City of Fort Lauderdale
NET ZERO PLAN

FEBRUARY 2025

Building a Sustainable Fort Lauderdale

NETZERO

Dean J. Trantalis
Mayor

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A Message from the Mayor

In pursuit of the community's vision to become "the City you never want to leave," Fort Lauderdale has worked diligently over the past decade to advance its status as a premier place to live, work, and play. Today, Fort Lauderdale, known as "The Venice of America," stands as a major yachting capital, one of the nation's most popular tourist destinations, and the center of a metropolitan area welcoming more than 18 million visitors annually. At the same time, it is home to a vibrant and growing permanent population that depends on a thriving economy and resilient infrastructure.

Fort Lauderdale has faced significant climate impacts in recent years including extreme rainfall events, sunny day tidal flooding, hotter temperatures, and the threat of more powerful hurricanes. As a member of the national Climate Mayors, I recognize the urgent need for our vibrant and dynamic coastal city to align our local priorities with global frameworks for reducing greenhouse gas emissions that are the driver of climate change.

To meet these challenges head-on, the City Commission adopted ambitious goals in 2021 to achieve net zero greenhouse gas (GHG) emissions for government operations by 2040 and for the entire community by 2050. This Net Zero Action Plan lays out a comprehensive strategy for reducing municipal and community-wide GHG emissions, aligning the City's efforts with the goal of keeping global temperature rise below 1.5°C as outlined in the Paris Agreement.

This Plan establishes interim, scientifically-based GHG reduction targets to guide our efforts and ensure accountability. These targets underscore our deep commitment to protecting our environment while fostering economic resilience and enhancing the quality of life for all residents. By prioritizing the actionable strategies in this Plan to reduce emissions, improve energy efficiency, and ensuring equitable access for all residents, Fort Lauderdale is leading the way in addressing the pressing challenges of climate change. From transitioning to renewable energy sources to expanding low-carbon transportation, we are taking bold steps toward achieving these critical net zero goals.

Thank you to all our partners, stakeholders, and residents whose dedication continue to inspire our journey toward a more sustainable future. Together, we will ensure that Fort Lauderdale remains a thriving, vibrant, and resilient community for generations to come.

Sincerely,

Dean J. Trantalis
Mayor

Equal Opportunity Employer

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APPENDICES

TERMS AND DEFINITIONS

$/MTCO$_2$e: Dollar per metric ton of carbon dioxide equivalent.

Accountability Framework: A system of processes and measures to ensure that actions and strategies are implemented effectively, and progress is tracked.

Baseline: A measurement, calculation, or time used as a basis for comparison. Baseline estimates are needed to determine the effectiveness of emission reduction programs (also called mitigation strategies).

Benchmarking: Comparing processes and performance metrics to industry best practices and successful practices from other organizations to identify areas of improvement.

Broward Solid Waste Authority (SWA): Entity created through an interlocal agreement between Broward County and 28 municipalities to develop a coordinated, regional solid waste management and recycling master plan.

Business-as-Usual (BAU) Scenario: A projection of future emissions based on current trends and without additional policy interventions.

Built Environment: Human-made conditions where people live, work, and play, including buildings, parks, neighborhoods, cities, and supporting infrastructure.

Carbon Footprint: The total amount of greenhouse gases (GHGs) emitted directly or indirectly by an individual, organization, event, or product.

Carbon Dioxide Equivalent (CO$_2$e): A measure used to compare the emissions of GHGs based on their global warming potential.

Carbon Offsets: Investments in projects that reduce or capture GHGs.

Carbon Sequestration: The process of capturing and storing atmospheric carbon dioxide.

CDP: A not-for-profit organization that supports companies and cities in disclosing their GHG emissions and environmental impacts.

Climate Change: A change in global or regional climate patterns attributed largely to the increase of GHG emissions since the 20th century.

Climate Crisis: The state of emergency caused by GHG emissions and the associated increasing climate impacts.

Climate Resilience: The ability to anticipate, prepare for, and respond to hazardous events or disturbances related to climate.

Co-benefits: Additional positive outcomes that result from actions taken to reduce GHG emissions, such as improved air quality or economic savings.

Community Emissions: All GHG emissions produced within a community including, but not limited to, the residential, commercial, and industrial sectors.

Decarbonization: The process of reducing carbon dioxide and other GHG emissions through the use of low-carbon electricity sources, increased energy efficiency, and other measures.

Electric Vehicles (EVs): Vehicles that are powered by electricity instead of fossil fuels such as gasoline or diesel.

Electrification: The process of replacing equipment that uses natural gas, propane, or other fossil fuels with electric alternatives.

Energy Efficiency: Using less energy to perform the same task, thereby eliminating energy waste.

Fugitive Emissions: Leaks or other releases of gases from pressurized appliances, tanks, pipes, or other equipment, including refrigerants and natural gas.

Greenhouse Gas (GHG): Gases that trap heat in the atmosphere, contributing to global climate change. Common GHGs include carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O).

Greenhouse Gas Emissions Inventory: A comprehensive account of all GHG emissions produced by a city, region, or country.

GHG Emissions Reduction Potential: The estimated amount of GHG emissions that can be reduced through specific actions or strategies.

Green Roofs: Roofs covered with vegetation to provide insulation, reduce runoff, and improve air quality.

Green Space: An area of grass, trees, or other vegetation set apart for recreational or aesthetic purposes in an otherwise urban environment.

Grid Decarbonization: The process of reducing carbon emissions from the electricity grid by increasing the share of low-carbon energy sources.

ICLEI – Local Governments for Sustainability: A global network of local and regional governments committed to sustainable urban development.

Key Performance Indicators (KPIs): Metrics used to evaluate the success of an organization or of a particular activity in which it engages.

Legislative-Adjusted (LA) Scenario: A projection of future emissions that accounts for anticipated regulatory actions at various governmental levels.

Life-Cycle Cost: The total cost of ownership over the life of an asset, including initial costs, operation, maintenance, and final disposal.

Local Government Operations Protocol: A standardized set of guidelines for measuring and reporting GHG emissions from local government operations developed by the California Air Resources Board, California Climate Action Registry, ICLEI - Local Governments for Sustainability, and The Climate Registry.

Methane (CH_4): A GHG emitted during the production and transport of coal, natural gas, and oil. Methane emissions also result from livestock and other agricultural practices, land use, and the decay of organic waste in municipal solid waste landfills (EPA).

Mitigation Efforts: Actions taken to reduce or prevent the GHG emissions.

Municipal Emissions: GHG emissions produced by government operations, including municipal buildings, vehicle fleets, and infrastructure.

Net Zero Emissions: Achieving a balance between the amount of GHG emissions produced and the amount removed from the atmosphere.

Nitrous Oxide (N₂O): A GHG emitted during agricultural, land use, and industrial activities; combustion of fossil fuels and solid waste; and during treatment of wastewater.

Paris Agreement: Adopted on December 12, 2015, by the 21st Conference of the Parties to the United Nations Framework Convention on Climate Change, its objective is to maintain the increase in global temperatures well below 2 degrees Celsius above pre-industrial levels, while making efforts to limit the increase to 1.5 degrees.

Permeable Pavements: Pavement systems that allow water to pass through, reducing runoff and improving groundwater recharge.

Quantitative Modeling: The use of mathematical models to estimate the impacts of different strategies on GHG emissions.

Rain Bomb: An intense and sudden downpour of rain that can cause severe localized flooding.

Renewable Energy: Energy from sources that are naturally replenishing, such as solar, wind, and hydroelectric power.

Renewable Energy Certificates (RECs): Certificates that represent the environmental benefits of generating one megawatt-hour (MWh) of electricity from a renewable energy source.

Resilience Plan: A strategy to prepare for and respond to the impacts of climate change.

Return on Investment (ROI): A measure of the profitability of an investment, calculated as the ratio of the net benefits to the costs over a given time period.

Science-Based Targets: Climate goals in line with the latest climate science that represent a community's fair share of the ambition necessary to meet the Paris Agreement commitment to keep warming below 1.5 degrees Celsius (ICLEI).

Scope 1 Emissions: Direct GHG emissions from sources owned or controlled by an organization.

Scope 2 Emissions: Indirect GHG emissions from the consumption of purchased electricity, heat, or steam.

Scope 3 Emissions: All other indirect GHG emissions that occur in the value chain of an organization, such as waste and employee commutes.

Sea Level Rise: The increase in the level of the world's oceans due to the effects of climate change.

Smart Growth: An urban planning approach focusing on sustainable development, reducing sprawl, and promoting walkable, bicycle-friendly neighborhoods.

Social Equity Impacts: The effects of policies or actions on different social groups, particularly those that are disadvantaged or marginalized.

Stakeholder Engagement: The process of involving individuals, groups, or organizations that may be affected by or have an interest in a project or decision.

Sustainability: Meeting the needs of the present without compromising the ability of future generations to meet their own needs.

Urban Greenery: Vegetation in urban areas, including parks, gardens, and green roofs that can help mitigate the urban heat island effect and improve air quality.

Urban Forest: A densely wooded area located in a city.

Urban Heat Island Effect: The phenomenon where urban areas experience higher temperatures than their rural surroundings due to the concentration of buildings, roads, and infrastructure.

Urban Land Institute: A professional organization focused on the responsible use of land and the creation of sustainable communities.

Urban Sustainability Directors Network: A network of local government professionals dedicated to advancing urban sustainability.

Vehicle Miles Traveled (VMT): A measure of the total miles driven by all vehicles in a specified area over a given time period.

Waste Management: The collection, transportation, and disposal or recycling of waste materials.

ACRONYMS AND ABBREVIATIONS

°C	degrees Celsius
BAU	Business-as-Usual (scenario)
CDBG	Community Development Block Grant
CH$_4$	methane
CO$_2$	carbon dioxide
DEP	Florida Department of Environmental Protection
DOE	U.S. Department of Energy
EERE	DOE Office of Energy Efficiency and Renewable Energy
EPA	U.S. Environmental Protection Agency
EV	electric vehicle
EVCS	Electric Vehicle Charging Stations
FDOT	Florida Department of Transportation
FPL	Florida Power & Light
FTA	Federal Transit Administration
GHG	greenhouse gas
HVAC	heating, ventilation, and air conditioning
IPCC	Intergovernmental Panel on Climate Change
IRA	Inflation Reduction Act

KPI	key performance indicators
kWh	kilowatt hours
LA	Legislative-Adjusted (scenario)
LIHEAP	Low-Income Home Energy Assistance Program
LOE	level of effort
MPO	Metropolitan Planning Organization
N$_2$O	nitrous oxide
NEVI	National Electric Vehicle Infrastructure
P3	public-private partnership
PACE	Property Assessed Clean Energy
REC	Renewable Energy Certificate
ROI	return on investment
SAF	sustainable aviation fuel
SELF	Solar and Energy Loan Fund
SUN	Solar United Neighbors
SWA	Solid Waste Authority
UFMP	Urban Forestry Master Plan
VMT	vehicle miles traveled
WIFIA	Water Infrastructure Finance and Innovation Act

EXECUTIVE SUMMARY

CITY OF FORT LAUDERDALE ACHIEVING NET ZERO

Climate change poses a significant threat to both the Fort Lauderdale community and global society. The escalating impacts of the climate crisis have led to a worldwide agreement about the need for immediate collective action to prevent irreversible damage.

Why Net Zero?

Fort Lauderdale has faced significant climate impacts in recent years, including extreme rainfall events, sunny day tidal flooding, hotter temperatures, and the threat of more powerful hurricanes. Reducing global greenhouse gas (GHG) emissions is critical to mitigating the effects of these climate impacts, and Fort Lauderdale must do its part to reduce its contribution to global emissions. A net zero GHG emissions future for Fort Lauderdale is essential to protect the City's residents, infrastructure, and economy, and to contribute to the greater effort to tackle the climate crisis.

Net zero is also an opportunity for innovation and economic prosperity across the City. A low-carbon/net-zero Fort Lauderdale will be a better community in all respects for residents and businesses in their day-to-day lives.

