230-22](#))
- Sustainability Program moved to the Natural Resources and Sustainability Department where the Program now is addressed as a Division to work collaboratively with Lakes and other Departments
- Sustainability Specialist position was increased from part-time to full-time in order to help the Sustainability Manager and Natural Resources and Sustainability Director fulfill the goals of the SAP
- Awarded \$100,000 from the Department of Environmental Protection to go towards the City's Climate Risk Vulnerability Assessment
- Completed [Energy Efficiency Study](#) on 20 city-owned buildings in 2023
- Sustainability Action Plan adopted January 2023 by Resolution ([2267-23](#))- carbon emission target goals listed as TBD
- Sustainability Action Plan adopted January 2024 by Resolution ([2281-24](#))- to include carbon emission target goals

Climate Resiliency

The [Climate Resiliency](#) category outlines long-term objectives and short-term actions focused on improving the city's capacity to cope with [climate change](#) impacts and to respond in ways that allow the city to maintain its essential functions while also maintaining the capacity for adaptation, learning, and transformation. In 2021, the Intergovernmental Panel on Climate Change (IPCC) *Sixth Assessment Report* asserts that human activities are estimated to have caused approximately 1°C of global warming to date and further warming of 1.5°C and 2.0°C will be exceeded during the 21st century unless deep reductions in CO₂ and other [greenhouse gas](#) emissions occur in the coming decades. Warming at this level is projected to increase the mean temperature of most land and ocean regions, increase hot extremes in most inhabited regions, and increase climate-related risks to health, livelihoods, food security, water supply, human security, and economic growth.



The city's Community-wide Greenhouse Gas (GHG) Emissions Inventory consists of all major direct and indirect GHG emissions generated and occurring within the City of Winter Park's organizational boundary. Transportation-related (50%) and electricity consumption-related (46%) activities contribute the largest proportion of greenhouse gases emissions in the city. As a municipally owned-utility, the Electric Utility is uniquely situated to increase the percentage of its energy portfolio coming from renewable and clean alternative sources. Transitioning to 80% [renewable energy](#), for all electricity and transportation may be more feasible and accessible for the City of Winter Park than many of its neighbors given that it has purchasing power over its electricity and is implementing policies that will ready future developments for a transition to electric vehicles.

In May of 2022, the City of Winter Park was awarded \$100,000 in grant funding from the Florida Department of Environmental Protection to conduct a [Climate Risk Vulnerability Assessment](#) which will identify ways in which the city is susceptible to harm from climate threats and vulnerabilities. This uses science-driven data about climate threats and works with private/public organizations, the City's [Emergency Management](#) Team, and [FEMA](#).

The scientific data is combined with information about the City of Winter Park's residents, assets, and businesses to better understand current and future challenges with long-term operability and recovery.



Food Insecurity, according to the United States Department of Agriculture (USDA), is described as a household-level economic and social condition of limited or uncertain access to adequate food. The identified at-risk groups in the City of Winter Park includes seniors, disabled individuals, low-income residents, and students. In collaboration with the Community Redevelopment Agency, Planning and Zoning Department, and local community partners, access to healthy and affordable food options within a half-mile of impacted residence has been identified. Despite the city's favorable walkability and public transportation infrastructure, these vulnerable groups are still disproportionately affected by a lack of nearby affordable and healthy food options referred to as food deserts. Recognizing the need for targeted interventions, the city aims to close these gaps through community partnerships and on-the-ground education initiatives. This approach aligns with a holistic strategy that involves both community engagement and practical solutions to improve food access and promote nutrition education for the betterment of the identified vulnerable groups. Below is a map illustrating healthy food locations within the city.

○ Parks and Recreation summer camp program incorporates Orange County Public Schools (OCPS) Summer Food Program
○ Summer Feeding - Orange County Public Schools (ocps.net)
• Winter Park Library
○ Master gardening basics: 5 classes, partnership with UF/IFAS Extension orange County
○ Seed library: 3 grow seasons; 9,000 seeds distributed per year
• Rollins College
○ Food pantry for students – Students can either come to the pantry and take what they need or place an order online, which will be processed at the C-Store and stored in a pre-packed bag
○ Sam Justice is staff contact - sjustice@rollins.edu
○ Urban farm collaboration - providing fresh produce to the food pantry on a regular basis
• SeniorsFirst
○ https://www.seniorsfirstinc.org/
○ Provides meals-on-wheels to seniors in Winter Park
• Winter Park High School
○ Willies Mart – “Willie’s Mart provides students with goods and snacks as well as fresh fruit and produce every month”
○ https://winterparkhs.ocps.net/school_information/willie_s_mart
○ Susan Leeds is staff contact - susan.leeds@ocps.net
• Winter Park Rotary Club
○ Killarney Elementary School (ES) has the greatest population of homeless or unhoused elementary level students in Orange County and is in Winter Park. Rotary volunteers go over every Wednesday to pack weekend bags to send home for students to have food for their family over the weekend. The Club also donates approximately \$10,000 annually to Second Harvest specifically for food delivered to Killarney ES. Killarney ES is the only school where ALL the students are on the daily nutrition program (breakfast, lunch, and afternoon snack every day)
○ https://www.winterparkrotary.com/our-charities/

OBJECTIVES

1. Increase the city's resiliency to the impacts of climate change, ensuring a healthy, livable and sustainable community for present and future generations
2. Ensure a robust and resilient technology infrastructure with high-speed communications available for all
3. Increase proportion of renewable energy in Winter Park Electric Utility's Energy portfolio
4. Reduce community wide greenhouse gas emissions
5. Encourage on-site renewable energy generation for residential and commercial buildings
6. Ensure access to affordable, healthy food options for food security (community gardens, grocery stores or farmers markets)
7. Increase residential and commercial customers knowledge of city's renewable energy portfolio and opportunities for reducing their carbon footprint
8. Benchmark all indicators to current state of the city given pandemic and operational delays

The Department of Natural Resources and Sustainability conducted a comprehensive inventory of all SAP metric indicators to benchmark city status in effort to give the new Department a starting point on data trend and analysis moving forward. This information is presented in all subsequent tables labeled as “**2021 Status**”.

INDICATORS

	Indicator Description	2012 Baseline	2021 Status	2022 Status	2025 Target	2035 Target	2042 Target	2050 Target
CR-1	Proportion of renewable energy in Winter Park Electric Utility's Energy portfolio ¹ – Baseline Year: 2021 includes Covanta	4%	13%	21.72	23%	80%	89%	100%
CR-2	Community wide greenhouse gas emissions [Tons of carbon dioxide equivalent]– Baseline Year: 2018	398,919	405,394	406,999	355,000	235,000	151,000	58,000
CR-3	WP Electric Utility customers with Solar – Baseline Year: 2012	7	139	154	300	700	950	1300
CR-4	Proportion of Residents within 1/2 mile of affordable, healthy food options – Baseline Year: 2012	-	46%	40%	50%	75%	80%	TBD
CR-5	Undergrounding of Winter Park's electrical Utility ²	-	-	73.1%	85%	100%		

¹Approximations with plans for refinement as reaching 100% target in 2050 is contingent on cost reduction in dispatchable energy from renewable sources as noted in the Key Assumptions Appendix A of the 100% Renewable Initiative Final Report 6.0, 2023.

²Target completion date is no later than 2030.

ACTION

Projected Implementation Year	Action	Accomplished	Status	Responsible Department/ Division
2022	Conduct Renewable Energy Feasibility Study	Yes	Completed	Sustainability, Quanta, & WP Electric Utility, Public Works
2023	Establish community grants for food security and sustainability initiatives	No	None	Sustainability
2022	Implement an Artificial Turf Ordinance which will help mitigate the number of houses that have artificial turf by addressing stormwater and sustainability concerns	Yes	Yes	Sustainability, Public Works
2022	Adopt Backyard Chicken Program (exp. September 2022) to evaluate program outcomes and possibility of expanding and extending the program	Yes	Yes	Sustainability, Planning
2023	Upon feasibility study results, pass resolution committing the City to at least 80% of all electricity consumed in the City to come from renewable energy resources by feasible target date	No	Initiated	Sustainability, WP Electric Utility
2023	Conduct a Climate Risk and Vulnerability Assessment via FDEP Resilient Florida Program \$100K grant. Upon completion, create Climate Mitigation and Adaptation Plan (CMAP) to include creating resilience hubs within the city reducing impacts of climate change on human health, esp. for most vulnerable communities	No	Initiated	Natural Resources & Sustainability, Emergency Management Team, Pubic Works, IT

Projected Implementation Year	Action	Accomplished	Status	Responsible Department/ Division
2023	Build a community based sustainable food system which includes education and outreach that promotes seed access, growing edible gardens at home, encourages community supported agriculture, and local food consumption	No	Initiated	Sustainability, Communications
2023	Implement a food security policy. Must have community garden/ farm near most vulnerable areas and educate on reducing consumption of <u>carbon-intensive foods</u>	No	None	Sustainability, GIS
2024	Research and design policies to increase green building standard requirements in residential & commercial developments	No	None	Sustainability, Planning, Building & Permitting, Economic Development
2024	Update Land Development Code, to allow food processing and handling in accordance with F.S. 500.80 (Cottage Food Operations) as a home occupation to encourage local food production	No	None	Planning, Economic Development, Sustainability
Continue Annually	Develop a policy to replace gas-powered leaf blowers with electric alternatives	Yes	Completed	Sustainability, Economic Development
Continue Annually	Evaluate potential for increasing Winter Park Electric Utility's Energy Portfolio coming from renewable resources	Yes	Ongoing	Sustainability, WP Electric Utility
Continue Annually	Conduct Community-wide Greenhouse Gas Emissions Inventory and track proportion of renewables in the WP Electric Utility's portfolio. Continue to report to CWP	Yes	Ongoing	Sustainability

Projected Implementation Year	Action	Accomplished	Status	Responsible Department/ Division
Continue Annually	Participate in Regional Sustainability and Resilience Professional Networks (Urban/Southeast/Florida Sustainability Directors Networks, East Central Florida Regional Resilience Collaborative, Good Food Central Florida Regional Policy Council, etc.)	Yes	Ongoing	Department of Natural Resources & Sustainability Dept.
Continue Annually	Provide green building best practices (e.g., energy/water efficiency, tree conservation, waste management) education to building professionals and residents	Yes	Ongoing	Building & Permitting, Sustainability, Urban Forestry
Continue Annually	Energy Conservation Rebate Program	Yes	Ongoing	Sustainability
Continue Annually	Develop recommendations to City Commission that would allow for broadband availability, expanding public WiFi, and enhanced public safety and security	Yes	Ongoing	IT, Sustainability, Planning, Police Dep., Public Works
Continue Annually	Explore opportunities for smart street lights able to gather local environmental data, optimize light energy consumption, and improve public safety	Yes	Ongoing	IT, WP Electric Utility, Planning, Police Dept., Sustainability
Continue Annually	Work with Planning Department to ensure Comprehensive Plan Update incorporates sustainability and resilience related goals, objectives and policies	Yes	Ongoing	Planning, Sustainability

Renewable Electric Utility Supply and Grid Analysis

In prior updates to the SAP, the city adopted a number of Objectives, Indicators, and Actions to drive improved energy efficiency of residential and commercial buildings and to incentivize the use of distributed solar energy in residential and commercial sectors. The city has in recent years purchased a portion of its energy supply from large solar photovoltaic projects, however the majority of its current energy supply is produced by fossil-fueled generators that contribute to greenhouse gas (GHG) and other emissions. With this 2023 update to the SAP, the city adopts a major new initiative to transition the city's electric energy supply to: 80% renewable energy by 2035; 89% renewable energy by 2042 to include an update on technologies available; and 100% renewable energy by 2050.

Prior to adopting these new goals, to transition to a renewable energy supply, the city completed an Integrated Resource Plan (IRP)- a feasibility analysis of the cost and options to transition the power supply to 100% renewable sources. A leading electric industry consulting firm, Quanta Technology, conducted the IRP that includes key assumptions of which are referenced in Appendix A. The IRP developed conservative assumptions and forecasts to assess costs and electric supply technology options from 2024 to 2050 across 18 different future scenarios. Each of the future scenarios included: variations to the forecasted generation costs, fuel costs, energy supply options, growth of customer-owned rooftop solar photovoltaic and electric vehicles (EVs); as well as variations on how rapidly the city would transition to renewable electric supply technologies.

The IRP analysis indicates, under scenario 3D, that city can feasibly transition to 80% renewable supply by 2035 for a cost of power comparable to the cost of continuing with the current fossil-fueled, GHG-emitting generation technologies. The cost projections after 2035 are more uncertain but indicate the city should expect increased power costs to attain the last 20% of its renewable supply. Should continuing on a path to reach a 100% renewable supply prove too costly in future years, such that the associated retail electric rates would exceed 105% of local and/or state averages, the city would adjust its energy supply renewable targets accordingly.

In addition to the city transitioning the electric supply to renewable technologies, the city's electric utility customers are in the process of evolving their energy usage and energy expectations through the adoption of various energy efficient (EE) applications such as smart thermostats/smart appliances that can be timer or remotely controlled; installation of rooftop solar (distributed generation) and battery storage; and the purchase of EVs and associated charging systems, among other changes.