The City of Fort Lauderdale is committed to achieving net zero in municipal operations by 2040 and in community (Citywide) emissions by 2050. This Net Zero Plan (the Plan) lays out a comprehensive roadmap for reducing municipal and community-wide GHG emissions, aligning the City's efforts with the goal of keeping global temperature rise below 1.5 degrees Celsius (°C) as outlined in the Paris Agreement. Achieving the GHG emissions reductions proposed in this Plan will require continued engagement with key stakeholders and community members.
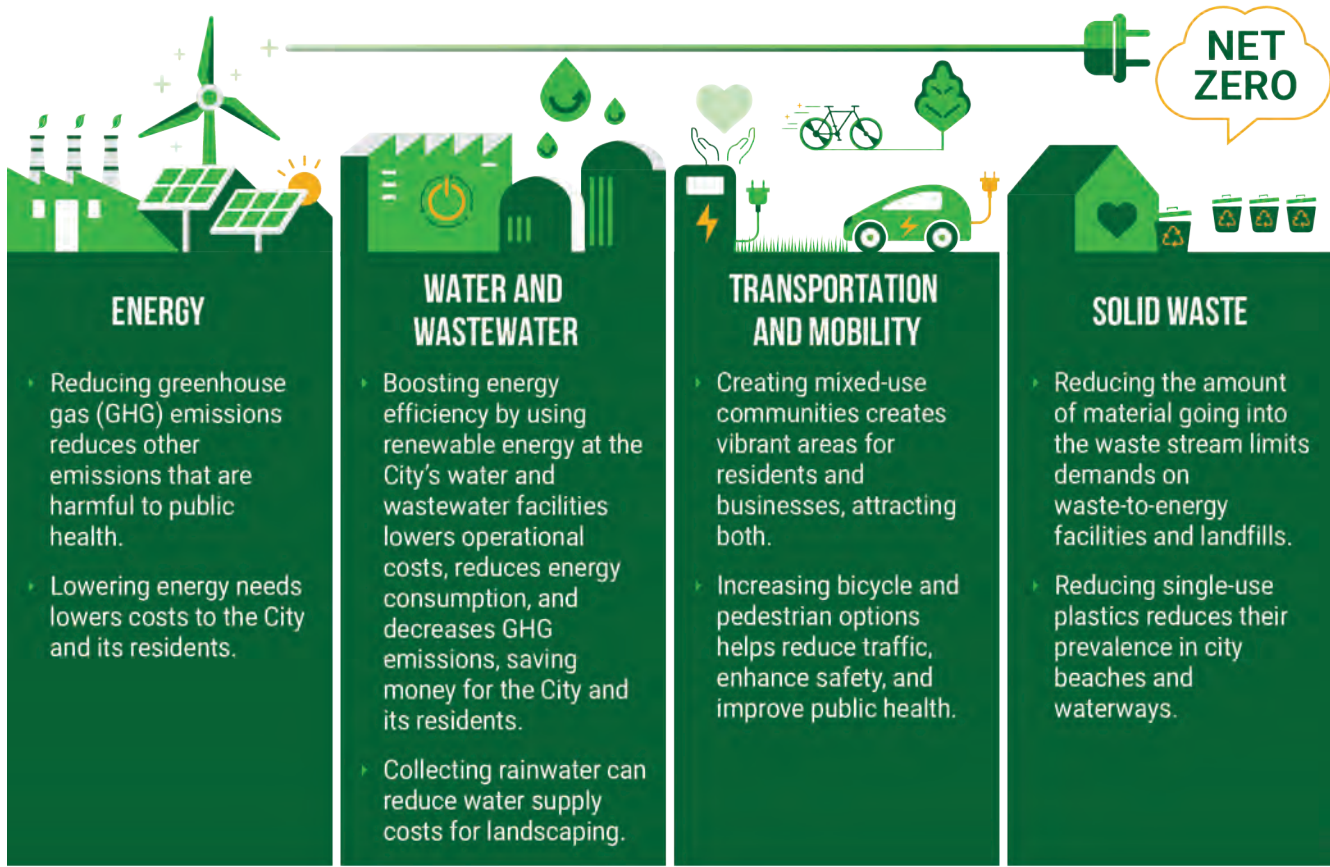
Net Zero, Simply Stated

Net Zero is a balance between the amount of greenhouse gases (GHG) produced and the amount removed from the atmosphere. It requires cutting carbon emissions and absorbing GHGs from the atmosphere.

Fort Lauderdale's vulnerability to climate change is evident in the increasing frequency and severity of extreme weather events. In April 2023, a **26-inch rainstorm in just 8 hours caused catastrophic flash flooding, inundating over 1,000 homes, rendering critical roadways impassable for up to 48 hours, and leaving some residential streets under 4-5 feet of water for nearly a week.** Additionally, record-breaking high tides in recent years have resulted in **chronic flooding in low-lying areas, with 180 tide events exceeding the City's flood threshold in 2023 and 119 of these tides recorded in 2024**.

SOME OF THE WAYS NET ZERO WILL BENEFIT FORT LAUDERDALE

ENERGY

- Reducing greenhouse gas (GHG) emissions reduces other emissions that are harmful to public health.
- Lowering energy needs lowers costs to the City and its residents.

WATER AND WASTEWATER

- Boosting energy efficiency by using renewable energy at the City's water and wastewater facilities lowers operational costs, reduces energy consumption, and decreases GHG emissions, saving money for the City and its residents.
- Collecting rainwater can reduce water supply costs for landscaping.

TRANSPORTATION AND MOBILITY

- Creating mixed-use communities creates vibrant areas for residents and businesses, attracting both.
- Increasing bicycle and pedestrian options helps reduce traffic, enhance safety, and improve public health.

SOLID WASTE

- Reducing the amount of material going into the waste stream limits demands on waste-to-energy facilities and landfills.
- Reducing single-use plastics reduces their prevalence in city beaches and waterways.

Development of an Achievable Net Zero Plan

The development of Fort Lauderdale's Net Zero Plan involved a thorough review of existing municipal and community energy use, GHG emissions, waste, and climate policies. The Plan aligns with key City and regional strategies, including the Fast Forward 2035 Vision Plan and the Advance Fort Lauderdale 2040 Comprehensive Plan. This Net Zero Plan is a natural outgrowth of these previously approved planning efforts and provides actionable implementation steps to realize net zero. Stakeholder engagement was an invaluable component in the development of this Plan, incorporating input from nine internal City department meetings, two presentations to the Sustainability Advisory Board, two public virtual informational meetings, and two community workshops to ensure broad input and buy-in.

What is Being Recommended and Why?

The City recognizes that reaching net zero will require a continued collaborative effort that relies on community-wide and municipal strategies. The plan provides a roadmap for 8 community-focused strategies and 7 municipal-focused strategies. Fifty-five specific actions are derived from these 15 strategies, and each action is assigned an implementation priority level of 1, 2, or 3 based on a high-level qualitative analysis of factors including:
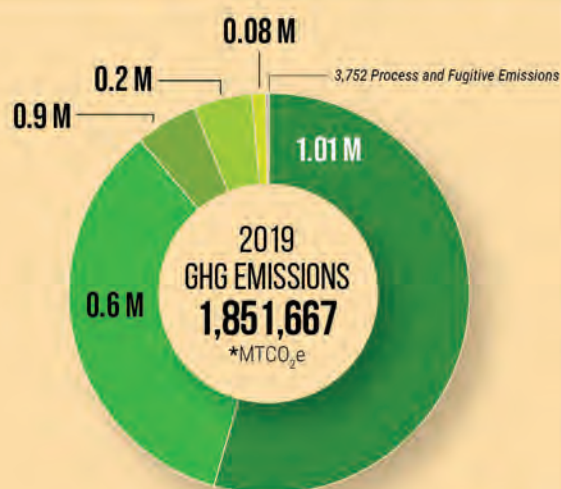
↗ **Timeframe**	↗ **Level of effort (LOE) for the City**
↗ **GHG impact**	↗ **Social equity impacts for the community**
↗ **Initial cost to the City**	↗ **Alignment with existing strategic priorities**
↗ **Life-cycle cost to the City**	↗ **Co-benefits**
↗ **Return on investment (ROI) for the City**	↗ **Qualitative estimate for additional costs borne by the community**

Roadmap to Net Zero

While the escalating impacts of the climate crisis have led to worldwide agreement about the need for immediate collective action to prevent irreversible damage, Fort Lauderdale recognizes that, with help from its City staff, partners, key stakeholders, and community members, it can make a contribution with positive outcomes for the City and the region. As noted above, the actions in this Plan are aligned with other Citywide planning efforts and other endeavors to make Fort Lauderdale a connected, prosperous, resilient, and safe coastal community. While the implementation of the Plan's strategies actions will not on their own prevent future climate effects from impacting Fort Lauderdale, they will yield positive outcomes beyond GHG reductions. A snapshot of the City's overall strategies and actions is presented in the summary graphic below, followed by an itemized table. Chapter 3 describes the strategies and actions in more detail and provides information regarding implementation efforts, funding opportunities, key performance indicators (KPIs), and responsible parties.

According to the 2019 GHG Inventory, energy use and transportation and mobility are the largest sources of community GHG emissions, while water and wastewater treatment and employee commutes and vehicle fleet emissions are the largest sources on the municipal side. Many of the strategies and action described in this Plan are targeted to reduce GHG emissions from these sectors to achieve the greatest impact. However, the success of the Plan relies on the participation and support of Fort Lauderdale and its partners and citizens to **achieve net zero**.

2019 COMMUNITY GHG INVENTORY

2019 GHG EMISSIONS 1,851,667 *MTCO$_2$e

- 0.08 M
- 0.2 M
- 0.9 M
- 1.01 M
- 0.6 M

3,752 Process and Fugitive Emissions

*MTCO2e = metric tons of carbon dioxide equivalent
M = Millions
K = Thousands

- ● Energy
- ● Community Transportation and Mobile Sources
- ● Aviation
- ● Community Waste Reduction and Diversion
- ● Water and Wastewater Management

2019 MUNICIPAL GHG INVENTORY

2019 GHG EMISSIONS 50,566 *MTCO$_2$e

- 2 K
- 19 K
- 11 K
- 18 K

358 Process and Fugitive Emissions
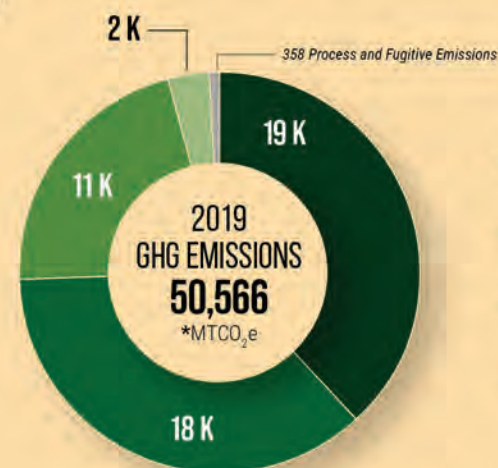
- ● Water and Wastewater Treatment
- ● Municipal and Transportation Sources
- ● Municipal Buildings and Facilities
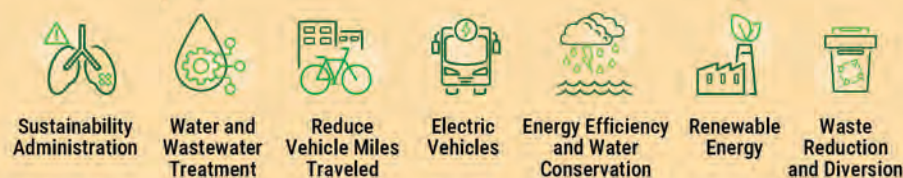- ● Waste Reduction and Diversion

8 COMMUNITY-FOCUSED STRATEGIES

Energy Efficiency	Renewable Energy	Reduce Vehicle Miles Traveled	Electric Vehicles	Sustainable Aviation	Waste Reduction and Diversion	Water and Energy Conservation	Tree Canopy Enhancement
6	5	6	3	1	6	2	2

7 MUNICIPAL-FOCUSED STRATEGIES

Sustainability Administration	Water and Wastewater Treatment	Reduce Vehicle Miles Traveled	Electric Vehicles	Energy Efficiency and Water Conservation	Renewable Energy	Waste Reduction and Diversion
4	1	5	6	4	3	1

TOTAL 55 ACTIONS TO ACHIEVE NET ZERO

PROJECTED GHG EMISSIONS REDUCTIONS

26% REDUCTION BY 2030

70% REDUCTION BY 2040

97% REDUCTION BY 2050

23% REDUCTION BY 2030

69% REDUCTION BY 2040

96% REDUCTION BY 2050

Although the actions are numbered consecutively, the assignment of a number does not imply a hierarchy of importance. It is simply a "shorthand" to allow the reader to easily find a particular action. The highest priority actions (*those ranked priority 1*) are shaded in yellow.