The installation of customer owned rooftop solar generally will result in more solar energy being produced during the daylight hours than those rooftop solar customers consume during the daylight hours. If these rooftop solar owners do not have batteries to store the excess solar energy produced, the excess power from rooftop solar installations will flow backwards, into the city's electrical grid. As number of rooftop solar installations continue to grow, the backflow of power, as well as the normal variations in solar production that occur during daylight hours (i.e., from normal ramp up in solar output during the morning and ramp down in the afternoon, in addition to the rapid solar energy production variations that occur on days with scattered cloud cover), can create power quality problems and other issues for neighbors and the remainder of the utility grid.

The city's current Net Energy Metering (NEM) arrangement provides rooftop solar owners a credit for the excess solar energy that flows back onto the electric grid. The current NEM credit offsets the customer's retail purchases, providing a much higher level of compensation than the actual value of the energy. This premium credit to NEM customers for their excess solar energy results in higher electricity costs for all customers, including customers without rooftop solar installations. While the current cumulative value of the premium paid to NEM customers has only minimal impacts on electricity rates, due to the relatively few, current rooftop solar installations, the cumulative value will increase substantially and have a significant impact on energy rates as more customers add solar rooftop installations and is absent tariff reform.

Growth in the proliferation of customer-owned EV chargers may also: impact power quality; create the need to upgrade the electric system to accommodate the additional energy use; and increase the cost of the city's power supply. As customers add more rooftop solar and EV chargers to the city's grid, mitigation options must be proactively analyzed and implemented to avoid problems. Effective mitigation measures include, among other actions: assisting customers through implementation of EE and demand response (DR) programs (for example, using timers on appliances and EV chargers or effective use of customer-owned batteries); and changing existing electric tariff structures to: better match the utility cost of service, reduce energy consumption in the late afternoon and evening to lower system peak usage, and encourage increased consumption during hours when excess solar power is available. These are a few of the many methods that could be employed to change the time when customers consume their energy.

The following lists of Objectives, Indicators, and Actions summarizes the short-term, mid-term and long-term goals and plans for the city in order to transition to renewable energy supply in a manner that is cost comparable to the current fossil-fueled supply plan.

OBJECTIVES

1. Transition the energy supply of the city's Electric Utility to renewable energy to reduce the city's carbon footprint and reduce the city's dependence on energy derived from fossil fuels.
2. Maintain customer electric rates at rates competitive with other publicly owned utilities in Florida.
3. Develop cost effective programs to enable customers of the city's electric utility to increase their electric energy efficiency (EE) and manage their daily and seasonal peak demand (DR) for electricity.
4. Develop revised retail rates that enable continued growth, aligned with grid needs, of customer owned rooftop solar, energy storage and electric vehicle charging.
5. Develop a resource plan for grid modifications and hosting capabilities and perform periodic review, especially as new technologies become available, and incorporate into the Utility's Strategic Plan.

INDICATORS

	Indicator Description	2023 Baseline	2024 Target	2026 Target	2030 Target	2035 Target
ES-1	Annual renewable energy contribution to the total electric energy supply (%)	21.72%	21.72%	21.72%	50%	80%
ES-2	City residential rates as compared to FL public utilities (city rates/average of comparable utilities, measured in %)	<100%	<105%	<105%	<105%	<105%
ES-3	EE and DR program milestones	Not applicable	Complete studies and develop implementation plan for customer EE and DR programs	Implement programs for customer EE and DR		
ES-4	Milestones to implement changes to rate to enable substantial growth in customer owned distributed solar, distributed storage and electric vehicle charging	Not applicable	Complete rate studies and develop rate design options to enable growth in distributed solar, distributed storage, electric vehicle charging and demand response	Implement new rates as recommended by studies		
ES-5	Electric Utility strategy and grid analyses milestones		Complete a strategic plan, distributed solar and EV hosting capacity analyses and a roadmap for grid modernization			

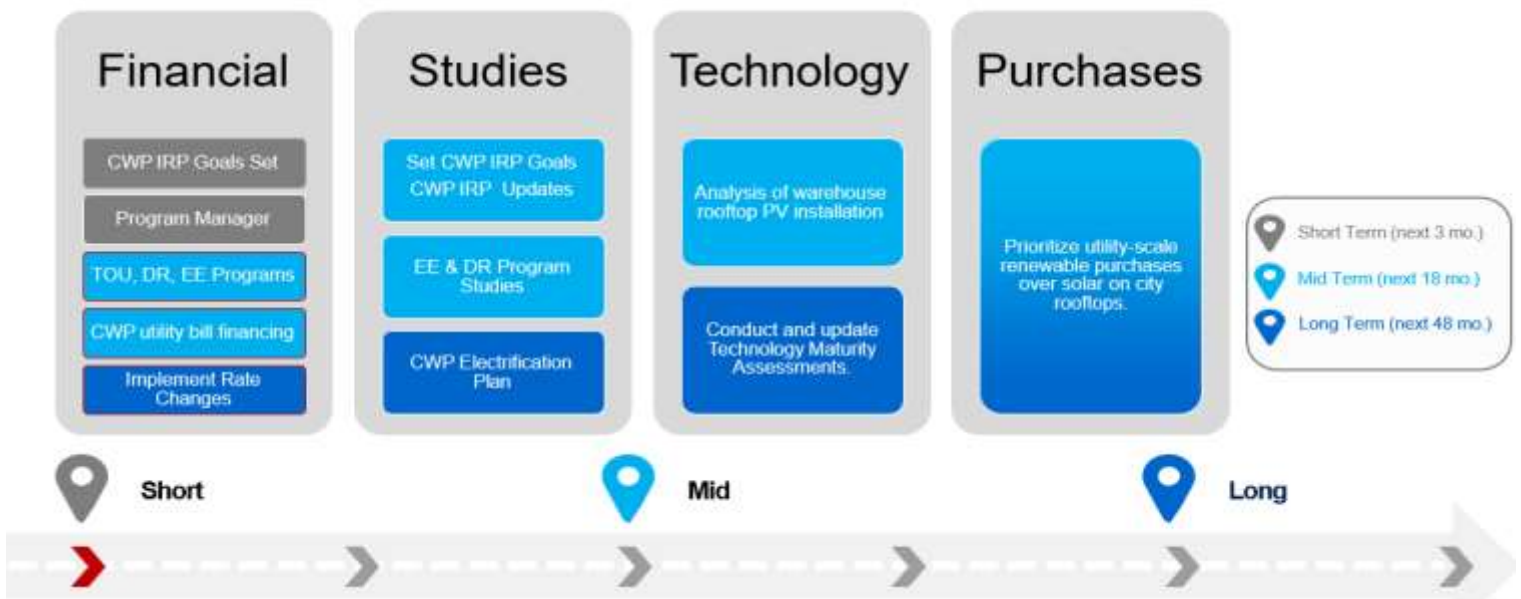
ACTIONS

Projected Implementation Year	Action	Accomplished	Status	Responsible Department/ Division
2023	Assign a project manager to provide regular updates on the energy supply programs	Yes	Complete	Electric Utility
2024	Complete a baseline and potential study and consider a load research and appliance saturation survey gather better data to assess and design time of use (TOU), EE, and DR programs for residential, and commercial customers.	No	Planned	Sustainability

Projected Implementation Year	Action	Accomplished	Status	Responsible Department/ Division
2024	Continue to look for opportunities to pool city requirements and partner with FMPA and other Florida utilities for renewable and storage project power purchases and project development	Yes	Ongoing	Electric Utility
2024	Complete study to assess and prioritize which, if any, city owned facilities and/or land should have distributed solar and storage installed	No	Planned	Electric Utility
2024	Complete study to better quantify the expected timing and impacts of customer EV adoption in the city	No	Planned	Electric Utility
2024	Explore options for city to finance, or guarantee customer financing, of rooftop solar and storage additions	No	Planned	Finance
2024	Complete an Electric Utility strategic plan	No	Planned	Electric Utility
2024	Complete distributed solar and EV hosting capacity analyses	No	Planned	Electric Utility
2024	Create a roadmap for grid modernization, such as additions of an distributed energy management system or outage management system	No	Planned	Electric Utility
2025	Complete a study and plan for the electrification of city-owned vehicles	No	Planned	Electric Utility, Water and Waste Water Utilities, Public Works and Transportation, Finance

Projected Implementation Year	Action	Accomplished	Status	Responsible Department/ Division
2026	Perform regular, periodic updates of IRP (every 2 to 4 years)	No	Planned	Electric Utility
2026	Implement rate changes as recommended in rate study	No	Planned	Finance, Electric Utility
2026	Revise NEM rate credited to customers to better align with city energy supply costs	No	Planned	Finance, Electric Utility
2027	Create a roadmap for the implementation of city--owned Battery Storage for improved resiliency	No	Planned	Electric Utility
2028	Update Roadmap Action items (long-term goals) to the Renewable Electric Utility Supply and Grid Analysis Section of the SAP	No	Planned	Electric Utility, Natural Resources and Sustainability

Roadmap Overview:



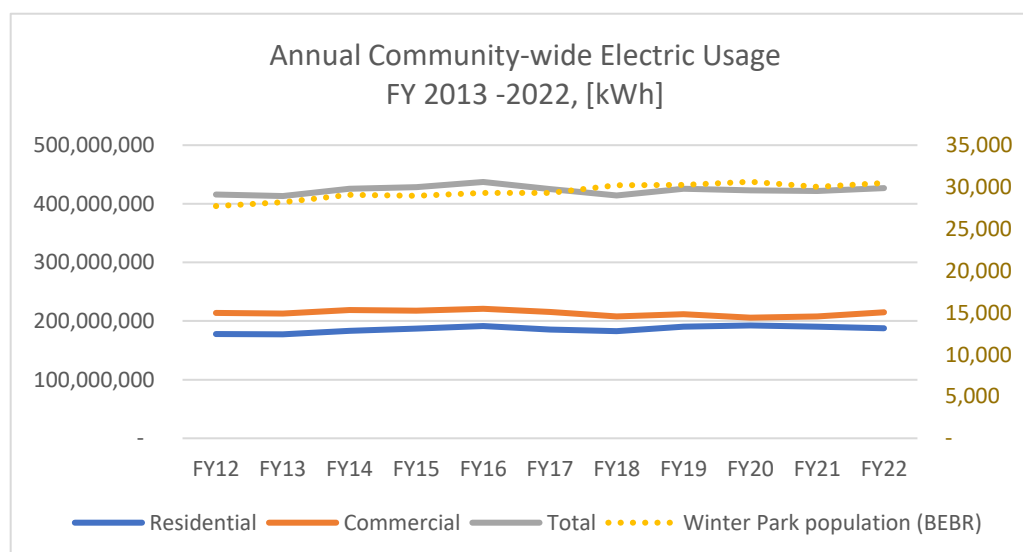
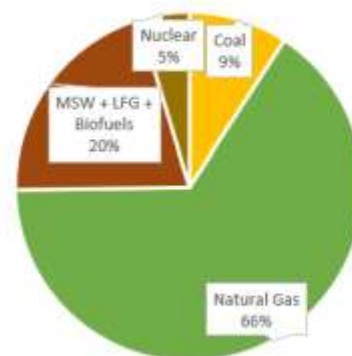
Energy

The Energy category focuses on measures that can reduce the environmental consequences of the construction, reconstruction and operation of buildings and infrastructure with a focus on energy efficiency, energy conservation, and clean energy sources. With buildings' energy usage contributing to nearly half of all of the community-wide greenhouse gas (GHG) emissions in 2021, implementing the prescribed actions is critical to achieving a more sustainable city. Electricity is primarily being used to power buildings for commercial (50%) and residential (44%) activities, while a smaller fraction (%) is being used to power city scale infrastructure such as streetlights and transporting water and [wastewater](#). Between 2012 and 2021, electric usage remained generally stable.

ELECTRICITY CONSUMPTION BY SECTOR, 2022 [%]



WP E-GRID FUEL MIX - 2022 PURCHASES
COVANTA - 87 GWH, OUC 65 GWH, FMPA 292 GWH



All utility data is sourced from the city's Comprehensive Annual Financial Reports, which can be reviewed on the city's website.

OBJECTIVES

1. Increase energy efficiency of residential and commercial buildings
2. Increase energy conservation in residential and commercial sectors
3. Increase solar energy in residential and commercial sectors
4. Increase educational awareness for energy efficiency and conservation best practices
5. Maintain utility rates that are competitively low for consumers

INDICATORS

	Indicator Description	Baseline	2021 Status	2022 Status	2025 Target	2035 Target	2042 Target	2050 Target
E-1	Energy usage in residential buildings [kWh/customer/year] ¹ – Baseline Year: 2012	15,263	14,739	14,791	13,718	12,064	13,560	12,710
E-2	Energy usage in commercial buildings [kWh/customer/year] ¹ – Baseline Year: 2012	-	86,704	91,527	81,004	73,312	73,858	70,838
E-3	Residential building audits performed annually – Baseline: Average # of audits/yr and between 2017-2020	63	91	93	125	200	240	300
E-4	Residential Rebates provided annually – Baseline: Average # of audits/ yr and between 2017-2020	-	26	17	75	100	125	150

¹Data provided by the IRP study without the assumption of EV charging.

ACTIONS

Projected Implementation Year	Action	Accomplished	Status	Responsible Department/ Division
2023	Conduct Energy Efficiency (EE) Study benchmarking city buildings and identify technologies to improve EE	Yes	Completed	Sustainability Division, WP Electric Utility, WP Water Utility
2024	Internal employee energy conservation training – reduction in energy and water use that provides incentives to motivate conservation	No	None	Sustainability Division; Human Resources
2024	Implement Energy Efficient Technologies based on Energy Efficiency Study i.e motion detection lighting and programmable thermostats	No	Initiated	Sustainability Division, WP Electric Utility, Public Works

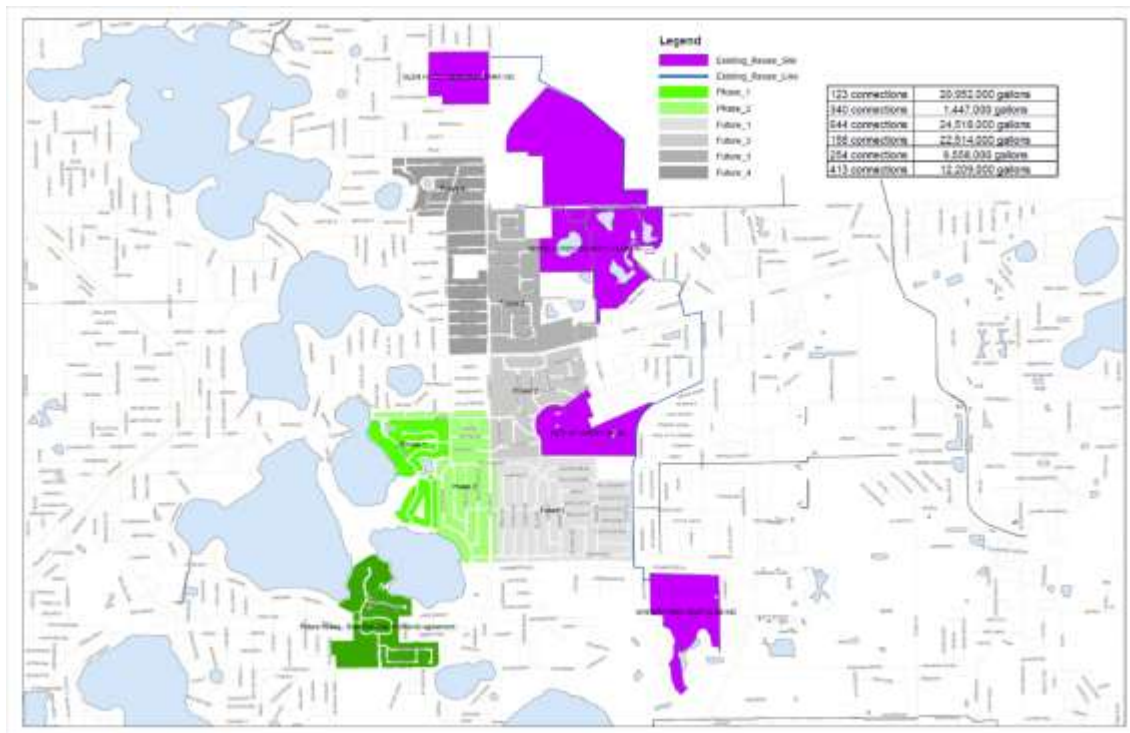
Projected Implementation Year	Action	Accomplished	Status	Responsible Department/ Division
2024	Explore incentive programs for commercial customers that encourage energy conservation	No	None	Sustainability Division, WP Electric Utility, Economic Development
2024	Identify methodology for expressing energy use intensity in kWh per square foot for residential and commercial customers via Smart Works Technology and Energy Star	No	None	GIS, IT, WP Electric Utility, Sustainability
Continue Annually	Maintain competitive rates for WP Utility Customers	Yes	Ongoing	Sustainability Division, WP Electric Utility, WP Water Utility
Continue Annually	Promote Energy Conservation opportunities such as audits and rebates, providing energy conservation kits, and solar feasibility reports for customers that undergo energy audits including local schools	Yes	Ongoing	Sustainability Division, WP Electric Utility, Communications
Continue Annually	Provide technical assistance and education to commercial property owners and tenants on Energy Star Portfolio Manager	Yes	Ongoing	Sustainability
Continue Annually	Continue to pursue clean transportation options. Expanding City Fleet and EV Charging Stations for commuters	Yes	Ongoing	Sustainability Division, WP Fleet Services, WP Utility

Water

The Water category focuses on measures that can increase water efficiency and water conservation in residential and commercial sectors. In the City of Winter Park, residential and commercial customers use potable water for indoor and outdoor (irrigation) purposes. Over the last decade, potable water has remained generally stable, reflecting the minimal change in population growth over that time. The majority of potable water consumed in the city is used by residential customers (71%), with nearly half of residential water usage being spent on irrigation. Implementation of technological tools, such as Advanced Metering Infrastructure (AMI), will allow for effective monitoring of water usage, efficiency, and recognizing irregularities. The city will continue promoting irrigation rebate incentives in addition to providing water conservation education for residential, commercial, and Winter Park schools.



All utility data is sourced from the city's Comprehensive Annual Financial Reports, which can be reviewed on the city's website.



Reuse expansion map provided by Water/Wastewater Department

OBJECTIVES

1. Increase water efficiency of residential and commercial buildings
2. Increase water conservation in residential and commercial sectors
3. Increase residential and commercial customers knowledge of water efficiency and conservation best practices and benchmarking tools
4. Implementing smart technologies to aid in water conservation efforts

INDICATORS

	Indicator Description	2012 Baseline	2021 Status	2022 Status	2025 Target	2035 Target
W-1	Water usage in residential buildings [gallons/customer/year] ¹	127,777	130,849	127,606	TBD	TBD
W-2	Water usage in commercial buildings [gallons/customer/year] ¹	294,098	303,788	315,099	TBD	TBD
W-3	<u>Reclaimed water</u> usage [million gallons/year] ²	144.5	91.61	87.97	10% increase	30% increase
W-4	Residential Rebates provided annually	-	34	19	75	150

¹Targets will be determined upon renewal of St. Johns River Water Management District Consumptive Use Permit in 2025.

²Increase in reclaimed water usage due to reuse infrastructure change.

ACTIONS

Projected Implementation Year	Action	Accomplished	Status	Responsible Department/ Division
2022	Create more robust water conservation education to residential and commercial customers through online, print campaigns, and social media including water wise check list	No	Initiated	WP Water & Wastewater Utility, Sustainability, Communications, Economic Development
2022	Increase public awareness of Florida friendly landscaping and irrigation regulations for city (internal), residential, and commercial customers; i.e. raingardens	No	Initiated	Natural Resources & Sustainability Dept., Communications
2023	Implement Sewer Impact Fee Deferral Program throughout the city to reduce residential and commercial customer upfront costs for connecting to the sewer system	No	None	WP Water & Wastewater Utility

Projected Implementation Year	Action	Accomplished	Status	Responsible Department/ Division
2023	Explore a code requirement for commercial customers that encourages water conservation	Yes	Completed	Sustainability, WP Water & Wastewater Utility, Economic Development
2023	Amend ordinance for grease trap collection for above ground unit collection & maintenance and maintenance requirements for private lift stations	No	Initiated-Private Lift Stations Completed	Sustainability, WP Water & Wastewater Utility, Stormwater Div, Economic Development
2024	Identify methodology for expressing water use intensity in gallons per capita upon renewal of SJRWMD Consumptive Use Permit	No	None	WP Water & Wastewater Utility, Sustainability
2025	Upon renewal of SJRWMD Consumptive Use Permit, review inverted water utility rate structure to increase water conservation efforts	No	None	WP Water & Wastewater Utility
2025	Upon renewal of SJRWMD Consumptive Use Permit, expand reclaimed water system	No	None	WP Water & Wastewater Utility
Continue Annually	Explore grant opportunities for septic to sewer conversion projects	Yes	Initiated	WP Water & Wastewater Utility; PW; Sustainability
Continue Annually	Using AMI system to identify customers in non-compliance with SJRWMD irrigation policies and provide non-compliant customers with water conservation best practices	Yes	Initiated	WP Water & Wastewater Utility, Sustainability
Continue Annually	Promote existing water conservation educational opportunities such as audits and rebates including Schools	Yes	Initiated	WP Water & Wastewater Utility, Sustainability, Communications
Continue Annually	Replace Advanced Metering Infrastructure (AMIs) to allow for new, more effective monitoring of water usage, efficiency, detection/malfunctions, and recognizing irregularities	Yes	Initiated	WP Water & Wastewater Utility

Community Engagement & Green Economy

The Community Engagement and [Green Economy](#) category outlines long term objectives and actions focused on encouraging residents, business owners, schools and other organizations in the city of Winter Park to begin incorporating more sustainable solutions in their daily activities. To foster and build upon a culture that values health, environmental stewardship, and financial wellbeing, the city will support public engagement campaigns to educate, inspire and offer some of the most cost effective, healthy and easy solutions. The campaign will seek to engage diverse partners and sectors of the community; create a shared community vision, goals and progress indicators of a low-carbon future; connect individuals and organizations to education, tools and resources; and celebrate positive changes and successes. A fully engaged community is the key to successfully making the city a more sustainable community.

OBJECTIVES

1. Communicate, educate and motivate residents to begin incorporating more sustainable solutions in their daily actions to change their behaviors in ways that support the objectives of the Sustainability Action Plan
2. Engage businesses, offer sustainable solutions and recognition for greening their daily operations that support the objectives of the Sustainability Action Plan
3. Provide opportunities for schools to implement sustainable practices in their daily operations that support the objectives of the Sustainability Action Plan
4. Work collaboratively with community organizations to identify and implement sustainable solutions that support the objectives of the Sustainability Action Plan

INDICATORS

	Indicator Description	Baseline	2021 Status	2022 Status	2025 Target	2035 Target
CEGE-1	Volunteer hours for Community engagement events – Baseline Year: 2012	240	1,304	433	No less than 1,500	No less than 2,000
CEGE-2	New Green Businesses Recognized per year – Baseline Year: 2012	0	26	3	No less than 10	No less than 10
CEGE-3	Green School Grant Funding – Baseline: Average amount of funding between 2017-2020	\$3,300	\$2,890	\$3,500	Equal or more than \$3,500/year	Equal or more than \$3,500/year
CEGE-4	Number of Community Engagement Events	-	-	29	No less than 20	No less than 20

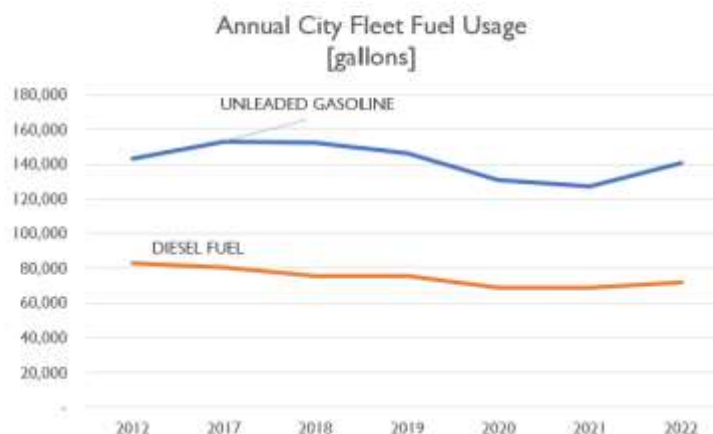
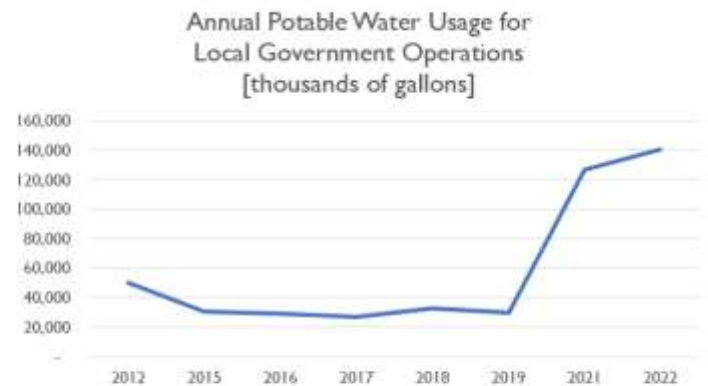
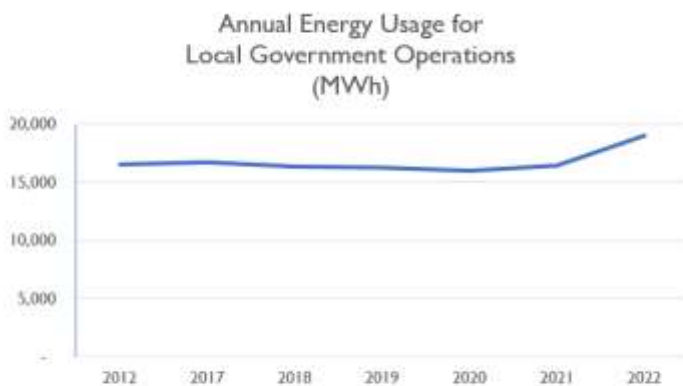
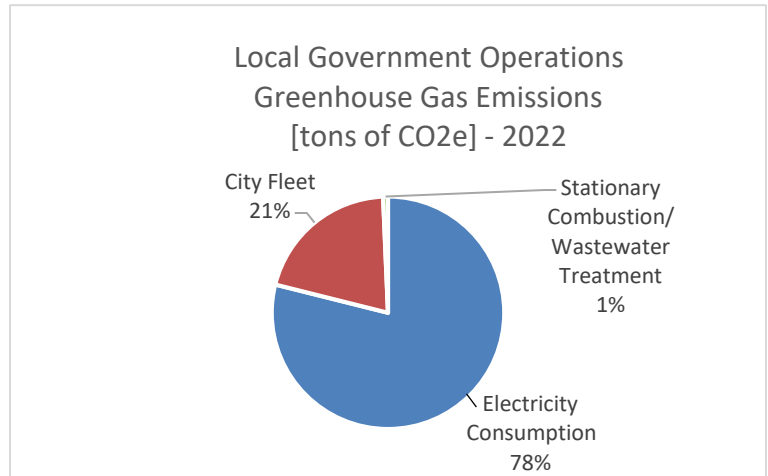
ACTIONS