COMMUNITY-FOCUSED STRATEGIES

NUMBER	ACTION	PRIORITY	IMPLEMENTATION TIMEFRAME
ENERGY			
STRATEGY: ENERGY EFFICIENCY			
Action 1	**Advocate for increased energy efficiency, water conservation, and other performance standards in the Florida Building Code in partnership with Broward County and other stakeholders.**	1	Ongoing
Action 2	**Incentivize net zero strategies in new development.**	1	Short term
Action 3	**Advocate for state and federal rental and low-income housing energy efficiency programs and policies.**	1	Short term
Action 4	**Promote electrification of existing buildings.**	1	Short term
Action 5	**Increase awareness of energy efficiency in new and existing commercial buildings.**	2	Short term
Action 6	**Create a Fort Lauderdale sustainable tourism program.**	2	Medium term
STRATEGY: RENEWABLE ENERGY			
Action 7	**Promote renewable energy improvements through financial incentives and increased awareness.**	1	Ongoing
Action 8	**Support FPL efforts to decarbonize by 2045.**	1	Long term
Action 9	**Participate in FPL SolarTogether® program.**	1	Medium term

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NUMBER	ACTION	PRIORITY	IMPLEMENTATION TIMEFRAME
Action 10	Encourage, support, and expand private and community solar installations.	1	Medium term
Action 11	Encourage use of tankless/solar water heater program to support low-income housing and reduce the cost of electricity/gas to heat water.	2	Medium term

COMMUNITY TRANSPORTATION AND MOBILE SOURCES

STRATEGY: REDUCE VEHICLE MILES TRAVELED (VMTs)

NUMBER	ACTION	PRIORITY	IMPLEMENTATION TIMEFRAME
Action 12	Increase multimodal infrastructure by prioritizing pedestrian, bicycle, and transit infrastructure.	1	Short term
Action 13	Develop standards in the Unified Land Development Regulations and incentives to further encourage mixed-used development and urban infill.	1	Ongoing
Action 14	Partner with Broward County to enhance public transit options and increase regional transit system ridership.	1	Ongoing
Action 15	Partner with developers, agencies, and businesses to incentivize and encourage alternative/public transit use and increase commuter carpooling.	2	Ongoing
Action 16	Partner with Broward County to install idle sensors in traffic signals and synchronize traffic signals to reduce idling and wait time.	2	Medium term
Action 17	Establish car-free zones.	3	Medium term

STRATEGY: ELECTRIC VEHICLES

NUMBER	ACTION	PRIORITY	IMPLEMENTATION TIMEFRAME
Action 18	Introduce awareness campaigns and implementation incentives for citizens, businesses, and residents on EVs, EV infrastructure, and proper charging etiquette.	1	Short term
Action 19	Develop Citywide EV Charging Master Plan and review opportunities for strategic placement and elevated charging stations, as well as resilience plans such as backup power.	1	Short term
Action 20	Support the conversion of public transit to electric fleet in alignment with 2030 Broward County fleet electrification goals.	2	Medium term

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FORT LAUDERDALE NET ZERO PLAN

NUMBER	ACTION	PRIORITY	IMPLEMENTATION TIMEFRAME
AVIATION			
STRATEGY: SUSTAINABLE AVIATION			
Action 21	Advocate for the development and implementation of new, more efficient aircraft and engine technologies.	3	Medium term
COMMUNITY WASTE AND DIVERSION			
STRATEGY: WASTE REDUCTION AND DIVERSION			
Action 22	Create and operationalize a community-wide food rescue plan in collaboration with local nonprofits, supermarkets, and restaurants.	1	Long term
Action 23	Advocate at the state and federal level for policies to reduce the usage of single use plastics.	1	Short term
Action 24	Promote existing programs and implement new programs to enhance education and awareness around waste reduction and diversion.	2	Medium term
Action 25	Continue engaging with Broward County on a long-term vision and plan for a county-wide composting program.	2	Ongoing
Action 26	Address the reduction and management of construction and demolition waste.	2	Medium term
Action 27	Introduce innovative programs and technology for managing irregular waste streams.	3	Medium term
URBAN FOREST AND PARKS			
STRATEGY: WATER AND ENERGY CONSERVATION			
Action 28	Ensure trees and landscaping are designed for rainwater retention and include drought-resistant and low-water-needs vegetation.	1	Ongoing
Action 29	Continue to expand smart irrigation systems and consider piloting rainwater harvesting in parks for irrigation.	1	Ongoing

Building a Sustainable Fort Lauderdale
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NUMBER	ACTION	PRIORITY	IMPLEMENTATION TIMEFRAME
STRATEGY: TREE CANOPY ENHANCEMENT			
Action 30	**Implement tree planting and preservation initiatives from the Urban Forestry Master Plan (UFMP) that will advance the Comprehensive Plan goal of 33% tree canopy coverage by 2040.**	**1**	**Long term**
Action 31	**Advocate for increased percentage of greenspace in new urban developments.**	**1**	**Short term**

MUNICIPAL-FOCUSED STRATEGIES

NUMBER	ACTION	PRIORITY	IMPLEMENTATION TIMEFRAME
SUSTAINABILITY ADMINISTRATION			
STRATEGY: SUSTAINABILITY ADMINISTRATION			
Action 32	**Create working groups to champion, drive, and report progress on each sector.**	**1**	**Short term**
Action 33	**Identify and establish funding streams to support net zero efforts in City operations and Citywide.**	**1**	**Short term**
Action 34	**Publicly report on progress on the Net Zero Plan.**	**1**	**Ongoing**
Action 35	**Support green workforce development.**	**1**	**Ongoing**
WATER AND WASTEWATER			
STRATEGY: WATER AND WASTEWATER TREATMENT			
Action 36	**Prioritize energy efficiency and the integration of renewable energy at water and wastewater facilities.**	**2**	**Long term**
MUNICIPAL TRANSPORTATION AND MOBILE SOURCES			
STRATEGY: REDUCE VMT			
Action 37	**Continue to enhance vehicle utilization tracking.**	**1**	**Ongoing**
Action 38	**Incentivize public transit and alternative transportation (bike/walk) for employees.**	**2**	**Short term**
Action 39	**Continue to monitor and reduce municipal vehicle idling.**	**2**	**Ongoing**
Action 40	**Expand implementation of virtual/digital monitoring of parking enforcement.**	**2**	**Ongoing**
Action 41	**Encourage or allow remote work hours or flexible work hours for City employees.**	**3**	**Short term**

NUMBER	ACTION	PRIORITY	IMPLEMENTATION TIMEFRAME
STRATEGY: ELECTRIC VEHICLES			
Action 42	Develop a comprehensive fleet electrification and EV infrastructure policy and program.	1	Short term
Action 43	Develop policies to address at-home charging for take-home EVs, working with police, fire, and unions.	1	Short term
Action 44	Increase employee education about EVs.	1	Short term
Action 45	Monitor market availability of EVs across vehicle classes used by the City and identify opportunities to introduce EVs to more vehicle classes.	1	Short term
Action 46	Electrify City off-road equipment (mowers, backhoes, etc.).	1	Medium term
Action 47	Install L2 and direct-current fast charging electric vehicle charging stations (EVCS) throughout the City for municipal fleet use in City parking lots.	2	Medium term
MUNICIPAL BUILDINGS AND FACILITIES			
STRATEGY: ENERGY EFFICIENCY AND WATER CONSERVATION			
Action 48	Update energy reduction targets for existing municipal facilities.	1	Medium term
Action 49	Complete conversion of streetlights to LEDs, in partnership with FPL and FDOT.	1	Short term
Action 50	Require all new buildings to be built to zero net energy standards starting in 2030. Retrofit existing municipal buildings to be all-electric and net zero energy by 2040.	1	Ongoing
Action 51	Continue participation in the Better Building Challenge and pledge to the Better Climate Challenge.	2	Short term

NUMBER	ACTION	PRIORITY	IMPLEMENTATION TIMEFRAME
STRATEGY: RENEWABLE ENERGY			
Action 52	**Install renewable energy systems and backup batteries at new and existing City facilities to create resilient net zero buildings.**	**1**	**Ongoing**
Action 53	**Develop Citywide plan for renewable energy installations.**	**1**	**Ongoing**
Action 54	**Advocate for incorporation of renewable energy-related policies and programs in state and federal infrastructure funding programs.**	**1**	**Short term**
MUNICIPAL WASTE REDUCTION AND DIVERSION			
STRATEGY: MUNICIPAL WASTE REDUCTION AND DIVERSION			
Action 55	**Consider a zero-waste target for City operations.**	**2**	**Medium term**

Science-Based GHG Reduction Targets

Recognizing the need for action in reducing GHG emissions, Fort Lauderdale joined the ICLEI150 Race to Zero campaign in early 2022, taking its place with 13 other cities in the country and 52 cities across the globe to develop and make proactive, responsible step to battle climate change. ICLEI provided the City with technical support to set a 2030 interim science-based GHG emissions target.

The City aspires to meet the 2030 science-based target. However, it also acknowledges that achieving the goal is extremely unlikely in the five years left before 2030 even if the City implemented all the strategies and actions described in this Plan. Reaching that goal would require dramatic changes at the federal and international levels, which at present are unlikely to happen in the next five years. The City's participation in the Race to Zero campaign shows its commitment to recognize its role and responsibility to act with others to move toward net zero. The 2030 goal, although elusive, serves as a motivating force for Fort Lauderdale and other cities in the United States and around the globe to work to reach net zero.

The methodology for developing the Race to Zero goal and the resulting targets are detailed in Chapter 2.

The Projections

Fort Lauderdale has compiled GHG inventories for community and municipal emissions since 2010. The City used its 2019 GHG inventory, which evaluated emissions from the most significant GHGs, as the baseline to quantify GHG emissions reductions in the Net Zero Plan.

> ↗ **Future emissions projections were modeled under two scenarios: (1) a Business-as-Usual (BAU) scenario, and (2) a Legislative Adjusted (LA) scenario.**

Business as Usual (BAU) → DO NOTHING

Assumes constant energy practices but accounts for increased demand due to factors including growth in the citywide population, workforce, vehicle usage, and projected airport activity.

HOW FORT LAUDERDALE MODELS FUTURE EMISSIONS

Legislative-Adjusted (LA) → LEVERAGE THE ACTIONS OF OTHERS

Assumes emission reductions relative to the BAU scenario based on impacts from existing third-party commitments to decarbonize the grid and improve operational efficiency.

Includes projected impacts of Florida Power & Light's (FPL) Real Zero plan that commits to phasing out fossil fuels by 2045; the National Highway Fuel Efficiency Standards; and updates to the State of Florida Building Code regarding energy conservation.

PROJECTED REDUCTIONS IN GHG EMISSIONS

The strategies and actions introduced in this Plan lay the foundation for Fort Lauderdale to reach near net zero by 2050. Community GHG emissions are projected to be reduced by 70% in 2040 and 97% in 2050, while municipal GHG emissions are projected to be reduced by 69% (from the 2019 baseline) in 2040 and by 96% in 2050. Specific reductions by sector are provided in **Figure 14** for community emissions and **Figure 21** for municipal emissions.

The GHG emissions reductions detailed in this Plan rely on Florida Power and Light (FPL), the electrical utility operating in Fort Lauderdale, transitioning to low-carbon or carbon-free energy. FPL has committed to eliminating carbon emissions by 2045 through the expansion of renewable energy, such as solar and green hydrogen. The transition of grid electricity to low- or no-emissions renewable sources would contribute significantly to the reduction of emissions from purchased electricity in Fort Lauderdale.

Caveat: A net zero goal is ambitious; Fort Lauderdale does not act in a vacuum; a 15-year horizon is short; projections are just projections; and reality is full of the unexpected. As noted above, the Plan is projected to bring Fort Lauderdale close to net zero. Fort Lauderdale will monitor this Plan throughout its life, receive feedback, and seek additional strategies to reduce emissions and improve progress toward net zero, as needed.

THE PATHWAYS

Community Pathway to Net Zero

Figure 1 illustrates the community pathway to net zero. Using the forecasted emissions from the BAU scenario as a starting point, the community pathway leverages the projected reduction in GHG emissions resulting from the external influences captured in the LA scenario (the area between the gray BAU line and the yellow dashed LA scenario line). These reductions, coupled with the GHG emissions impacts from the strategies and actions in this Plan (the light green wedge between the yellow dashed LA scenario line and the white dotted line representing the net zero goal) achieve a 97% reduction in GHG emissions by 2050. Remaining GHG emissions are shown by the solid green wedge.

FIGURE 1.   PROJECTED COMMUNITY GHG EMISSIONS REDUCTIONS
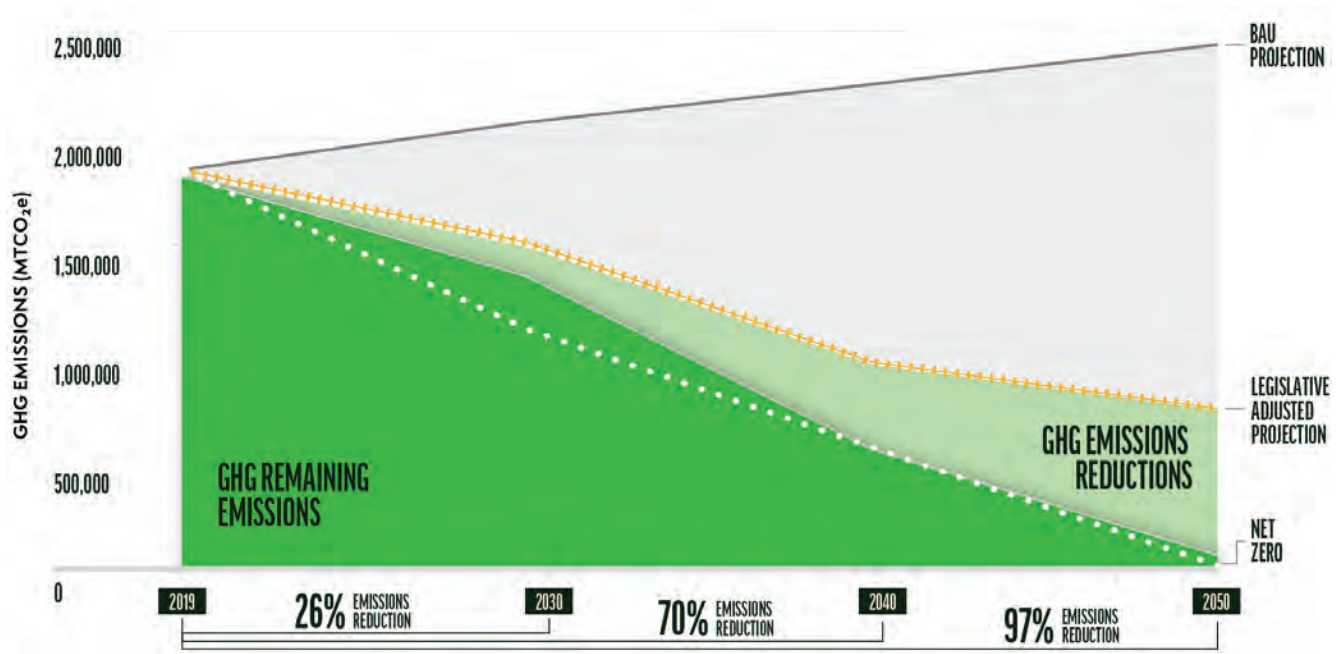
Municipal Pathway to Net Zero

Figure 2 illustrates the municipal pathway to net zero. Using the forecasted emissions from the BAU scenario as a starting point, future municipal GHG emissions are expected to decrease due to the external influences captured in the LA scenario (the area between the gray BAU line and the yellow LA scenario dashed line). These reductions, in concert with the GHG emissions reductions from the strategies and actions in this Plan (the light green wedge between the yellow LA scenario dashed line and the white dotted line representing the net zero goal) achieve a 96% reduction in municipal GHG emissions by 2050. Remaining GHG emissions at each interim year are shown by the solid green wedge.

FIGURE 2.   PROJECTED MUNICIPAL GHG EMISSIONS REDUCTIONS
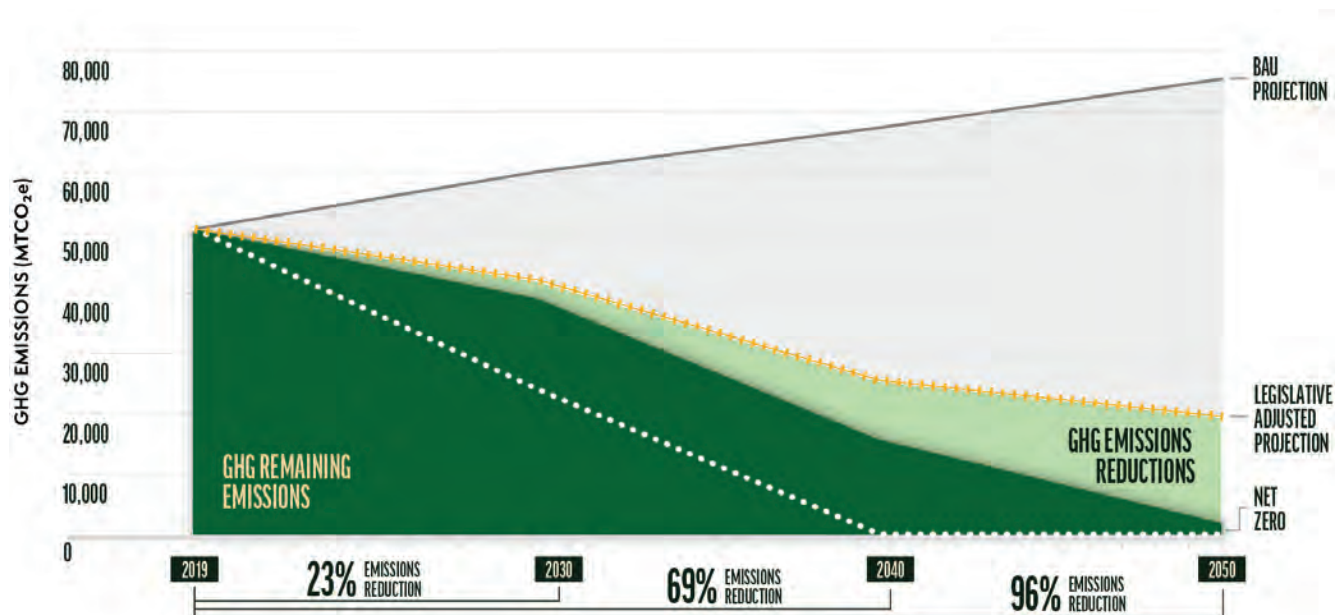
What Does Net Zero Look Like for Fort Lauderdale?

Fort Lauderdale's Net Zero Plan is a cornerstone of the City's sustainability efforts and is designed to align with the City's broader strategic priorities, ensuring a cohesive approach to development and sustainability. Investing today delivers immediate benefits to the City while securing a sustainable future for generations to come. By enacting the Plan's strategies, Fort Lauderdale will see marked advances in the City's long-term environmental health, climate impact mitigation, and equity, ensuring that the benefits of a sustainable future are shared community-wide.

NET ZERO MEANS...

↗ **Accessible and walkable streets and bicycle paths surrounded by tree canopy, vegetation, parks, and gardens.**

↗ **A robust public transit system provides low-cost, regular, and reliable service that is accessible and convenient.**

↗ **Energy efficiency that not only reduces emissions but also puts money back into people's pockets.**

↗ **Healthy communities from investment in renewable energy and EVs that improves local air quality, improving the health of all.**

↗ **A cleaner community through expanded programs on waste education, increased composting and recycling practices, and incentives that encourage residents and businesses to minimize waste.**

↗ **Opportunities for more local green jobs from increased energy efficiency improvements and solar installations.**

↗ **A resilient green city that attracts tourists due to its extensive eco-friendly activities, green businesses, and beautiful natural habitats.**

While climate resilience in Fort Lauderdale has long been a Citywide priority, this Plan is focused on proactive, targeted strategies and actions to reduce GHG emissions that are at the root of climate change. ***To avoid the worst impacts of climate change, the City must be part of and demonstrate a commitment to regional, state, national, and global efforts to reduce GHG emissions.***

The Net Zero Plan, the first of its scale and scope to emerge in the municipality, represents the starting point for a pathway toward net zero and sets the bar for other cities and counties to emulate. However, the true impact of the Plan will depend on the City's leadership in effective implementation of its actions and strategies that includes:

1. Creating a partnership with key stakeholders committed to net zero.

2. Ongoing engagement with all stakeholders and community members.

3. Identifying champions to lead, drive, and monitor progress.

This is Fort Lauderdale's
TIME TO LEAD.

01

BACKGROUND

Climate change poses a significant threat to the Fort Lauderdale community and global society. The escalating impacts of the climate crisis have led to a worldwide agreement, about the need for immediate collective action to prevent irreversible damage.

Fort Lauderdale is facing more frequent and severe climate events that come with increased costs for disaster response, infrastructure improvements, and potential loss of property and life. The City's economy, heavily reliant on tourism and real estate, could suffer significant setbacks without global action to address the root cause of climate change, greenhouse gas (GHG) emissions. Supporting a net zero future is essential for the City's resilience and sustainability and is a cost-effective strategy to reduce long-term financial burdens. By reducing GHG emissions, the City can unlock opportunities for innovation, attract green investments, and foster economic prosperity, ensuring a safer and more prosperous future for its residents.

What is the Goal?

The City of Fort Lauderdale is committed to achieving net zero in municipal operations by 2040 and in community (Citywide) emissions by 2050.

What Guides this Plan?

While climate resilience in Fort Lauderdale has long been a Citywide priority, the main driver of this Net Zero Plan (Plan) is the reduction of GHG emissions, the root cause of the challenges from climate impacts facing the City. Fort Lauderdale, as one of many players, must be part of, and demonstrate its commitment to, the global effort to reduce GHG emissions.

This Plan represents the starting point for the pathway toward net zero. Recognizing that this path requires a collaborative effort, the Plan is focused on strategies and actions that the community and the municipality need to take in the sectors of energy, transportation and mobility, solid waste, urban forests and parks, aviation, and water and wastewater. In addition, a suite of actions aimed at municipal administration enables tracking and reporting,

enhancing the transparency of the proposed actions outlined in this Plan, while also facilitating green workforce development and advancing GHG mitigation goals.

Within these sectors, the plan provides 15 strategies—8 community strategies and 7 municipal strategies to reduce emissions. However, the true impact of the Plan depends on the effective implementation of the 55 actions under the umbrella of these 15 strategies. These 55 actions are projected to reduce community and municipal GHG emissions by 97% and 96%, respectively, by 2050.

Strategies and actions put forth in this Plan are prioritized by co-benefits such as cost savings, economic impact, reduced inequality, climate risk mitigation, reduced traffic congestion,

FORT LAUDERDALE NET ZERO PLAN

NET ZERO

Building a Sustainable Fort Lauderdale

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improved public health and safety, and alignment with other City strategic priorities. Further engagement with key stakeholders and community members is critical to achieving the Plan's ambitions. Additionally, identifying champions to lead, drive, and monitor progress is essential to achieving GHG emissions reductions. They City will publish updates every three years to ensure transparency in efforts and maintain focus on the initiatives in this Plan.
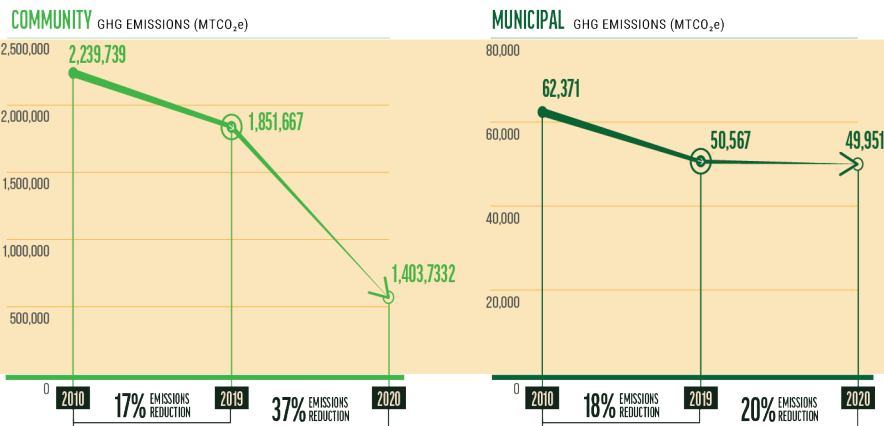
Fort Lauderdale's Net Zero Plan is a cornerstone of the City's sustainability efforts and is designed to align with the City's broader strategic priorities, ensuring a cohesive approach to development and sustainability. By reducing GHG emissions, the Plan supports long-term environmental health, resilience, and equity, ensuring that the benefits of a sustainable future are shared across the entire community. The Plan emphasizes economic savings through reduced energy costs. By fostering a green economy, the Plan helps stimulate local economic growth and attract businesses that value sustainability. During the drafting process for the Plan, the City prioritized community engagement through virtual and in-person public meetings, progress updates, and a publicly available website, ensuring that residents are informed, involved, and supportive of climate actions. This approach aligns with the City's priority of fostering strong community relationships and civic participation.

Efforts to Date to Reduce GHG Emissions in and Around Fort Lauderdale

↗ **Fort Lauderdale has been proactively addressing climate change and GHG emissions reductions for over a decade.**

COMMUNITY GHG EMISSIONS (MTCO₂e)

2,239,739
1,851,667
1,403,7332

| 2010 | 17% EMISSIONS REDUCTION | 2019 | 37% EMISSIONS REDUCTION | 2020 |

MUNICIPAL GHG EMISSIONS (MTCO₂e)

62,371
50,567
49,951

| 2010 | 18% EMISSIONS REDUCTION | 2019 | 20% EMISSIONS REDUCTION | 2020 |

For the net zero goal in this Plan, the City established the 2019 GHG Inventory levels as a baseline against which to measure progress. The 2020 GHG Inventory revealed a marked decrease in GHG emissions since the 2019 report, with a significant portion of this reduction likely due to factors stemming from the impacts of the COVID-19 pandemic, which reduced vehicle travel and public building use. As a result, all progress toward net zero is measured against 2019 baseline emissions.

Fort Lauderdale participates in multiple sustainability organizations (the Southeast Florida Regional Climate Compact, Florida Sustainability Directors Network, Southeast Sustainability Directors Network, Urban Sustainability Directors Network, and ICLEI) and has incorporated best practices in climate action from these organizations to effectively reduce GHG emissions.

The City has begun to transition its vehicle fleet to low-emission and electric vehicles (EVs) to lower emissions from municipal operations and set an example for residents and businesses to follow. Since 2008, the City has implemented a Fleet Vehicle and Equipment Idling Policy to eliminate unnecessary engine idling of City-owned vehicles and equipment by employees. The City also set a goal to reduce fuel consumption for City vehicles by 20% below 2015 levels by 2025 while transitioning to low-emission and EVs.

2011

Achieving a 20% reduction in GHG emissions by 2020

The Sustainability Action Plan set the City's first GHG reduction goals.

Set ambitious goals to reduce GHG emissions by 80% below 2010 levels by 2050

2020
Adopted Advance Fort Lauderdale 2040 Comprehensive Plan.

Adopted for both government operations by 2040 and the broader community by 2050

2021
City Commission adopted net zero GHG emissions goals.

2022
Fort Lauderdale joined the ICLEI150 Race to Zero campaign.

NET ZERO

2050

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Additionally, Fort Lauderdale has implemented energy efficiency measures in public buildings, including retrofitting lighting systems; upgrading heating, ventilation, and air conditioning (HVAC) systems; and installing programmable thermostats, reducing energy consumption and operational costs. The City's partnership with the Broward Solar Co-op further exemplifies its commitment to energy efficiency and the adoption of renewable energy. The Co-op, coordinated by Solar United Neighbors (SUN), empowers residents to install rooftop solar systems by offering education, advocacy, and the opportunity to leverage group purchasing power for competitive pricing. By supporting this initiative, the City helps residents transition to clean energy, reduce their utility bills, and contribute to the City's net zero goal. In addition, the City has also committed its core facilities to the Better Buildings Challenge, aiming to reduce portfolio-wide source energy use intensity by 20% by 2020. By 2024, Fort Lauderdale surpassed this target, achieving a 31% energy savings compared to its 2010 baseline. The City seeks opportunities to install renewable energy sources, with two solar panel installations on municipal buildings planned for 2025 to reduce reliance on fossil fuels and support its net zero goals.