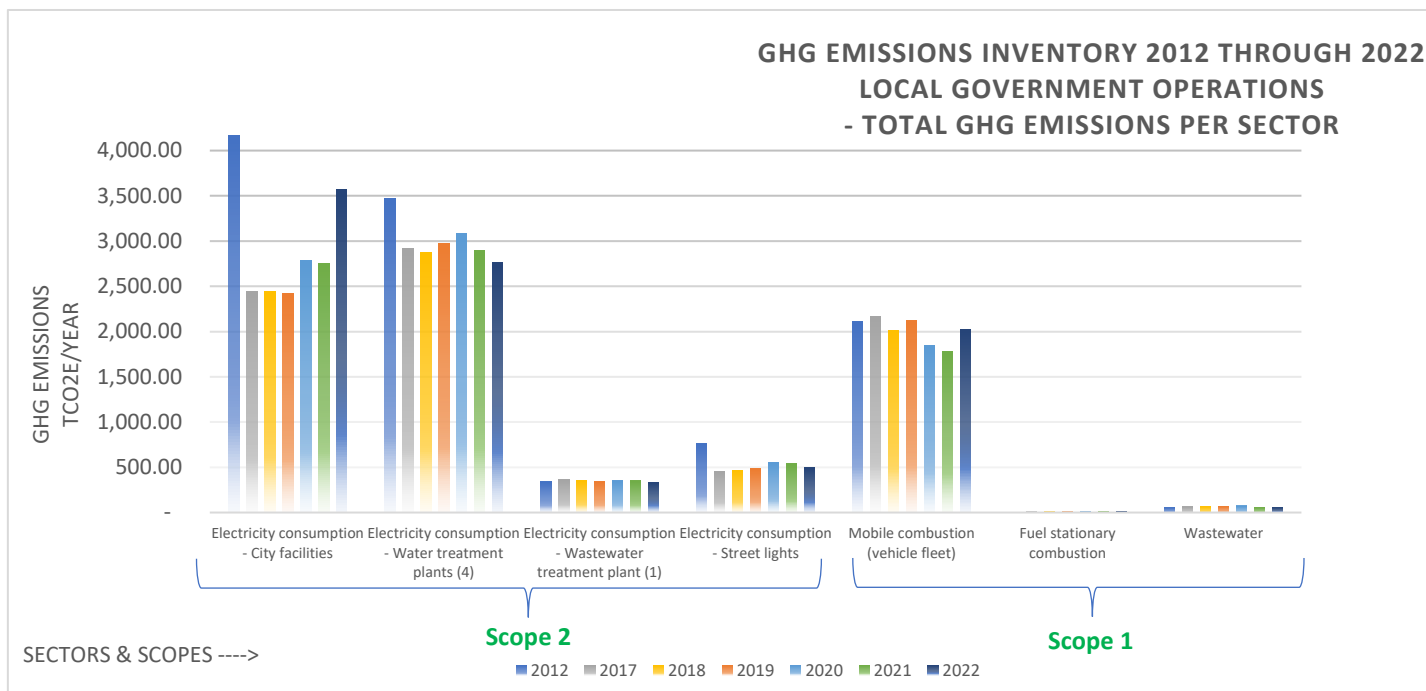
Projected Implementation Year	Action	Accomplished	Status	Responsible Department/ Division
2024	Create Green Event Guide for city events and Champions Volunteer Program	No	Initiated	Sustainability, Parks & Recreation, Communications
Continue Annually	Promote sustainability program initiatives through various social media platforms and traditional print media, at inperson events, and maintain and update Program's website	Yes	Yes	Sustainability, Communications
Continue Annually	Administer Green Business Recognition Program and promote Green Business initiatives: Facilitate Green Business networking events	Yes	Yes	Sustainability, Communications, Economic Development
Continue Annually	Administer Green School Grant Program and Green Education opportunities for educators	Yes	Yes	Sustainability
Continue Annually	Partner with local universities (e.g., University of Central Florida, Rollins College) to provide educational trainings on sustainability-related subjects	Yes	Yes	Sustainability
Continue Annually	Ensure all requirements are met for remaining a Keep America Beautiful affiliate	Yes	Yes	Sustainability
Continue Annually	Provide volunteer opportunities for litter cleanups of city's lakes and rights-of-way and opportunities for beautification of city parks and greenspaces	Yes	Yes	Sustainability, Lakes Division, Parks and Recreation
Continue Annually	Provide education on Sustainability at Neighboring Community Events	Yes	Yes	Sustainability
Continually Annually	Create and implement environmental education opportunities at parks and city buildings (e.g., Mead Gardens, Howell Branch Creek, Dinky Dock and Fort Maitland)	Yes	Yes	Sustainability, Parks & Recreation, Communications

Local Government Operations

The Local Government Operations category outlines long term objectives and actions focused on reducing GHG emissions of municipal operations, increasing municipal facilities' resiliency to the impacts of climate change, and encouraging resource protection and conservation. Creating healthier and more comfortable environment for employees and building occupants are also anticipated benefits from the city renovating existing buildings and building new city facilities to meet high performance, green building standards.

The city's Local Government Operations GHG Emissions Inventory consists of all major direct emissions from the burning of fossil fuels by the City's fleet and indirect GHG emissions associated with the electricity consumption for local government operations. City Fleet-related (20%) and electricity consumption-related (79%) activities contribute the largest proportion of greenhouse gases emissions in government operations. Energy usage has remained generally stable since the baseline year of 2012.





Workforce commute also contributes to GHG emissions. City adoption of a flexible work plan to a four-day work week would decrease carbon emission. This provides both climate and employee well-being benefits.

Energy audits of city facilities would allow for projects to be selected that will provide the greatest energy reduction at the best return on investment. Several city parks use reclaimed water, lake or well water, reducing the amount of high-quality potable water being used by the city to irrigate. Efforts to expand the use of reuse water for park irrigation is planned.

City fleet gasoline and diesel consumption has remained generally stable since the baseline year of 2012. In 2020, there was a decrease in both unleaded gasoline and diesel due to the pandemic. It is expected to jump back to average consumption in 2022 with a goal to steadily decrease over the next decade with the establishment of a fleet electrification policy as identified in the city's Comprehensive Plan. This policy prioritizes zero tail pipe emissions and high fuel efficiency vehicles that would help further fleet electrification and fuel usage reduction when a vehicle replacement/new vehicle is required. The city plans to expand EV charging stations that would be used for both city employees and for public use.

Sustainability education and incentivization for city employees also plays a vital role. By providing a green procurement guideline, the guesswork of selecting sustainable and compostable products is taken out while the city implements greener purchasing choices. City sponsored events, and hired vendors such as catering services, should be required to follow green event policies. While green choices are made at the workplace, this could help make greener choices at home as well.

OBJECTIVES

1. Increase the city's municipal facilities resiliency and energy use efficiency to the impacts of climate change
2. Improve city services and broaden public access to information about city performance
3. Reduce Local Government Operations (LGO) greenhouse gas emissions
4. Increase energy and water efficiency of existing and new city-owned and city-operated facilities
5. Encourage on-site renewable energy generation at city-owned and city-operated facilities and reduce fossil fuel consumption by city fleet vehicles
6. Communicate, educate and motivate city employees to incorporate more sustainable solutions in their daily actions to change their behaviors in ways that support the objectives of the Sustainability Action Plan
7. Reduce the amount of waste generated from local government operations
8. Encourage reuse and other means of disposal that divert generated waste away from the landfill
9. Consider reducing carbon emission by implementing four-day work week where applicable

INDICATORS

	Indicator Description	Baseline	2021 Status	2022 Status	2025 Target	2035 Target
LGO-1	Local Government Operations greenhouse gas emissions [tons of carbon dioxide equivalent] ¹	11,315	8,735	8,735	40% less than baseline year	80% less than baseline year
LGO-2	Energy use for Local Government Operations [MWh/yr] ²	16,471	16,443	18,912	5% less	15% less
LGO-3	City-owned and city-operated facilities audited	3	3	23	50%	100%
LGO-4	Potable water usage [thousands of gallons]	-	70,172	66,030	50% less	TBD
LGO-5	City Fleet fuel usage [gallons of unleaded gasoline]	143,268	126,747	140,486	Downward trend	TBD
LGO-6	City Fleet fuel usage [gallons of diesel fuel] ³	83,142	64,929	71,697	Downward trend	TBD
LGO-7	Number of city-owned Electric Vehicles ³	0	8	11	Increase	Increase
LGO-8	Number of Electric Vehicle charging Stations available for city use [ports] ³	1	13	13	Increase	Increase

¹By the end of 2020, the city had 266kW of installed solar capacity (City Fleet Building, Aloma Water Treatment Plant)

²Target based on data received from utility reporting based on all city facilities meters

³By the end of 2020, the city had 6 electric vehicles (2% of total fleet) and 7 EV Charging Ports for Fleet Use

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ACTIONS

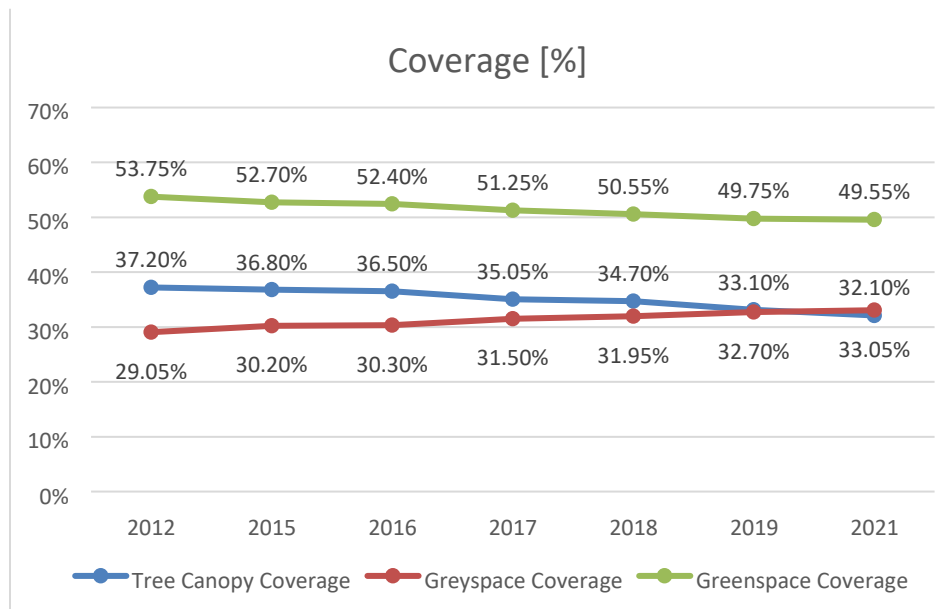
Projected Implementation Year	Action	Accomplished	Status	Responsible Department/ Division
2022	Solicit proposals for energy conservation audits for all city facilities	Yes	Completed	Public Works, Procurement, Sustainability, WP Electric Utility
2022	Conduct Renewable Energy Feasibility Study – 5.25.22 commission approved to move forward	Yes	Completed	Public Works, Sustainability, Procurement, WP Electric Utility
2023	Pilot food waste collection program at a city facility (City Hall and or Center Street)	No	Initiated-Center St.	Sustainability
2023	Create & establish sustainable fleet policy that creates vehicle replacement EV hybridization	Yes	Yes	Fleet, Sustainability
2024	Develop educational programs for city employees on best practices for workplace energy & water conservation, sustainable transportation modes and waste management; include incentives like Sustainability Olympics/Challenges	No	No	Sustainability, Human Resources
2024	Reestablish Single Use Product Policy	No	No	Sustainability, City Administration, Parks & Recreation
2024	Research energy and water management software capable of identifying low efficiency city facilities and early detection of usage anomalies	No	No	Sustainability, Public Works
2023	Install high efficiency dishwashing machines and water bottle filling stations at city facilities to facilitate the reuse of dishware for city-business meetings and gatherings	No	Initiated	Public Works, Sustainability
2023	City adoption of a flexible work plan to a four-day work week to decrease carbon emission	No	Initiated	City Management, All City Departments
2024	Explore ways to quantify waste generated from city offices	No	No	Sustainability

Projected Implementation Year	Action	Accomplished	Status	Responsible Department/ Division
2024	Design/implement a sustainability procurement policy that is fiscally responsible and aligns with sustainability goal that will include in the cities current comprehensive procurement policy	No	No	Procurement, Sustainability
2025	Upon renewal of SJRWMD Consumptive Use Permit, assess and identify opportunities for water conservation measures for all city facilities	No	No	WP Water & Wastewater Utility
2025	Ensure that all new, significantly renovated, occupied, city-owned buildings will be designed to incorporate measures that would allow them to be FGBC or minimum of <u>LEED</u> “Silver Certification” level	No	No	Public Works, Sustainability
Continue Annually	Use data and analytics to improve city services and broaden public access on information about city performance	Yes	Ongoing	IT, All City Departments
Continue Annually	Utilize racial equity lens to assess city policies, initiatives, programs, and budget issues	Yes	Ongoing	All City Departments
Continue Annually	Work with OMB annually to identify sustainability-related project needs and budget with city departments on Capital Improvement Plan	Yes	Ongoing	Office of Management & Budget, Sustainability Division, All City Departments
Continue Annually	Monitor city buildings’ energy and water usage through ENERGY STAR Portfolio Manager	Yes	Ongoing	Sustainability
Continue Annually	Conduct Local Government Operations Greenhouse Gas Emissions Inventory	Yes	Ongoing	Sustainability
Continue Annually	Shift from fossil-fuel to electric powered landscaping equipment upon replacement; exception to leaf blowers with due date of 2024	Yes	Ongoing	Parks & Recreation
Continue Annually	Continue to partner with FDOT’s reThink Your Commute program to encourage employees’ use of SunRail, Lynx, vanpools, bikes, and walking to work	Yes	Ongoing	Human Resources, Sustainability

Natural Resources

The Natural Resources category is focused on preserving and enhancing the City of Winter Park's valuable natural features that help make the city such a great place to live. The city is known for its lush tree canopy and pristine lakes. Both of these features provide a multitude of benefits including improved air quality, wildlife habitat, cooler temperatures through reduced [urban heat island](#) effect, beautification and increased property values. In recognition of a downward trend from 2012 to 2019, the target goals for tree canopy coverage and greenspace coverage reflect a commitment to reversing the trend.