The City has made substantial investments in stormwater infrastructure solutions, incorporating green solutions, such as a stormwater preserve and bioswales to help manage stormwater runoff, mitigate flooding, improve water quality, and reduce the urban heat island effect. The City has also demonstrated a strong commitment to water conservation through the Conservation Pays Program. This initiative, in partnership with the

Broward Water Partnership, has enabled residents to install an estimated 2,444 high-efficiency toilets, saving over 95 million gallons of water. Alongside rebates for toilets, residents and businesses can access incentives for free water-efficient showerheads, faucet aerators, and commercial pre-rinse spray valve, which helps save water, save money, and ultimately, protect the environment.

The City of Fort Lauderdale is committed to enhancing its urban forest, with a goal of achieving a 33% tree canopy by 2040 through the Fast Forward Comprehensive Plan. The Urban Forestry Program supports this effort, building on the City's recognition as a certified Tree City USA for over 45 years, a Tree City of the World for 1 year, a National Wildlife Federation-Certified Community Wildlife Habitat, and a participant in the Mayor's Monarch Pledge. The City has also recently revised its Landscaping and Tree Preservation ordinance to increase protections for and expand its tree population while promoting sustainable development.

The City continues to enhance its waste management practices, including promoting the TAKE5 recycling program, offering multiple opportunities to safely dispose of household hazardous waste, reducing landfill e-waste through its curbside electronics recycling program, and collaborating with the Broward Solid Waste Authority (SWA).

Fort Lauderdale has adopted smart growth principles to create walkable, bicycle-friendly neighborhoods, reducing the need for automobile travel and lowering transportation-related emissions. The City has also dedicated funding to expand installations of electric

vehicle charging stations (EVCS) for use by the general public and for the City's fleet, providing public access to cleaner transportation options.

Public engagement and education are key components of the City's strategy. Fort Lauderdale actively engages with residents through public workshops, educational campaigns, and community events to raise awareness about climate action and encourage sustainable practices. The City regularly reports its GHG emissions through CDP, ensuring transparency and accountability. This practice allows Fort Lauderdale to track progress, identify areas for improvement, and demonstrate its commitment to climate action.

02

GREENHOUSE GAS EMISSIONS INVENTORY

The City of Fort Lauderdale has compiled GHG inventories for community and municipal emissions since 2010 using widely accepted methods for local governments.

GHG emissions are reported in metric tons of carbon dioxide equivalent (MTCO$_2$e), a standardized metric that captures the varying impacts of GHGs like carbon dioxide (CO$_2$), methane (CH$_4$), and nitrous oxide (N$_2$O), and fluorinated gases, such as hydrofluorocarbons on climate change. The inventories assessed for this Net Zero Plan are the 2019 and 2020 community and municipal inventories; the inventories categorize emissions into three scopes, based on the source of the emissions. Fort Lauderdale used the U.S. Community Protocol developed by ICLEI - Local Governments for Sustainability to calculate its 2019 baseline inventory. This protocol ensures that GHG contributions are assessed consistently and transparently.

SCOPE 1	SCOPE 2	SCOPE 3
Emissions are those that come from sources owned or controlled by the City or community directly. These come from fuels burned on-site, such as natural gas, propane, or diesel that is used for energy in buildings or as mobile fuels in vehicles.	Emissions are indirect emissions from purchased utilities where emissions occur as a result of City operations or community activities, but the emissions are not under direct control of the entity. This includes electricity purchased from a utility provider that is used to power buildings.	Emissions are all other indirect emissions that occur in the value chain of the City and community, such as waste and employee commute.

EMISSION CATEGORIES INCLUDED IN THE COMMUNITY INVENTORY

↗ Transportation and Mobile Sources *(including Aviation)* ↗ Water and Wastewater ↗ Commercial Energy ↗ Industrial Energy ↗ Residential Energy ↗ Process and Fugitive Emissions	↗ Water and Wastewater ↗ Commercial Energy ↗ Industrial Energy ↗ Residential Energy	↗ Solid Waste

EMISSIONS CATEGORIES INCLUDED IN THE MUNICIPAL INVENTORY

↗ Buildings and Facilities ↗ Vehicle Fleet ↗ Water and Wastewater Treatment Facilities ↗ Process and Fugitive Emissions	↗ Buildings and Facilities ↗ Streetlights and Traffic Signals ↗ Water and Wastewater Treatment Facilities	↗ Employee Commute ↗ Solid Waste Facilities ↗ Process and Fugitive Emissions

Figure 3 and **Figure 4** show the 2019 and 2020 community-wide Fort Lauderdale GHG emissions inventories. Figure 3 provides total emissions in metric tons of CO_2 equivalent ($MTCO_2e$) by sector; Figure 4 provides total emissions in $MTCO_2e$ by scope.

The largest contributors to community GHG emissions in 2019 and 2020 were transportation and mobile sources, followed by energy use in buildings. Emissions from scope 1 and scope 2 were similar, with scope 2 having slightly higher emissions in both 2019 and 2020.

FIGURE 3.   COMMUNITY GHG EMISSIONS FROM THE 2019 AND 2020 INVENTORIES BY SECTOR
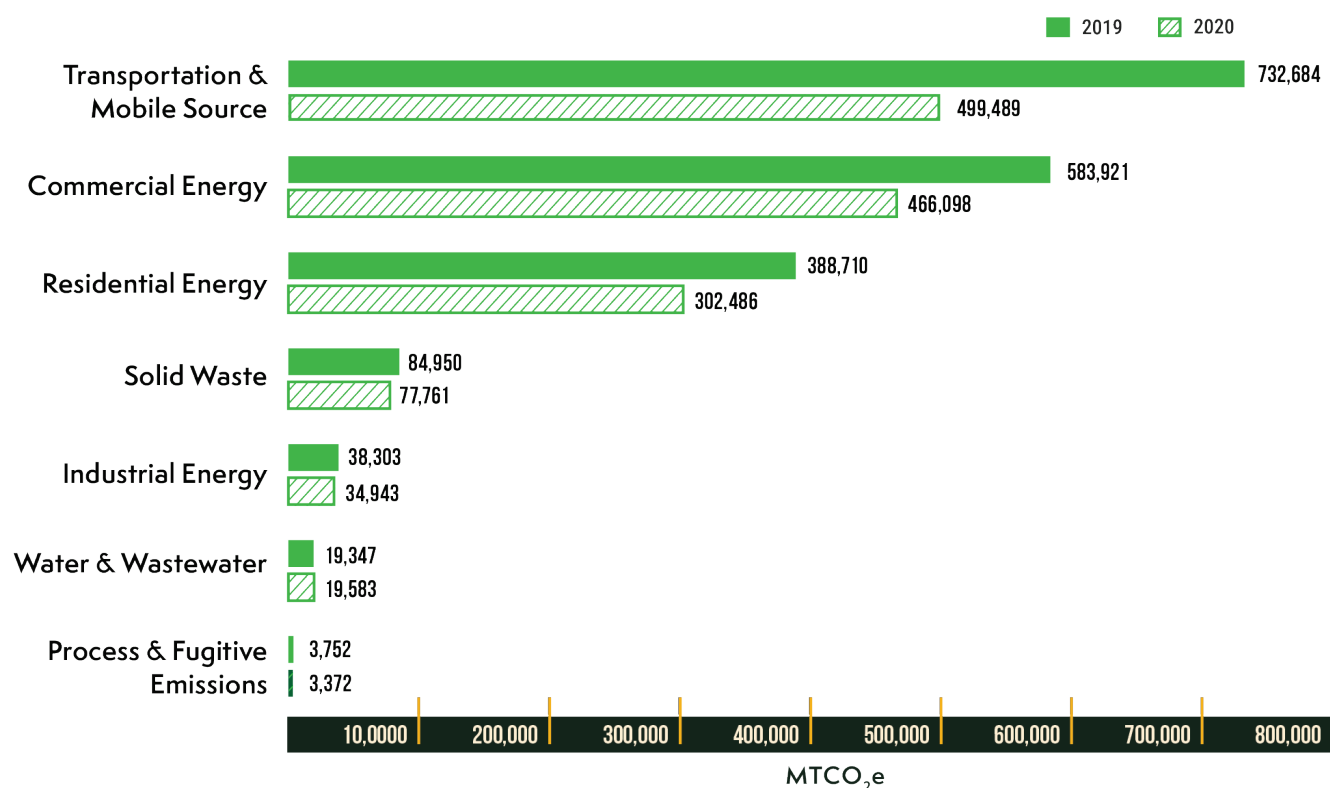
FIGURE 4.   COMMUNITY GHG EMISSIONS FROM THE 2019 AND 2020 INVENTORIES BY SCOPE
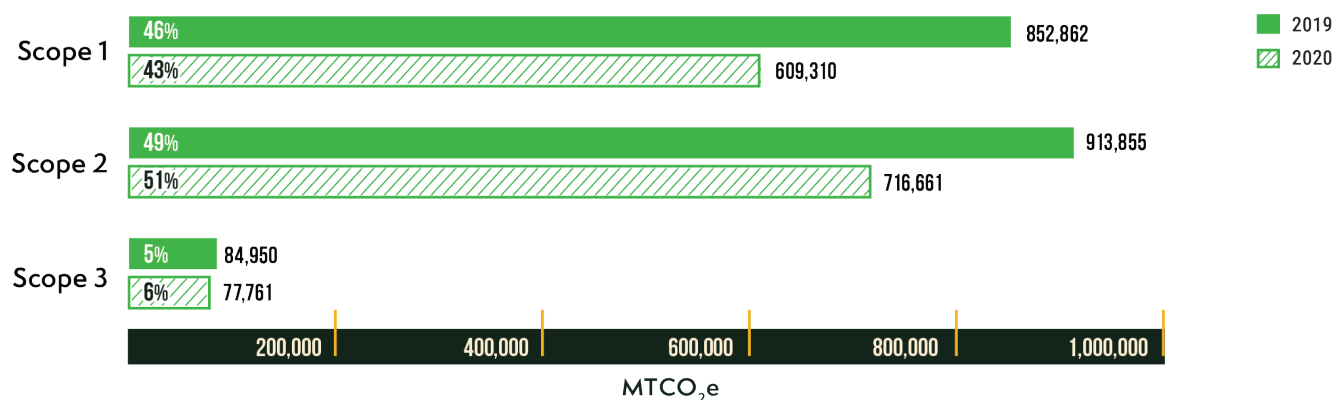
Figure 5 and **Figure 6** show the 2019 and 2020 municipal Fort Lauderdale GHG emissions inventories. Figure 5 provides total emissions in metric tons of CO_2 equivalent by sector; Figure 6 provides total emissions in metric tons of CO_2 equivalent by scope.

The largest contributor to municipal GHG emissions in 2019 and 2020 was water and wastewater treatment, followed by fleet vehicles and energy use in buildings. Emissions from scope 2 were significantly greater than scope 1 and scope 3 for municipal emissions.

FIGURE 5.   MUNICIPAL GHG EMISSIONS FROM THE 2019 AND 2020 INVENTORIES BY SECTOR
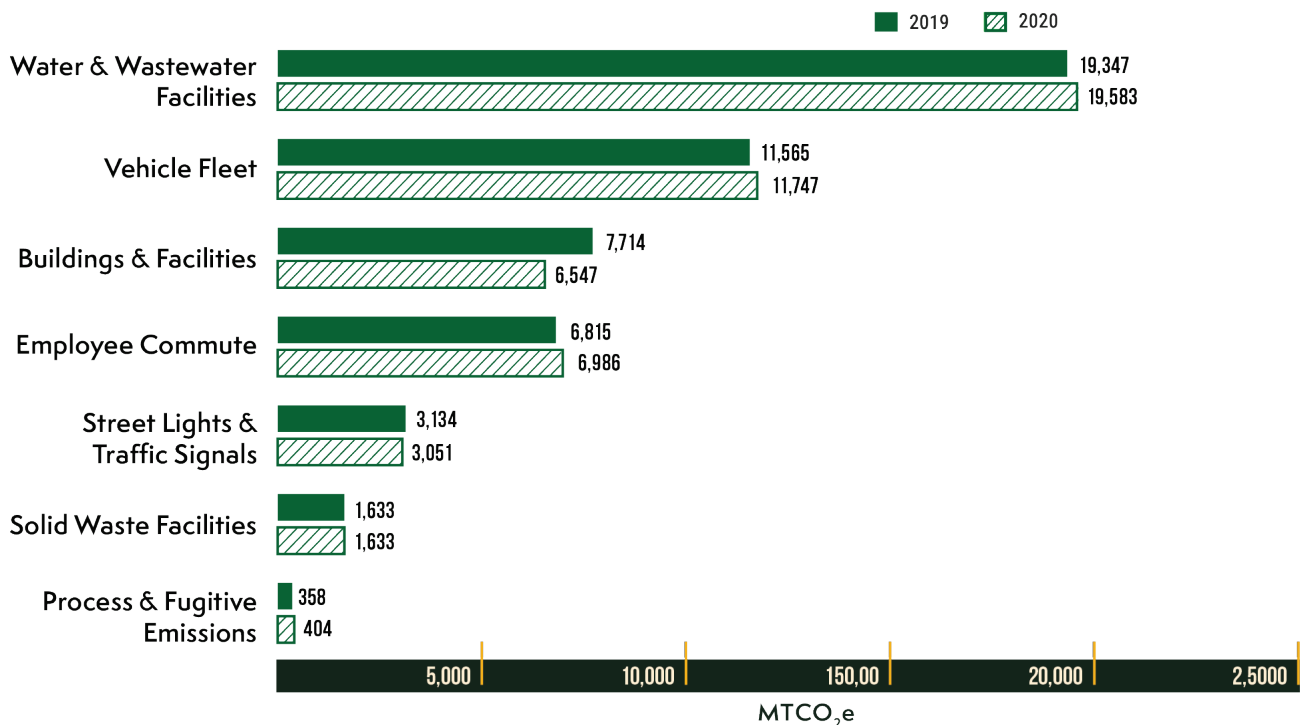
FIGURE 6.   MUNICIPAL GHG EMISSIONS FROM THE 2019 AND 2020 INVENTORIES BY SCOPE
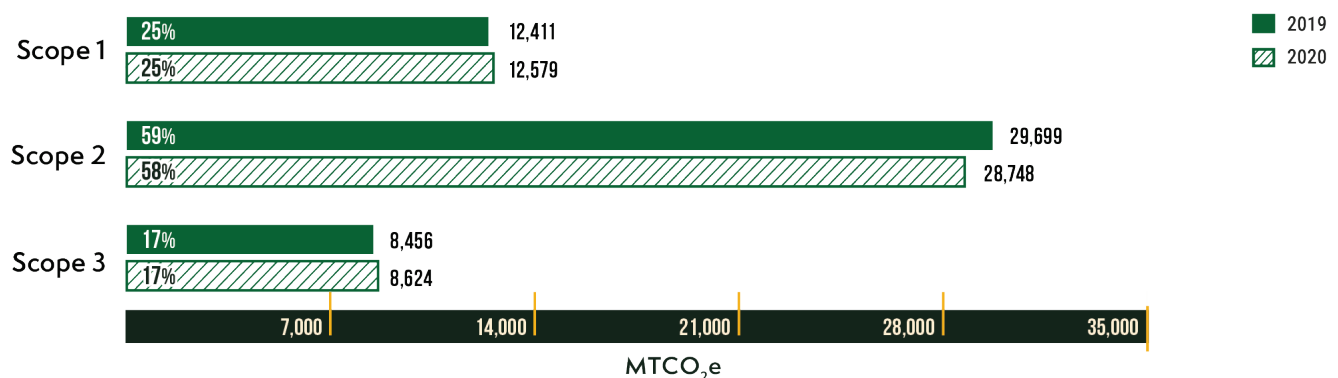
Both community and municipal GHG emissions saw a slight decrease in 2020, likely due to the COVID-19 pandemic. **As noted previously, this Plan considers the 2019 emissions baseline when assessing prioritization of actions, GHG impact, and quantified GHG emissions reduction potential.**

Science-Based GHG Reduction Targets

Fort Lauderdale joined the ICLEI150 Race to Zero in early 2022. This initiative provided Fort Lauderdale with technical support to set a 2030 interim science-based emission reduction target. ICLEI's methodology calculates the City's "fair share" of the global GHG reduction of 50% by 2030, as recommended by the Intergovernmental Panel on Climate Change (IPCC). This target is set using the 2019 community GHG baseline, population projections from the Bureau of Economic and Business Research, and the Human Development Index, and applies a calculation methodology from the World Wildlife Fund's One Planet City Challenge. This methodology adjusts the IPCC 50% global reduction goal based on the community's Human Development Index to produce a per-capita carbon emissions target. The methodology then multiplies that per-capita target by the projected future population to produce an absolute emissions reduction target. These targets are shown in **Figure 7**.

FIGURE 7.   2030 COMMUNITY PROJECTED EMISSIONS AND 2030 SCIENCE-BASED TARGETS FOR FORT LAUDERDALE COMPARED TO THE 2019 BASELINE
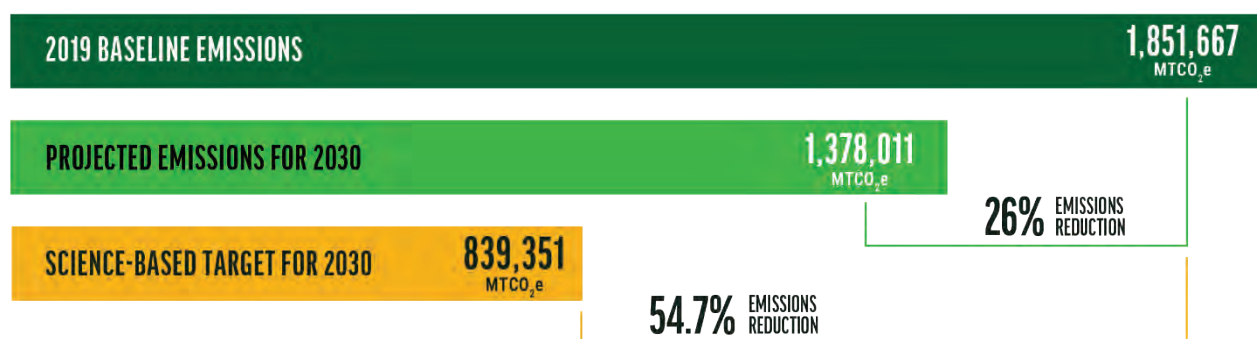
Figure 7 shows that the 2030 science-based target reduction is 54.7% below 2019 baseline emissions. This Plan's 2030 projected emissions of a 26% reduction below the 2019 baseline is less than the science-based target reduction. Projected emissions are described in *Emissions Forecasting* section that follows. Although it is unlikely that the City will reach its 2030 science-based targets, the 2050 projected emissions indicate that the City will likely meet or closely approach its goal of net zero by 2050.

The City aspires to meet the 2030 science-based target. However, it also acknowledges that achieving the goal is unlikely in the five years left before 2020 even if the City implemented all the strategies and actions described in this plan. Reaching the 2030 goal would require dramatic changes at the federal and international levels, which at present are unlikely to happen in the next five years. The City's Race to Zero shows its commitment to recognize its role and responsibility to act with other to move toward net zero. The 2030 goal, also elusive, serves as a motivating force for Fort Lauderdale and other cities in the United States and around the globe to work to reach net zero.

Fort Lauderdale Emissions Forecasting

Emissions trend projections for Fort Lauderdale are based on a business-as-usual (BAU) scenario, where baseline energy usage rates and emissions remain constant from 2019 to 2050. However, total energy usage continues to increase due to projected growth in the Citywide population, workforce, vehicle usage, and projected airport activity. When combined, this scenario leads to substantial increases in GHG emissions over time.

A second scenario, the legislative-adjusted (LA) scenario, provides emission calculations that adjust the BAU scenario by incorporating existing pledges and commitments for grid decarbonization and increased operational efficiency measures formally made by the state and federal governments and other regional organizations. The reductions seen in the LA scenario are primarily driven by the Florida Power & Light's (FPL) Real Zero Plan, which commits to eliminating fossil fuels from its portfolio by 2045. The LA scenario also accounts for National Highway Fuel Efficiency Standards and updates to the State of Florida Building Code on energy conservation.

COMMUNITY EMISSIONS FORECAST

As shown in **Figure 8**, projections indicate that under the BAU scenario, emissions will surpass the 2019 base year levels by 12% by 2030. By 2050, a 32% increase in emissions over the 2019 base year is anticipated, with population growth as the primary driver.

FIGURE 8.   COMMUNITY GHG EMISSIONS UNDER THE BUSINESS-AS-USUAL (BAU) SCENARIO
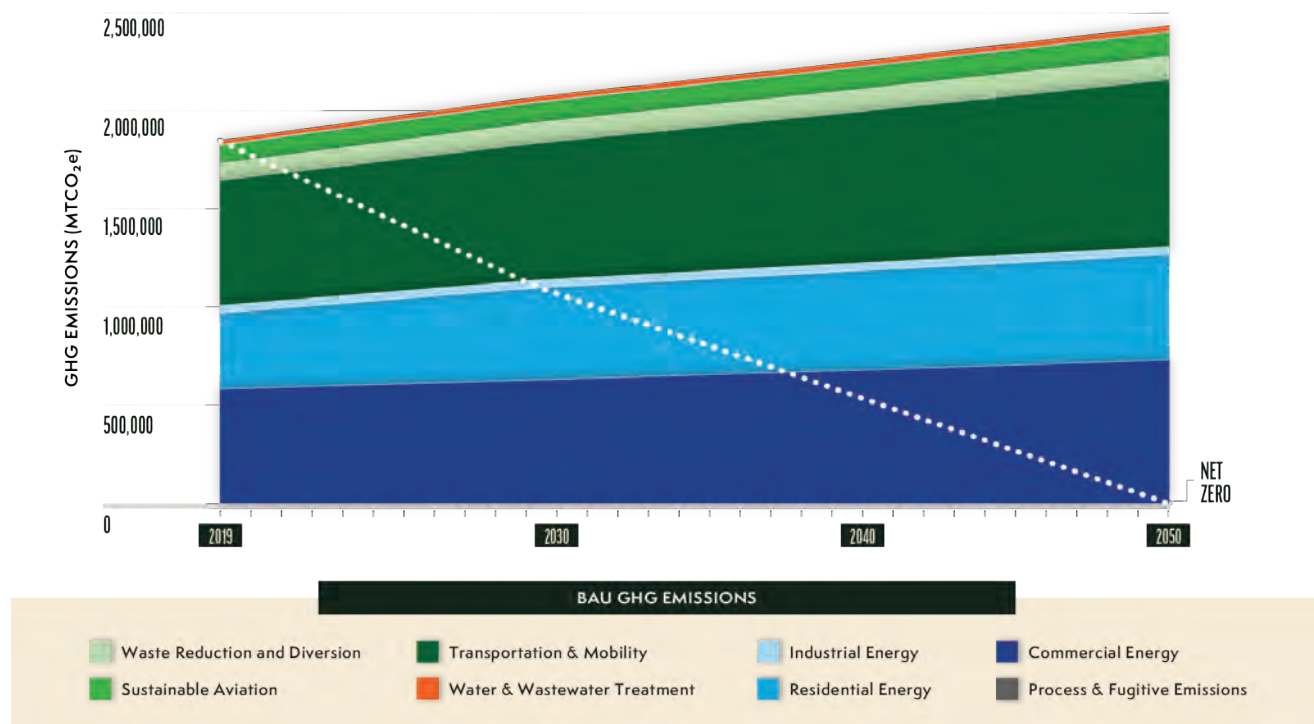
Under the LA scenario (**Figure 9**), community GHG emissions will decrease to 60% of the 2019 baseline by 2050. The reductions from the LA scenario by themselves will not meet the net zero goal (as illustrated by the white dotted line in Figure 8).

Appendix A, *Methodology*, provides more information on how these models were calculated.

FIGURE 9.   COMMUNITY GHG EMISSIONS WITH REDUCTIONS UNDER THE LEGISLATIVE-ADJUSTED (LA) SCENARIO
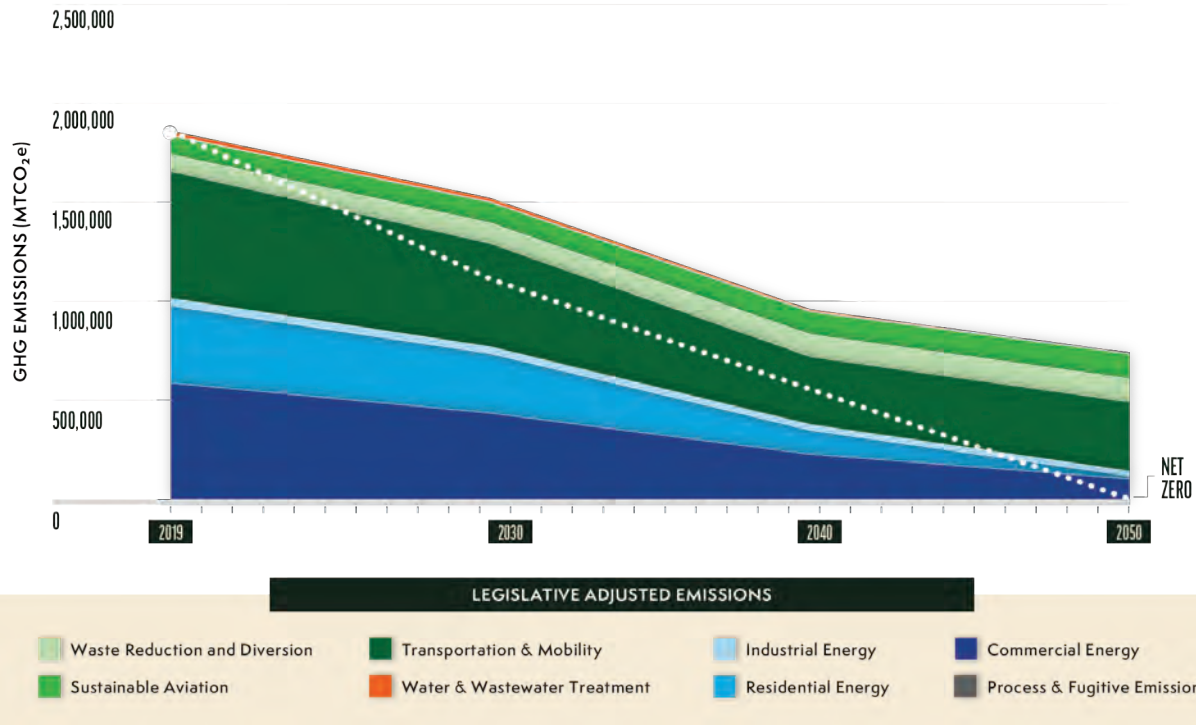
MUNICIPAL EMISSIONS FORECAST

Projections for the BAU scenario suggest that by 2030, municipal emissions will exceed the 2019 base year levels and increase by 47% by 2050 (**Figure 10**). The largest emissions sectors for government operations are water and wastewater treatment, followed by the municipal fleet. The primary driver of future emissions increases is population growth. The City's population is projected to rise from 182,937 in 2019 to 255,325 by 2050. This 40% growth in population means a corresponding increase in demand for municipal services.