In 2020, the city's Urban Forestry Division began using [i-Tree Canopy](#). The online tool randomly lays points onto Google Earth imagery and then the user manually classifies what cover class (e.g., tree) each point falls upon. While 500-1,000 points are suggested, the Urban Forestry Division classified 2,000 points, increasing the accuracy of the estimates. Since the aerial imagery from Google Earth is normally about 2 years old, the assessment presented goes only through 2021.

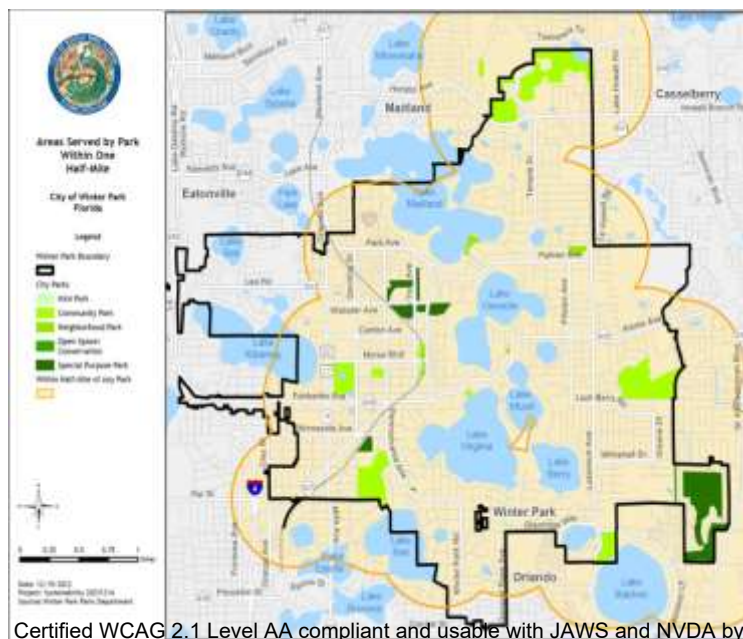


Using i-Tree Canopy, Urban Forestry was able to determine the city's tree canopy coverage (includes trees and shrubs), greenspace coverage (includes trees, shrubs, grass and herbaceous cover) and greyspace coverage (includes impervious surfaces and buildings). A trend of gradual decline in tree canopy and greenspace coverage and gradual incline of greyspace coverage is evident during the reporting years. Tree canopy loss is most likely attributable to changes in land development use. Land development regulations and city programs that protect and expand the existing canopy are critical to ensure tree canopy coverage does not continue to decline.



City parks play a crucial role in residents and visitors mental and physical well-being and stimulate social cohesion. The city's Parks and Recreation Division has consistently exceeded its goal of more than 10 park acres per 1,000 people. Maintaining the percentage of residents living within a half mile from park space will not only ensure that residents are within walking distance of places that are good for their mind and body, but these green areas also help mitigate localized air pollution and provide habitat for numerous animal and plant species.

In addition, by adding designated “no-smoking zones” to city parks and events reinforces clean air initiatives. In 2023, The Parks & Recreation Advisory Board met to review all open spaces and land use to review Winter Park’s greenspace distribution and accessibility to residents. Definitions on the Open Space, Green Space, and Park Land were agreed upon as well as if certain spaces met criteria based on these updated definitions. Figure below shows these updated changes moving forward.



Certified WCAG 2.1 Level AA compliant and usable with JAWS and NVDA by SWH

In 2021, the city's Lakes Division will begin tracking the city's Main Lakes meeting the "Good" Water Quality Standard [average annual [*trophic state index \(TSI\)*](#) below 60]. The city's Main Lakes include Lakes Baldwin, Berry, Killarney, Maitland, Mizell, Osceola, Sue and Virginia. TSI is a classification system designed to "rate" individual lakes, ponds and reservoirs based on the amount of biological productivity occurring in the water. Using the index, one can gain a quick idea about how productive a lake is.

In 2022, the Natural Resources and Sustainability Department implemented discussions with Mead Botanical Garden in efforts to create a Comprehensive Plan. The Comprehensive Plan is intended to become a guiding document between Mead Garden, City of Winter Park, and Stakeholder groups (such as Winter Park Land Trust and Native Plant Societies). The plan would address projects, management plans (both removal and revegetation), and Howell Creek water quality and stabilization. This further illustrates the City of Winter Park's partnership with Mead Botanical Garden in allowing for further success of our current and future projects. Mead Botanical Garden not only brings tourism to our city, but provides environmental conservation and educational opportunities for our citizens to experience and enjoy.

The restoration and preservation of Howell Branch Preserve is equally vital to environmental conservation efforts. Continuing with invasive species management and restoring with native species, to include a robust reforestation plan, is key to the long-term protection of this unique park/preserve system.

OBJECTIVES

1. Maintain and expand an equitable urban tree canopy
2. Increase overall greenspace
3. Increase parks and conservation space
4. Increase street trees within the city's rights of way
5. Maintain number of lakes meeting good water quality standard
6. Increase residents' and businesses' knowledge of best practices for urban tree canopy maintenance
7. Increase residential awareness on pollution prevention of natural water resources, including impacts of stormwater runoff and over-fertilizing for Winter Park lakes
8. Designate "no-smoking zones" for city parks and events
9. Creating a Mead Botanical Garden Comprehensive Plan document

INDICATORS

	Indicator Description	Baseline	2021 Status	2022 Status	2025 Target	2035 Target
NR-1	Tree Canopy Coverage – Baseline Year: 2019	33.10%	32.10%	TBD	Maintain	5% more
NR-2	Greenspace Coverage – Baseline Year: 2019	49.75%	49.55%	TBD	Maintain	5% more
NR-3	Greyspace Coverage – Baseline Year: 2019	32.70%	33.05%	TBD	Maintain	5% less
NR-4	# of Trees Removed	-	120	160	Maintain	TBD
NR-5	# of Trees Planted	-	150	150	Increase trend	TBD
NR-6	Percentage of City of Winter Park's Main Lakes ¹ meeting Good Water Quality Standard [Average Annual Trophic State Index (TSI) below 60] – Baseline Year: 2012	100%	100%	100%	Maintain	Maintain

¹Lakes Baldwin, Berry, Killarney, Maitland, Mizell, Osceola, Sue and Virginia

ACTIONS

Projected Implementation Year	Action	Accomplished	Status	Responsible Department/ Division
2022	Provide education on pollution prevention of natural water resources (e.g., impacts of stormwater runoff and over-fertilizing) to residents and businesses through on-line, print campaigns, and social media	Yes	Ongoing	Lakes Division, Sustainability Division, Communications
2023	Establishing a Tree Giveaway Program that delivers a diverse variety of canopy and understory trees to residents	Yes	Ongoing	Urban Forestry, Sustainability
2023	Explore opportunities to preserve existing trees on private property such as increase front set backs on septic for property owners and developers	No	Initiated	Building & Permitting, Urban Forestry, Sustainability

Projected Implementation Year	Action	Accomplished	Status	Responsible Department/ Division
2023	Conduct tree equity score study to determine if tree canopy cover is distributed in a way that all residents can experience the climate, health and other benefits that trees provide	No	No	Urban Forestry
2023	Develop a checklist of trees for residents to reference	No	Initiated	Urban Forestry, Communications
2024	Incorporate opportunities to build a green infrastructure (bio-swales, rain gardens, green roofs, etc.) demonstration project within the city limits	No	Initiated	Sustainability, Stormwater Division
2022	Adopt Artificial Turf Ordinance	Yes	Ongoing	Natural Resources & Sustainability, Planning, Public Works
2023	Periodic Review for Natural Resources Protection. Increase policy to save more trees within building code – land development code	No	Initiated	Urban Forestry, Natural Resources and Sustainability, Building & Permitting
2023	Explore implementation of Tree Equity Score indexing	No	Initiated	Urban Forestry & Sustainability
2023	Water quality data readily accessible for all WP citizens to utilize	No	Initiated	Communications, WP Electric Utility
2023	GIS Modeling to predict tree canopy	No	Initiated	GIS & Urban Forestry
2023	Establish Lakes Newsletter to inform citizens on the importance of lake side living	Yes	Ongoing	Lakes Division, Communications

Projected Implementation Year	Action	Accomplished	Status	Responsible Department/ Division
2023	Establish a lakeside living checklist for use when hiring lawn care/maintenance to prevent excess fertilizers and grass clippings from entering our waterways	No	No	Lakes Division, Communications
2023	Implement lake vegetation bioassessment to benchmark and track the health of WP's Shorelines	No	Initiated	Lakes Division
2023	Add pollinator gardens to the initial landscape plan throughout the city	Yes	Initiated	Parks & Recreation, Landscaping, Natural Resources & Sustainability
2024	Enhance tree canopy coverage via the urban forest management plan and update every 5 years	No	Initiated	Urban Forestry, Natural Resources & Sustainability
Continue Annually	Increase beneficial native aquatic plant shorelines for all Winter Park Lakes	Yes	Ongoing	Natural Resources & Sustainability
Continue Annually	Explore funding to support green infrastructure and tree canopy development	Yes	Ongoing	Urban Forestry, Natural Resources & Sustainability
Continue Annually	Administer city's Urban Forest Management Plan and Program	Yes	Ongoing	Urban Forestry
Continue Annually	Consider the usefulness and availability of state and federal grant programs for the acquisition of lands for conservation areas or passive recreation	Yes	Ongoing	City Administration, Parks & Recreation, Planning & Transportation

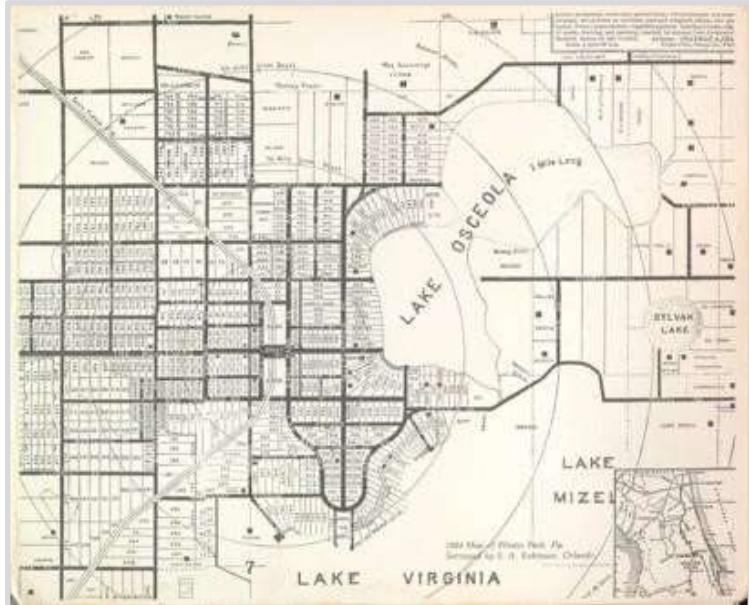
Projected Implementation Year	Action	Accomplished	Status	Responsible Department/ Division
Continue Annually	Administer <u>integrated aquatic plant management program</u>	Yes	Ongoing	Lakes Division
Continue Annually	Provide Tree Canopy Conservation education (e.g., environmental/health benefits, cost savings, aesthetics) to residents, building professionals, realtors and businesses through on-line, social media, print campaigns and in person workshops	Yes	Ongoing	Urban Forestry, Sustainability Division, Building & Permitting, Communications
Continue Annually	Increase Watershed Clean Ups, Tree Plantings, and Shore Restoration Events	Yes	Ongoing	Natural Resources & Sustainability Dept., Urban Forestry