FIGURE 10.   MUNICIPAL GHG EMISSIONS FORECAST WITH THE BUSINESS-AS-USUAL (BAU) SCENARIO
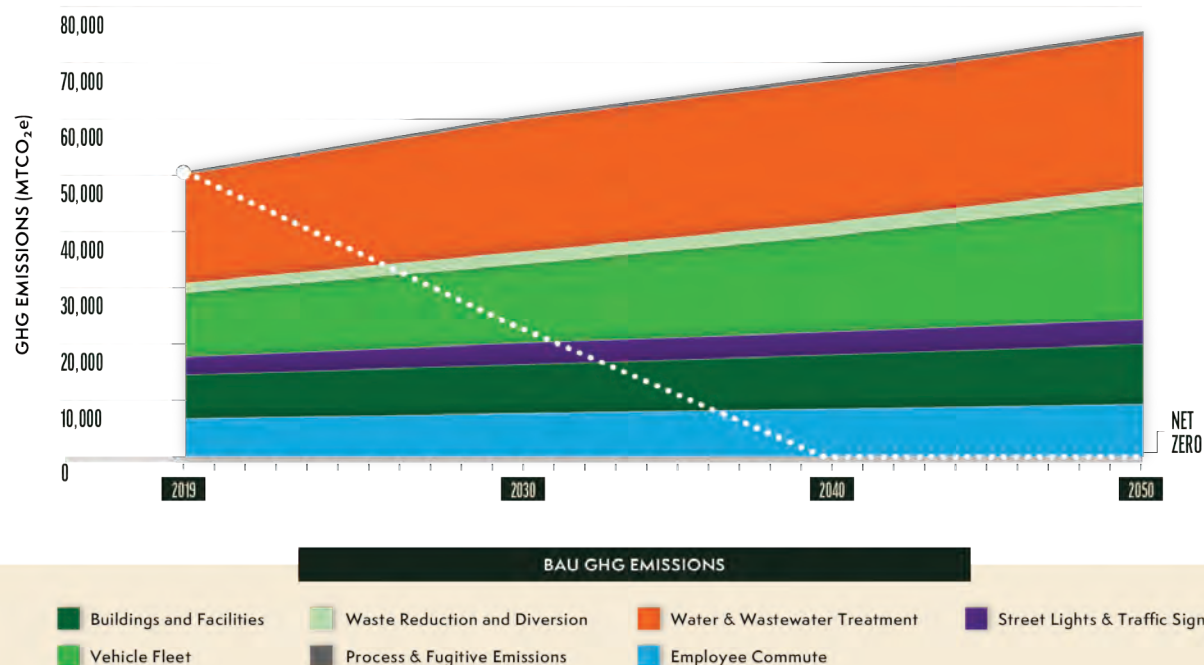
Under the LA scenario (**Figure 11**), municipal GHG emissions are projected to decrease by 50% in 2040 and 61% by 2050 but will not meet the municipal 2040 net zero goal.

FIGURE 11.   FORT LAUDERDALE MUNICIPAL GHG EMISSIONS FORECAST WITH LA SCENARIO REDUCTIONS
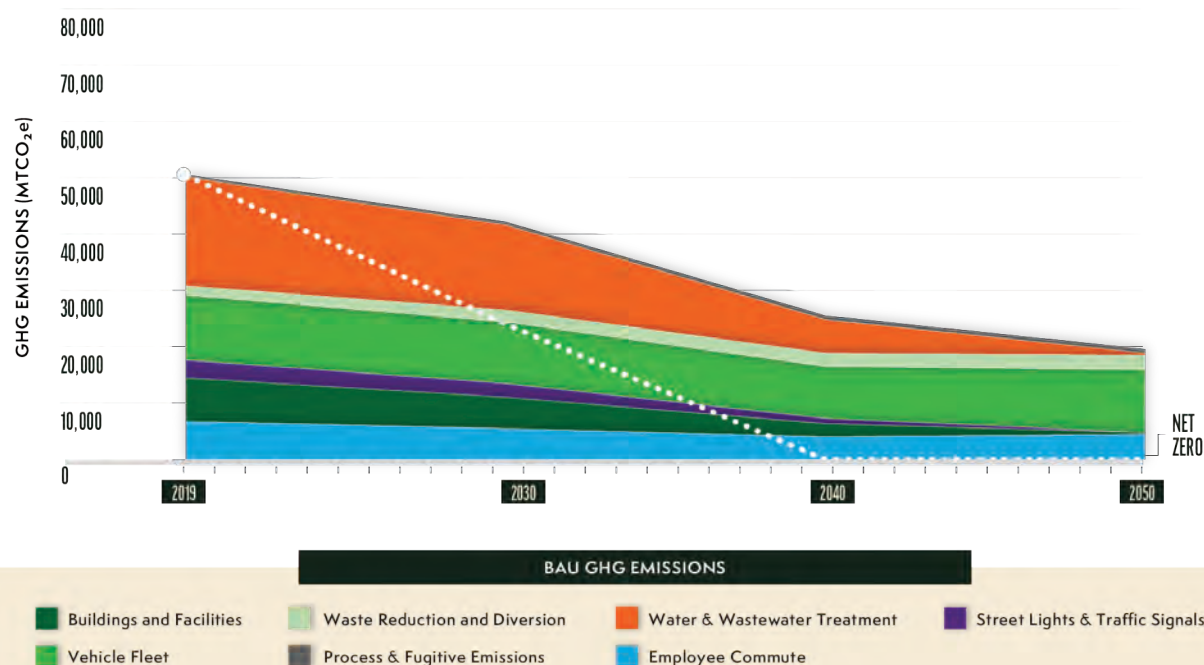
03

ROADMAP TO NET ZERO

This section of the Plan describes 15 strategies (8 community-focused and 7 municipal-focused), with 55 associated actions required for Fort Lauderdale to make progress toward net zero. Strategies are groupings of actions to address specific emissions categories as delineated in the GHG inventories. Actions are more specific initiatives to achieve GHG emissions reductions.

This chapter describes each strategy, providing an overview of potential GHG emissions reductions highlighted for that strategy, as well as a breakdown of the projected GHG emissions changes for 2030, 2040, and 2050 that can be achieved by implementing this Plan's strategies and associated actions. Appendix A, *Methodology*, provides more information on how the strategies were developed.

Actions proposed under each strategy are assigned priority levels (1, 2, or 3) based on a high-level qualitative analysis of multiple factors, including: timeframe, GHG impact, initial cost to the City, life-cycle cost to the City, return on investment (ROI) for the City, level of effort (LOE) for the City, social equity impacts for the community, alignment with existing strategic priorities, and co-benefits. Community strategies also include a qualitative estimate for additional costs borne by the community. While some items are considered lower priority than others, all actions are important and necessary to reach net zero.

Each action listed in the Plan includes information regarding implementation efforts, funding opportunities, key performance indicators (KPIs), and responsible parties. This information will help guide next steps in implementing each of the actions detailed in this Plan.

Quantifying Interim Emissions Reductions

As noted previously, to quantify GHG emissions impacts for the Plan, the City's 2019 GHG Inventory was used as the baseline. Future emission projections were modeled from that 2019 baseline under (1) a BAU scenario, which assumes constant energy usage per capita but accounts for increased demand from growth in the Citywide population, workforce, vehicle usage, and projected airport activity; and (2) an LA scenario that incorporates existing pledges and commitments for grid decarbonization and increased operational efficiency measures formally made for the state and federal governments and other regional organizations. To determine future remaining GHG emissions, the expected reductions from the LA scenario and the implementation of the strategies and actions included in this Plan are subtracted from the BAU scenario.

Each action within the plan is categorized under the strategy it supports, and each strategy is mapped to a specific sector of the emissions inventory. Although GHG emissions are analyzed for the community and the municipality, it is important to note that reductions in GHG emissions from municipal operations will also reduce community GHG emissions because municipal emissions are included in the community GHG inventory. Additionally, strategies for water and wastewater treatment and other municipal sources are listed only under the municipal category but will impact both municipal and community GHG emissions.

Emissions reductions were quantified by modeling the impact of reducing underlying activity levels (e.g., energy consumption, waste generation), lowering blended GHG emissions rates associated with those activities (e.g., electrification, fuel switching), or adjusting both simultaneously. This combined approach provided the flexibility needed to quantify the emissions reduction potential across diverse strategies, effectively linking reductions in activity levels or emissions intensity to measurable decreases in energy use, waste, VMT, and emissions factors over time.

GHG Emissions Reduction Potential

Figure 12 details the high-level interim GHG emissions reduction projections for the community and municipality to make progress toward the 2050 and 2040 net zero goals, respectively. Reductions in each interval represent the percent change from 2019 baseline GHG emissions. These reductions are met by incorporating the GHG emissions reductions modeled in the LA scenario for that period AND the strategies and actions proposed in this Plan.

The figures also illustrate the projected remaining GHG emissions after accounting for the forecasted reductions achieved in the LA scenario and the implementation of the strategies and actions in this Plan. These totals are calculated by subtracting the combined GHG emissions reductions attributed to the LA scenario measures and the Plan strategies and actions from the GHG emissions forecasted in the BAU scenario in each interim year.

FIGURE 12.   PROJECTED AND REMAINING GHG EMISSIONS CHANGES FROM 2019 BASELINE GHG EMISSIONS

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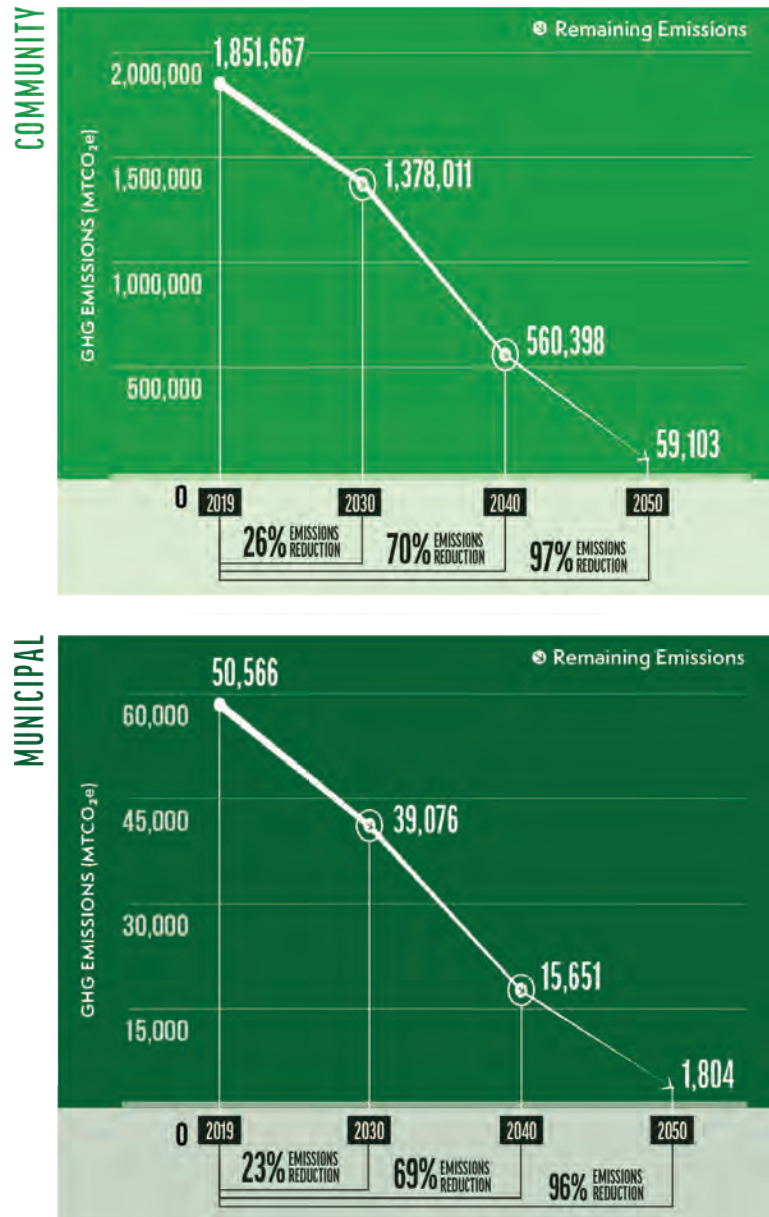
Community-Focused Strategies

Figure 13 uses the forecasted emissions from the BAU scenario (shown by the gray line) as a starting point to the community pathway to net zero (the white dotted line) to illustrates the total projected reduction in GHG emissions resulting from the external influences captured in the LA scenario (shown by light gray area between the gray BAU line and the yellow dashed line) and GHG emissions impacts from strategies and actions in this Plan (shown by the space between the yellow dashed LA scenario line and the white dotted net zero line). The figure also details remaining GHG emissions at each interim year by source (the area under the net zero line).