Transportation and Urban Form

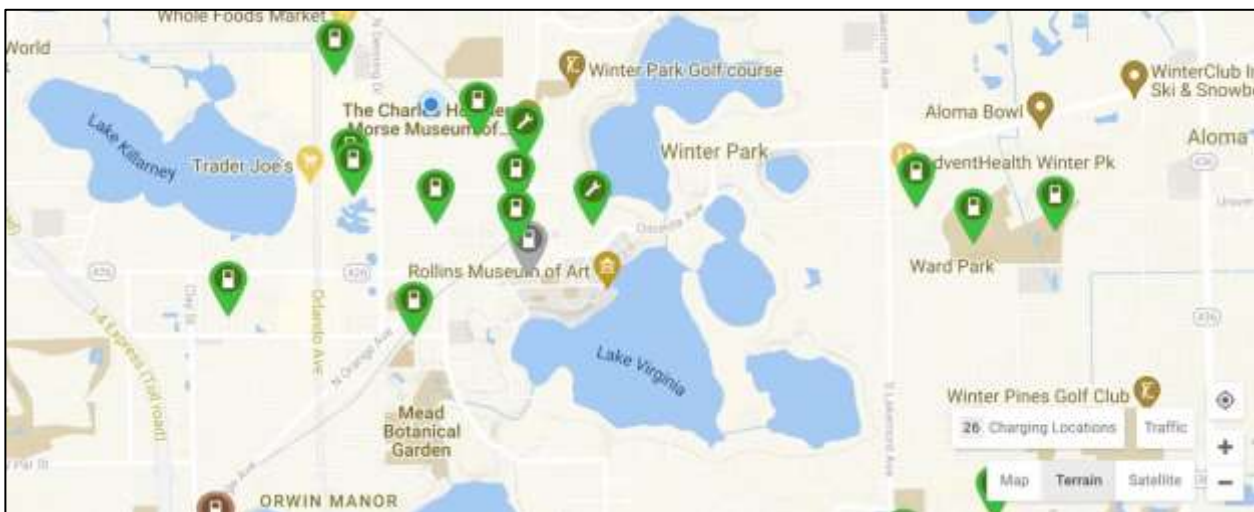
The Transportation and Urban Form category is focused on encouraging healthier, more active forms of transportation such as walking, bicycling and using mass transit such as LYNX bus and SunRail commuter rail and increased [connectivity](#). As the first planned community in Florida, the city was founded around the concept of walkability and human scaled urbanism. Since owning a car was a rarity in the 1880s, the city's founders designed the original plan around the Train Station which was the town's first constructed building. Future development was patterned off quarter mile walks around the station.

As discussed in the Climate Resiliency category, transportation is a significant (50%) contributor to the city's community-wide GHG emissions. Climate Resiliency emphasizes the need for people to choose more sustainable transportation options.

Common design elements of [complete streets](#) includes continuous sidewalks, bike lanes, landscaping, and shade trees. These design characteristics, combined with green infrastructure such as bio-swales and rain gardens, also help reduce stormwater runoff, enhance lakes water quality, and reduce the urban heat island effect.



The original Town Plan for Winter Park, FL placing the train station in the center with development planned around it. The circles represent quarter mile distances.



Map from PlugShare showing City of Winter Park's public charging stations in green.

OBJECTIVES

1. Improve pedestrian and bicyclist environments with sustainable and safe transportation infrastructure such as sidewalks, multimodal paths, and transit shelters
2. Encourage more complete streets in planning and development
3. Create an environment that encourages residents, businesses, and visitors to transition to electric and less carbon-intensive modes of transportation to achieve a level of air quality that is healthy for all residents and the natural environment (e.g., meeting and exceeding regional indoor and outdoor [air quality standards](#))
4. Increase residents' and businesses' knowledge of benefits and importance of sustainable transportation choices
5. Execute Transportation Masterplan initiatives

INDICATORS

	Indicator Description	2012 Baseline	2021 Status	2022 Status	2025 Target	2035 Target
TUF-1	Sidewalk/Street improvements allowing for pedestrian and bicyclist use [Linear feet] ^{1,2} - <i>Starting year 2022</i>	-	930 LF	937 LF	1 mile (cumulative)	3.5 miles (cumulative)
TUF-2	Pedestrian infrastructure improvements (enhanced crossings) [improved site/year] ² - <i>Starting year 2022</i>	-	5	2	10	25
TUF-3	Bicyclist infrastructure improvements (enhanced crossings, & bike racks) [improved site/year] ² - <i>Starting year 2022</i>	-	22	5	15	30
TUF-4	Improved transit stops (benches, transit shelters, waste receptacles, etc.) [improved transit stop/year] ² - <i>Starting year 2022</i>	-	0	0	2	4
TUF-5	Public EV Charging Stations ³	7	11	11	5 additional	15 additional

¹e.g., converting a sidewalk to a mixed-use trail or adding a bike lane to an existing road

²Targets for TUF-1, TUF-2, TUF-3 and TUF-4 will be determined and baseline adjusted upon completion of Transportation Master Plan

³As of 2022, data represents only city-owned public charging stations and excludes private charging stations

ACTIONS

Projected Implementation Year	Action	Accomplished	Status	Responsible Department/ Division
2023	Develop Transportation Masterplan, considering safe routes to schools, Complete Streets, and linkages of the City's trails with adjacent counties and municipalities	Yes	Yes	Planning & Zoning, Communications, Public Works, Sustainability

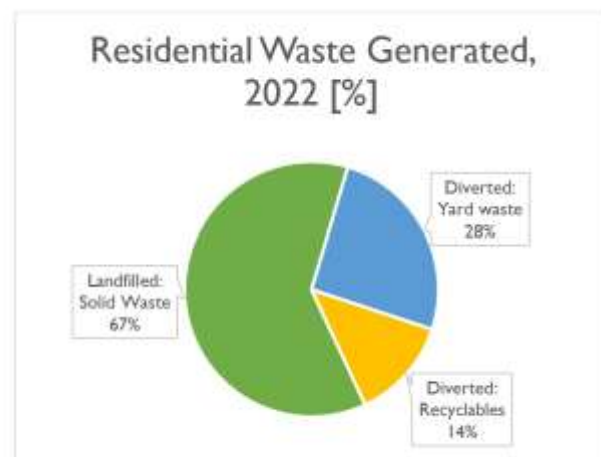
Projected Implementation Year	Action	Accomplished	Status	Responsible Department/ Division
2023	Explore feasibility of an incentive program for EV Charging Station installation in multifamily and commercial properties	No	None	Sustainability, Building & Permitting, WP Electric Utility
2023	Develop EV infrastructure needs assessment and master plan	Yes	Ongoing	Sustainability, WP Electric Utility, Planning & Zoning
2025	Explore opportunities to pilot electric shuttle (Smart Bus)	No	Initiated	City Administration, Economic Development, Planning & Zoning, Sustainability
2025	Implement public and private rideshare partnership opportunities that will promote the use of the cities SunRail System	No	No	Economic Development, Planning & Zoning, SunRail, Uber, & Lyft
Continue Annually	Maintain Electric Vehicle Charging Stations available to the public	Yes	Ongoing	Sustainability
Continue Annually	Encourage private developments to increase safety and ease of walking and cycling through site plan review process	Yes	Ongoing	Planning
Continue Annually	Assess affordable & workforce housing during the Comprehensive Plan's planning process.	No	Ongoing	Economic Development, Planning & Zoning
Continue Annually	Provide education on pedestrian and bicyclist safety, routes, and proximity to amenities to residents and businesses through on-line, social media, interactive map, and print campaigns	Yes	Ongoing	Planning & Zoning, Public Works, Police Department, Communications
Continue Annually	Evaluate bus stop infrastructure with Lynx for accessibility and amenities (such as water)	Yes	Ongoing	Planning, Sustainability, Lynx
Continue Annually	Provide education on benefits and importance of sustainable transportation choices to residents and businesses through on-line, print campaigns, social media, and in-person events	Yes	Ongoing	Planning & Zoning, Public Works, Sustainability, Communications
Continue Annually	Work with Sustainability to ensure Comprehensive Plan Update incorporates sustainability and resilience objectives and policies as it relates to transportation	Yes	Ongoing	Planning & Zoning, Public Works, Sustainability

Waste Management

The Waste Management category is focused on reducing the amount of waste generated, encouraging the reuse and repair of products, and diverting waste from the landfill. The EPA developed the non-hazardous materials and [waste management hierarchy](#) in recognition that no single waste management approach is suitable for managing all materials and waste streams in all circumstances. The hierarchy ranks the various management strategies from most to least environmentally preferred.



The City of Winter Park has a franchise agreement with WastePro for hauling solid waste, yard waste, and recyclables from residential properties. Under this contract, WastePro hauls solid waste to the Seminole County Transfer Station with exceptions during diversion events. Solid waste is landfilled, and yard waste is primarily used as road cover at the landfill, allowing yard waste to be counted as diverted waste. WastePro hauls recyclables to the Orange County Transfer Station. There, the recyclables are graded by Waste Management as being “acceptable” or “rejectable” based on the level of contamination. Acceptable loads are transported to Waste Management’s sorting facility for sorting, bailing, and compaction and then prepared for market. Unacceptable loads are landfilled.



Consistency in updating residents to what is acceptable and not acceptable in the recycling bin is key to keeping rejections, or contamination rate, low.

It is important to recognize that at the top of the waste management hierarchy is avoidance and reduction of waste. The city is leading by example with its Single Use Product Policy Pilot program that prohibits plastic bags, plastic straws and styrofoam products at city facilities. The Green Business Recognition Program provides a way for businesses to receive recognition for switching from single-use to reusable and compostable alternatives. It is critical to reinforce the message that most environmentally preferable choice an individual can make in regards to waste is to not create it in the first place.



OBJECTIVES

1. Reduce the amount of waste generated
2. Increase repair, reuse and donation of materials
3. Divert waste generated away from the landfill
4. Increase residents and businesses' knowledge of the benefits and importance of waste prevention and reduction
5. Increase composting awareness

INDICATORS

	Indicator Description	2012 Baseline	2021 Status	2022 Status	2025 Target	2035 Target
WM-1	Residential Waste Generated [tons] ¹	14,714	15,018	15,242	5% less	10% less from prior target
WM-2	Residential Solid Waste Landfilled [tons]	9,890	10,004	10,240	10% less	20% less
WM-3	Residential Waste Diverted from Landfill [tons] ²	4,824	5,014	5,003	10% more	20% more

¹Includes tonnage collected from residential households (solid waste, yard waste and recycling)

²Includes tonnage of waste diverted for other purposes (i.e., recyclables recycled and yard waste used for landfill cover)

ACTIONS

Projected Implementation Year	Action	Accomplished	Status	Responsible Department(s)
2022	Provide composting education and backyard composters to residents	Yes	Initiated	Sustainability
2022	Analyze implementation of a Food Waste Diversion Program for Center Street and Farmer's Market	Yes	Initiated	Sustainability

Projected Implementation Year	Action	Accomplished	Status	Responsible Department(s)
2023	Maintain the list of the city's Registered Haulers	Yes	Ongoing	Sustainability
2023	Assist multi-family and commercial buildings with creating recycling education and outreach plans	No	No	Sustainability Division, Economic Development
2023	Increase recycling opportunities at city-owned public facilities and parks	Yes	Initiated	Parks and Recreation, Sustainability
2023	Consider food scrap collection and Pay As You Throw options in Scope of Work description for Solid Waste Services Solicitation	No	No	City Administration, Sustainability
2025	Establishing an ordinance to ban all Styrofoam products city-wide	No	No	City Administration, Sustainability
2026	Consider a mandate for commercial ordinance for recycling and composting	No	No	City Administration, Sustainability
Continue Annually	Host "Fix It, Don't Pitch It" regional community repair event	Yes	Ongoing	Sustainability
Continue Annually	Provide residents with online waste management tool that provides collection schedules, reminders and look-up tool to determine how items should be disposed of	Yes	Ongoing	Sustainability
Continue Annually	Provide in-person, online and print education on waste management hierarchy (reduce, reuse, recycle)	Yes	Ongoing	Sustainability
Continue Annually	Participate in Florida Food Waste Prevention Week	Yes	Ongoing	Sustainability
Continue Annually	Hold Annual Household Hazardous Waste (HHW) and Electronics Waste Collection Event	Yes	Ongoing	Sustainability
Continue Annually	Increase availability of water bottle filling stations at city-owned public facilities and parks	Yes	Ongoing	Parks and Recreation, Sustainability

2022 Action Item Tracker List:

Climate Resiliency	Conduct Renewable Energy Feasibility Study
Climate Resiliency	Implement an Artificial Turf Ordinance which will help mitigate the number of houses that have artificial turf by addressing stormwater and sustainability concerns
Climate Resiliency	Adopt Backyard Chicken Program (exp. September 2022) to evaluate program outcomes and possibility of expanding and extending the program
Water	Create water conservation education to residential and commercial customers through on-line, print campaigns, and social media including water wise check list
Water	Increase public awareness of Florida-friendly landscaping and irrigation regulations for city (internal), residential, and commercial customers; i.e. raingardens
Community Engagement and Green	Re-participate in America In Bloom's annual nationwide competition in addition to researching grant opportunities to help aid KWPB&S
Local Government Operations	Solicit proposals for energy conservation audits for all city facilities
Local Government Operations	Conduct Renewable Energy Feasibility Study – 5.25.22 commission approved to move forward
Natural Resources	Provide education on pollution prevention of natural water resources (e.g., impacts of stormwater runoff and over-fertilizing) to residents and businesses through on-line, print campaigns, and social media
Natural Resources	Establish Lakes Newsletter to inform citizens about lake stewardship
Waste Management	Provide composting education and backyard composters to residents
Waste Management	Analyze implementation of a Food Waste Diversion Program for Center Street and Farmer's Market

Glossary

Air quality standards. The [Orange County Air Quality Management \(AQM\) section](#) ensures that the air quality of Orange County meets standards set forth in the Federal Clean Air Act and in the Florida Statutes. The goal of the [Florida Department of Health Indoor Air Program](#) is to improve the health of Floridians by reducing exposure to indoor air contaminants.

[Best Workplaces for Commuters](#) is an innovative membership program that provides qualified employers with national recognition and an elite designation for offering outstanding commuter benefits such as offering at least \$30 per month towards a transit pass to employees, employee shuttle to transit stations, etc.

[Carbon Footprint](#) The total amount of greenhouse gases that are emitted into the atmosphere each year by a person, family, building, organization, or company. A person's carbon footprint includes greenhouse gas emissions from fuel that an individual burns directly, such as by heating a home or riding in a car. It also includes greenhouse gases that come from producing the goods or services that the individual uses, including emissions from power plants that make electricity, factories that make products, and landfills where trash gets sent.

[Carbon-intensive foods](#) include beef (6.61 lbs. of CO₂e per serving), cheese (2.45 lbs. of CO₂e per serving), and other animal-based products.

[Climate change](#) refers to a change in the state of the climate that can be identified (e.g., by using statistical tests) by changes in the mean and/or the variability of its properties and that persists for an extended period, typically decades or longer. Climate change may be due to natural internal processes or external forcings such as modulations of the solar cycles, volcanic eruptions and persistent anthropogenic changes in the composition of the atmosphere or in land use.

[Climate Resilience](#) The capacity of social, economic and environmental systems to cope with a hazardous event or trend or disturbance, responding or reorganizing in ways that maintain their essential function, identity and structure while also maintaining the capacity for adaptation, learning and transformation.

[Complete Streets](#) are streets for everyone. They are designed and operated to prioritize safety, comfort, and access to destinations for all people who use the street, especially people who have experienced systemic underinvestment or whose needs have not been met through a traditional transportation approach, including older adults, people living with disabilities, people who cannot afford or do not have access to a car, and Black, Native, and Hispanic or Latino/a/x communities. Complete Streets make it easy to cross the street, walk to shops, jobs, and schools, bicycle to work, and move actively with assistive devices. They allow buses to run on time and make it safe for people to walk or move actively to and from train stations.

[Connectivity](#) reduces the distances traveled to reach destinations, increases the options for routes of travel, and can facilitate walking and bicycling. Well-connected, multimodal

networks are characterized by seamless bicycle and pedestrian infrastructure, direct routing, accessibility, few dead-ends, and few physical barriers. Increased levels of connectivity are associated with higher levels of physical activity from transportation. Connectivity via transportation networks can also improve health by increasing access to health care, goods and services, etc.

[Florida Food Waste Prevention Week](#) raises awareness and inspires action to prevent food waste, save money, reduce hunger and protect the environment.

[Florida Green Building Coalition](#) has developed green certification programs that apply to construction projects and local government operations. Seeking FGBC certification demonstrates a commitment to providing your customers with products or services that are green and sustainable.

[Food Recovery](#) is the practice of collecting wholesome food that would otherwise go to waste and donating it to local food distribution agencies to help feed those in need.

[Google EIE](#) uses exclusive data sources and modeling capabilities in a freely available platform to help cities measure emission sources, run analyses, and identify strategies to reduce emissions — creating a foundation for effective action. Starting in 2021, the city's Greenhouse Gas emissions inventory uses Google EIE estimates for transportation emissions (baseline year 2018).

[Green Economy](#) is defined as an economy that is low carbon, resource efficient and socially inclusive. In a green economy, growth in employment and income are driven by public and private investment into such economic activities, infrastructure and assets that allow reduced carbon emissions and pollution, enhanced energy and resource efficiency, and prevention of the loss of biodiversity and ecosystem services.

[Green Infrastructure](#) includes a range of measures that use plant or soil systems, permeable pavement or other permeable surfaces or substrates, stormwater harvest and reuse, or landscaping to store, infiltrate, or evapotranspire stormwater and reduce flows to sewer systems or to surface waters.

[Greenhouse gases](#) are those gaseous constituents of the *atmosphere*, both natural and *anthropogenic*, that absorb and emit radiation at specific wavelengths within the spectrum of terrestrial radiation emitted by the Earth's surface, the atmosphere itself and by clouds. This property causes the greenhouse effect. Water vapour (H_2O), *carbon dioxide* (CO_2), *nitrous oxide* (N_2O), *methane* (CH_4) and *ozone* (O_3) are the primary GHGs in the Earth's atmosphere.

[Integrated Aquatic Plant Management Program](#), established by the City of Winter Park, attempts to meet the challenges of maintaining beneficial plants while minimizing undesirable ones. The program includes chemical, biological and mechanical control methods.

[LEED](#) (Leadership in Energy and Environmental Design) is the most widely used green building rating system in the world. Available for virtually all building types, LEED provides

a framework for healthy, highly efficient, and cost-saving green buildings. LEED certification is a globally recognized symbol of sustainability achievement and leadership.

[Open Space](#) is any open piece of land that is undeveloped and is accessible to the public. In your community, there could be many creative opportunities for open space preservation that could help connect the community and revitalize its economy and social connectivity. Some opportunities for community open space can include: playgrounds, public plazas, or vacant lots as well as Green space (land that is partly or completely covered with grass, trees, shrubs, or other vegetation) such as parks, community gardens, and cemeteries.

[Pay As You Throw](#) is a system in which residents pay for municipal solid waste (MSW) services per unit of waste discarded rather than solely through a fixed fee or property tax.

[Racial Equity](#) occurs when race can no longer be used to predict life outcomes and outcomes for all groups are improved. For more detailed information review the GARE [Advancing Racial Equity and Transforming Government](#) Resource Guide.

[Racial Equity Lens](#) is the set of questions we ask ourselves throughout the decision-making process. The lens interrupts the impact of unintended consequences by taking into consideration the lived experiences and perspectives of the racially diverse communities we intend to serve.

[Reclaimed water](#) is wastewater that has been thoroughly treated to remove harmful organisms and substances, such as bacteria, viruses and heavy metals, so it can be reused.

[Renewable energy](#) is energy from sources that are naturally replenishing but flow-limited; renewable resources are virtually inexhaustible in duration but limited in the amount of energy that is available per unit of time. The major types of renewable energy sources are: Biomass, Hydropower, Geothermal, Wind and Solar.

[Resilience Hubs](#) are community-serving facilities augmented to support residents, coordinate communication, distribute resources, and reduce carbon pollution while enhancing quality of life. Hubs provide an opportunity to effectively work at the nexus of community resilience, emergency management, climate change mitigation, and social equity while providing opportunities for communities to become more self-determining, socially connected, and successful before, during, and after disruptions.

[Urban Heat Islands](#) occur when cities replace natural land cover with dense concentrations of pavement, buildings, and other surfaces that absorb and retain heat. This effect increases energy costs (e.g., for air conditioning), air pollution levels, and heat-related illness and mortality.

[Tree Equity Score](#) is an indicator of whether an area has a sufficient amount of tree canopy cover distributed in a way that all residents can experience the climate, health and other benefits that trees provide.

[Tree Management Program](#), established by the City of Winter Park, maintains existing vigorous trees, removes dead/diseased/dying trees, and replants with a diverse species. The Urban Forestry division is also responsible for maintaining trees in parks and around

facilities, trees coexisting with electrical facilities, rights of way trees, and community outreach and education.

[Trophic State Index \(TSI\)](#) is a classification system designed to “rate” individual lakes, ponds and reservoirs based on the amount of biological productivity occurring in the water. Using the index, one can gain a quick idea about how productive a lake is.

Trophic State Index	Trophic State Classification	Water Quality
0-59	Oligotrophic through Mid-Eutrophic	Good
60-69	Mid-Eutrophic through Eutrophic	Fair
70-100	Hypereutrophic	Poor

[Climate Risk & Vulnerability Assessment](#): a structured process that identifies ways in which a community is susceptible to harm from climate threats and identify corrective actions that can reduce or mitigate the risk of serious consequences due to climate change. This assessment will look at the City’s critical facilities, water infrastructure, economic factors, our natural resources, people and socioeconomic statistics, property, transportation, and mobility. As a city that is mostly in land but surrounded by wetlands, Winter Park is still no stranger to climate events such as hurricanes, flooding, and extreme heat. As rapid growth in development continues, we continue to find ways to be adaptable to these climate changes. Within this assessment we will have key indicators which will allow us to keep track of this data for continued planning and prevention. These indicators include: GHG Emissions, Heat (Rising Temperatures and Extreme Heat), and Precipitation.

[Waste Management Hierarchy](#): EPA developed the non-hazardous materials and waste management hierarchy in recognition that no single waste management approach is suitable for managing all materials and waste streams in all circumstances. The hierarchy ranks the various management strategies from most to least environmentally preferred. The hierarchy places emphasis on reducing, reusing, and recycling as key to sustainable materials management.

[Wastewater](#) is used water. It includes substances such as human waste, food scraps, oils, soaps and chemicals. In homes, this includes water from sinks, showers, bathtubs, toilets, washing machines and dishwashers.

Appendix A- Key Assumptions for Renewable Energy

Key Assumptions for Renewable Energy Study

1. In adopting these targets, the commission has assumed that the cost of renewable technologies will drop over time. Historically, emerging technologies have achieved similar reductions in cost as economies of scale and engineering advances work together. For example: the microprocessor computing power for an iPad 2 dropped from \$100,000,000 in 1980 to \$1,000,000 in 1990 to \$100 in 2010, huge reductions over 30 years; and the cost of solar power dropped from \$700 per kWh in 2010 to under \$200 per kWh in 2018, an 8-year period. See Forbes article “Declining Cost Curves Create Opportunities for Investors” 10-17-2018. There is no assurance however that the costs will decline as assumed.
2. Battery cost/kWh will drop over time
The table below provides the costs for residential, commercial, and utility scale batteries for key milestone years.

Table 1. Battery Storage Costs for Key Milestone Years (Installed Cost - \$/kWh)

Battery Energy Storage Technology	2023	2035	2042	2050
Residential BESS–2.5 hr	\$1,443	\$1,359	\$1,359	\$1,359
Commercial BESS–4 hr	\$774	\$729	\$729	\$729
Utility Scale BESS–4 hr (ESS-4)	\$514	\$484	\$484	\$484

3. Solar cost/kW will drop over time
 - a. Solar Cost per kWh

Table 2. Solar PV Costs for Key Milestone Years (Installed Cost - \$/kW)

Solar PV Technology	2023	2035	2042	2050
Residential Rooftop Solar	\$3,400	\$2,892	\$2,892	\$2,892
Commercial Solar PV, Rooftop (Dsolar-CommRoof)	\$2,121	\$1,804	\$1,804	\$1,804
Commercial Solar PV, Ground-mount (Dsolar-CommGround)	\$2,236	\$1,902	\$1,902	\$1,902
Utility Scale Solar PV (USolar)	\$1,331	\$1,253	\$1,253	\$1,253
Green Hydrogen-Fueled CT (CT-Hydrogen)	\$1,561	\$1,828	\$1,828	\$1,828
Biofuel Internal Combustion Reciprocating Engine (Biomass)	\$520	\$552	\$552	\$552

Note – While FMPA will be the source of some of the early solar contracts they may not be the provider for future contracts. The source of our future cost estimates is based on DOE (Department of Energy) and National Renewable Energy Laboratory (NREL) data.

- b. Generation Technology cost projects

The general industry consensus is that the forecasted installed cost for solar and battery storage technologies will continue to decline in cost for the foreseeable future through continued manufacturing and solar PV performance improvements. In addition, legacy technologies such as

combustion turbines are expected to continue to increase in cost based on inflationary pressures. The NREL Annual Technology Baseline (ATB) projects cost declines in renewable technologies and battery storage and cost increases in legacy technologies through 2050. Supply disruptions and changing tariff structures resulted in an increase in solar PV costs in 2021 and 2022. These recent cost increases are expected to be temporary as the solar PV manufacturers adjust in response to the changing world market.

To remain conservative in the cost projections of future technology costs used in this study, Quanta Technology estimated a lower near-term price decline for solar PV and batteries than the NREL ATB estimate. In addition, Quanta Technology estimated the price declines would stabilize after ten years for solar PV and after five years for battery storage. Further price increases for the legacy generation technologies also had a similar end to their forecasted continuing escalation where their costs would stabilize. The combination of these adjustments to the future escalation of technology costs provides a conservatively high cost for solar PV and battery storage and a conservatively low cost for legacy technologies.

The graph shown in Figure 1 below presents the annual costs of the subset of technologies that were ultimately included in the supply portfolios described later in this report.

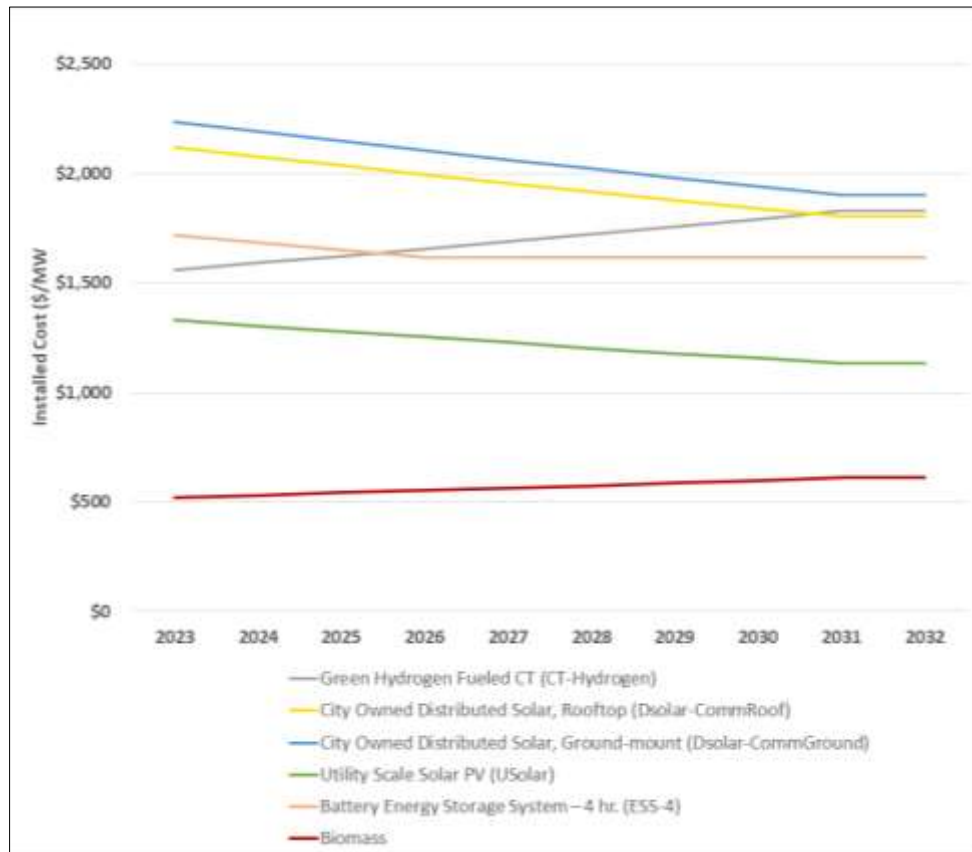


Figure 1. Projections of Generation and Storage Technologies Installed Costs

4. **Assumes that Underground Project will be completed by 2030** and the existing bonds will be paid off in 2036.
5. Burning garbage and trash emits carbon and other harmful emissions, and while it reduces dependence on fossil fuels, it is not considered by most in the industry to be renewable energy. On the other hand,

biomass generation is considered renewable energy even though it also emits carbon and other emissions. Biomass generation is renewable since it is a carbon-neutral fuel that traps carbon from the atmosphere during its growth cycle and then releases the same amount of carbon during the combustion process. Biomass generation is assumed to be a “Dispatchable” (On-Demand) Power source available at any time of day. Even though it also emits carbon and other emissions. Biomass generation is considered renewable since it is a carbon-neutral fuel that traps carbon from the atmosphere during the growth cycle of biofuels and then releases only the same amount of carbon during the combustion process. In addition, unlike solar PV, biomass generation is generally a “dispatchable” (on-demand) power source available at any time of day.

6. Quanta Technology used PPA pricing from existing CWP contracts and other data available for Florida power costs to estimate that future purchases from the Florida grid would. Florida currently relies principally on fossil-fueled resources. However, **as FPL and other utilities evolve their system to cleaner resources the power costs from the Florida grid are estimated to escalate at 2% annually regardless of the CWP decisions for its power supply.** Quanta Technology also assumed that the purchased power market in Florida would continue to provide CWP options to purchase specific types of power from large suppliers, such as FPL, OUC, and the FMPA.
7. In addition to “Variable Costs” of power such as the cost per kWh to buy from suppliers and the pass through of fuel costs, WPPC has “Fixed Costs” of maintaining the distribution system including the grid, power lines, and transformers. **WPPC’s Fixed Costs are expected to inflate by approximately 3%.**
8. WPPC expects that demand will increase to accommodate Electric Vehicles and will decrease as homes and businesses become more Energy Efficient.
 1. “Expected” Demand Growth Rate = 0.09%/yrs. “High” Demand Growth = 1.15%
 2. **“Expected” Energy Reduction from Energy Efficiency = 2% reduction/year for 5 years, which means that 10% less energy (compared to 2023) will be used by homes and businesses by 2028.**
Efficiency comes from:
 - a. LED lighting, Heat Pumps instead of old resistance heating in Winter, better attic and wall Insulation, double pane energy efficient Windows
 - b. Distributed Batteries and Solar from residential and commercial which allows the peak energy periods to level out with [Demand Response (DR) or Demand Side Management (DSM)] programming. In other words, homes and businesses use their own batteries during the times when the most energy is needed.
9. **This study DOES NOT assume electric grid upgrades are needed or funded for larger power lines or transformers.** Evaluating the Grid requirements as Residents install more Solar and Battery Walls will be part of the Strategic Planning background study.
10. Hurricane Outage Management: Sizing the Batteries or planning for back-up “Dispatchable”/On-Demand power for a Hurricane Event were not part of the Consultant’s original scope. However, in a subsequent addition to the Consultant’ scope two new scenarios 4A and 4B were added to estimate the increase in supply costs of a plan that provides resiliency for the potential of four days of disruptions to the CWP solar energy supply due to a hurricane or a severe tropical storm. The costs for repeated severe events occurring in 2023, 2035, 2042, and 2050 were estimated.
 - A new scenario 4A assumes the production output of all utility-scale solar PV contracted by CWP is significantly impacted for four days while all other generation sources remain unchanged. 100% of

the replacement energy during severe weather events is assumed to come from batteries contracted for or owned by CWP.

- A second new scenario 4B assumes the production output of all utility-scale solar PV contracted by CWP is significantly impacted for four days while all other generation sources remain unchanged. **The replacement energy during severe weather events is assumed to come from grid purchases from reserve units, generally older and less efficient fossil units in scenario 4B. Presumably, this premium will be recovered in the fuel cost adjustment.**

All other assumptions for the hurricane scenarios follow those defined in Scenario 3A. The results of the analysis are provided below.

Table 3 of Scenarios 3A, 4A and 4B

Year	Scenario 3A	Scenario 4A	Scenario 4B
20-year PVRR – 2023 to 2042 (\$M)	505	637	558
LCOE based on 20-year PVRR (\$/MWh)	90	113	99

11. Under Scenario 3A, While the Consultant recommends prioritizing Utility Scale Battery Storage over City owned ground and rooftop solar, the report assumes that the City Invests heavily in Solar Power as follows:

Table 4 and Costs of Solar PV on CWP Owned Buildings and Vacant Land

Year	Cumulative City Rooftop PV (MW)	Cumulative City Ground Mount PV (MW)	Cumulative Total MW)	Cumulative Cost (\$M)
2035	0.98	0.98	1.96	\$3.8
2042	<u>0.98</u>	<u>2.95</u>	<u>3.94</u>	<u>\$7.5</u>
2050	0.98	2.95	3.94	\$7.5

Currently there is no city land set aside for Ground based Solar.

However, Under Scenario 3E, there is no requirement of the City to own Solar on City Owned property. However, there is an expectation that, depending on the capacity to issue bonds and borrow for the cost of construction, the City may own Solar if the business case and benefit are deemed appropriate.

12. Assumes that the purchased power market continues to allow WPPC to purchase power from large suppliers, such as Florida Power, OUC, Florida Municipal Power Authority and independent power developers.
13. Adoption of Residential Electric Vehicles, Solar Panels, and Energy Storage/Batteries are assumed to be closely aligned and increasingly adopted as roofs and vehicles are replaced. The study expects a reduction in net energy supplied to residents. The study does NOT assume significant buyback of Solar power under net metering and does NOT assume any “Virtual Power Plant” benefits, although both may occur if “Time of Use” rates are implemented as recommended. The study assumes Residents will invest in Electric Vehicles, Roof top Solar and Batteries voluntarily at their personal cost. **By 2042, the study forecasts:**

- **Up to 95% of the registered vehicles in CWP may be electric vehicles.**
- **Approximately 35% of residential rooftops will have solar PV installed,** with the capacity to generate approximately 49,000 MWh of energy per year, which is approximately 11% of the total CWP requirement.
- **Approximately 35% of residences will have battery energy storage systems (BESS) installed.**

Proforma Financial Projection Assumptions- Based on Actual History and Experience. Incorporates Cost of Electricity and estimated demand originating from the Quanta Study.

14. In the forecast of the production costs for years 2043-2050 when Clean Hydrogen Combustion Turbine (CT-Hydrogen) begins to play an important role in the renewable energy strategy, the Commission has assumed a cost for power from a portfolio of substantially carbon free resources will average of \$133/MWh for power costs in 2042. These costs reflect the costs prior to the introduction of any costs associated with a CT-Hydrogen resource or another clean technology that could supply a firm dispatchable resource. In this analysis, the addition of the CT-Hydrogen resource is forecast to drive the average power costs to \$255/MWh in 2050, largely due to the cost forecast of clean hydrogen costs of \$366/MWh in 2050.

The Commission is unwilling at this time to accept a plan through 2050 that includes the current costs assumptions for CT-Hydrogen. At this time, the Commission can support a conditional plan that establishes an upper limit to the average power costs after 2042 that would not exceed 3% escalation from the costs forecast for 2042. This 3% escalation limit would require a significant reduction in the costs of CT-Hydrogen or an alternate carbon free generation technology that could serve the same role in the City's power portfolio.

The Commission is willing to accept power costs reflecting a 3% escalation from the 2042 costs of \$133/MWh, yielding a maximum acceptable average power costs in 2050 of \$168/MWh. More specifically, **the commission adopts values for the Maximum Annualized Power costs shown in the right column of the following table.**

Table 5 Power Costs

Year	Annualized Cost (\$/MWh)	Annualized Cost (\$/MWh) escalated at 3% after 2042	LCOE (\$/MWh) with a 3% escalation	Maximum Acceptable Annualized
2023	\$72		\$70	
2024	\$72		\$73	
2025	\$72		\$75	
2026	\$74		\$77	
2027	\$75		\$79	
2028	\$77		\$82	
2029	\$78		\$84	
2030	\$77		\$87	
2031	\$76		\$89	
2032	\$80		\$92	
2033	\$84		\$95	
2034	\$89		\$97	
2035	\$91		\$100	\$91
2036	\$107		\$103	
2037	\$112		\$106	
2038	\$119		\$110	
2039	\$126		\$113	
2040	\$133		\$116	
2041	\$133		\$120	
2042	\$133	\$133	\$123	\$133
2043	\$132	\$137	\$127	
2044	\$131	\$141	\$131	
2045	\$127	\$145	\$135	
2046	\$131	\$150	\$139	
2047	\$136	\$154	\$143	
2048	\$140	\$159	\$147	
2049	\$138	\$164	\$152	
2050	\$255	\$168	\$156	\$168

15. Residential Revenues Average \$/kWh are based on rates effective May 1, 2023. **The baseline Proforma assumes a 3% annual cost of power increase** (which corresponds to the 3% “Cost Recovery Growth/Escalation Rate” illustrated by the orange line on Figure 30 of the study report results for Scenario 3D).
16. Commercial Revenues Average \$/kWh are based on Trailing 12 months history but have been adjusted to reflect the elimination of “Legacy Time of Use Rates” (which are carryovers from the City’s acquisition of the Power Company from Duke Power) and the current rates which became effective May 1, 2023. **The baseline Proforma assumes a 3% annual cost of power increase** (which corresponds to the 3% “Cost Recovery Growth/Escalation Rate” illustrated by the orange line on Figure 30 of the study report results for Scenario 3D).

17. No “Time of Use” or “TOU” rates are currently in effect, nor are they included in the cash flow forecast at this time. Future strategic plans will likely add TOU rates to incentivize load management.
18. Revenues include franchise fees. Revenues do NOT include Utility Taxes or Sales Taxes, which are a pass through to the city and state, respectively. Revenues include Fuel Cost Adjustments even though they are a “pass through” and are also shown as part of the Cost of Electricity expenses.
19. **Fixed Operating and Grid Costs are based on the City’s ten-year proforma for the fiscal year beginning October 1, 2023.**
20. Cost of Electricity is itemized based on source of energy. The Fuel Cost Adjustment Expense is itemized based on the source of fuel and equals the Fuel Cost Adjustment Revenue. In other words, the Fuel Cost Adjustment is an “in and out” line item.
21. Operating Transfers Out is the franchise fee and the revenue share transferred to the General Fund for general government purposes.
22. Cumulative Reserves are the working capital (current assets minus current liabilities) requirements established by the City’s Administrative Policy which requires a minimum of 45 days operating expenses excluding amortization. Any excess would be used for capital projects and for the transitional costs to renewable energy.
23. Debt Service is the principal and interest required on bonds.
24. Capital Projects include the undergrounding project and other construction projects. Inventory Purchases are for major equipment and supplies such as transformers. Replacement Reserves are reserves set aside for periodic replacement of capitalized equipment, systems and building components.
25. **Investment in or Debt Service on Renewable Energy generation or storage. This includes construction of City owned solar; construction of City owned Battery storage systems; debt service on “green bonds” issued to construct city owned assets; co-investment in joint ventures that will own renewable energy generation or storage. This does not include long-term purchase power commitments.**
26. **The Baseline Budget and Proforma financial projections both assume the same amortization of the CWP debt incurred to finance the undergrounding of the CWP distribution system. with the existing bonds paid off in 2036.**