The largest sources of emissions in the community inventory are transportation and mobility, commercial energy use, and residential energy use. A significant portion of these emissions will be reduced through external influences considered under the LA scenario such as the decarbonization of the electrical grid and improved operational and energy efficiency, while additional reductions in emissions will be achieved through the implementation of the strategies and goals in this Plan.

FIGURE 13.   COMMUNITY PATHWAY TO NET ZERO
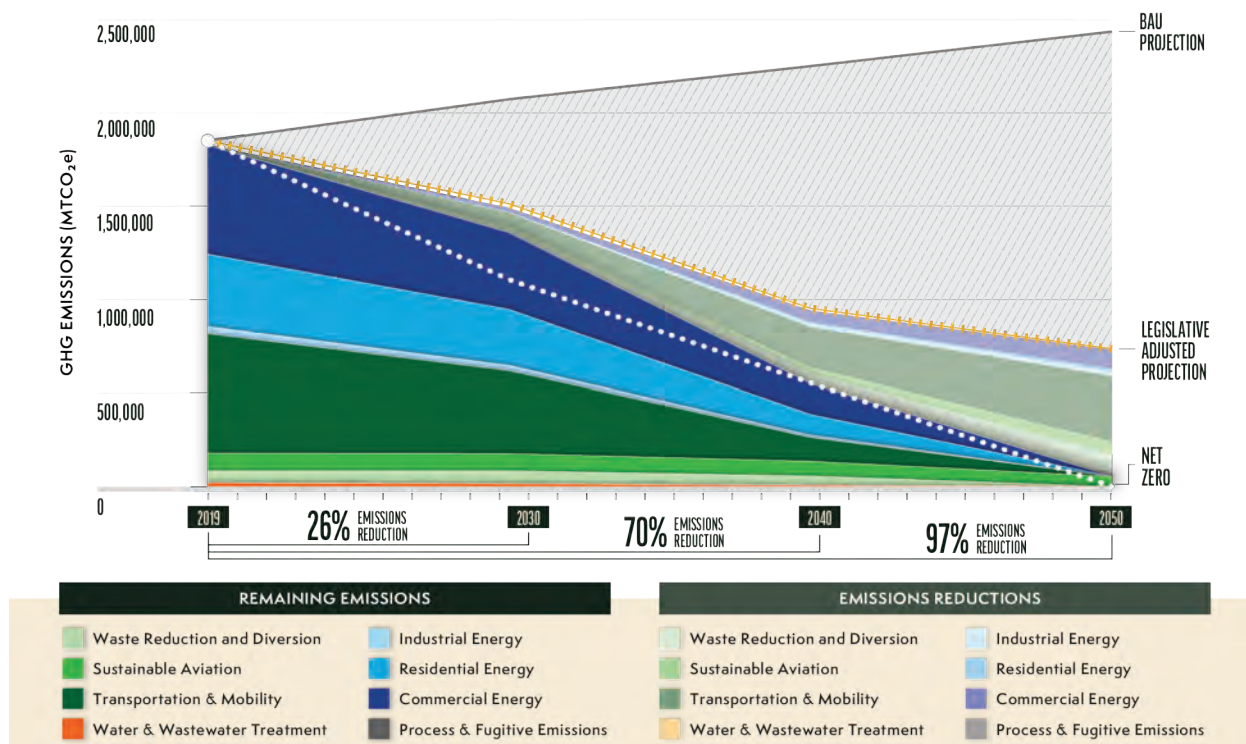
Figure 14 shows the projections of remaining GHG emissions for each community emissions sector, as well as the resulting percent change from the 2019 baseline at each interim year. The changes in emissions over time reflect a combination of GHG reductions from the LA scenario and the impacts

from strategies and actions outlined in this Plan. Together these impacts are projected to achieve a 97% reduction in community GHG emissions by 2050.

FIGURE 14. INTERIM GHG EMISSIONS PROJECTIONS AND PERCENT CHANGE FOR EACH EMISSIONS CATEGORY IN THE COMMUNITY SECTOR
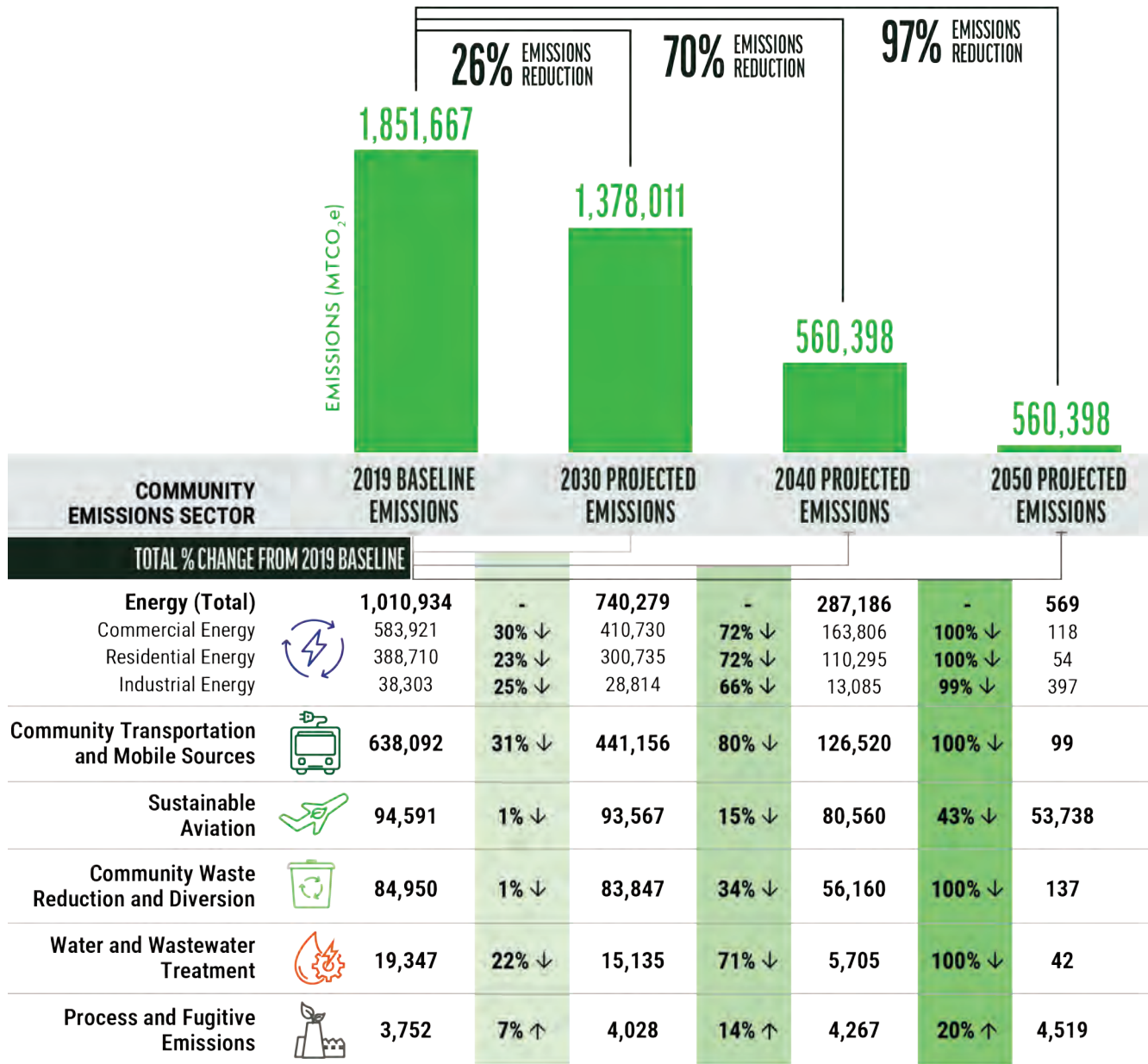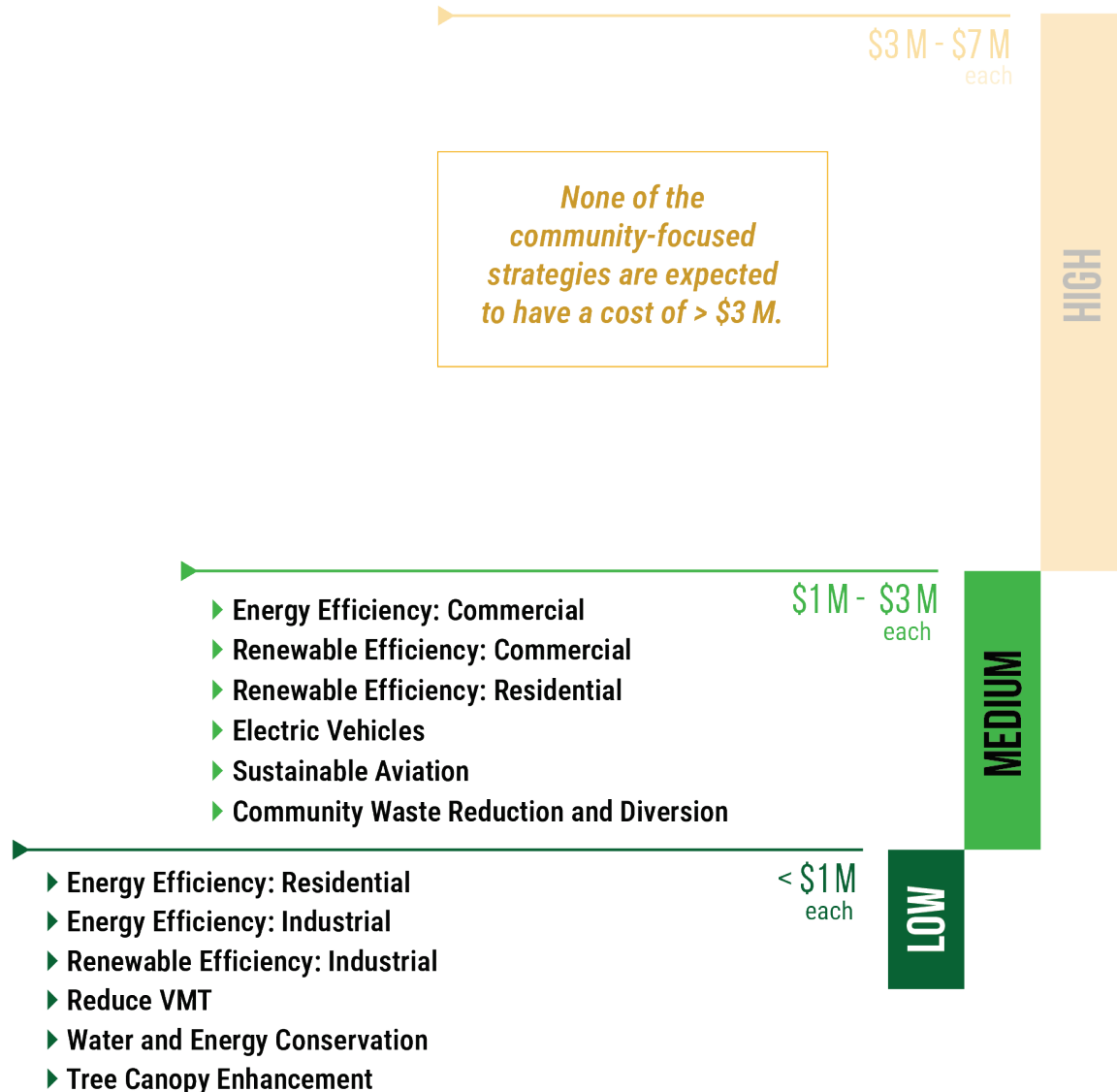

COMMUNITY EMISSIONS SECTOR		2019 BASELINE EMISSIONS		2030 PROJECTED EMISSIONS		2040 PROJECTED EMISSIONS		2050 PROJECTED EMISSIONS
TOTAL % CHANGE FROM 2019 BASELINE								
Energy (Total)		**1,010,934**	**-**	**740,279**	**-**	**287,186**	**-**	**569**
Commercial Energy		583,921	30% ↓	410,730	72% ↓	163,806	100% ↓	118
Residential Energy		388,710	23% ↓	300,735	72% ↓	110,295	100% ↓	54
Industrial Energy		38,303	25% ↓	28,814	66% ↓	13,085	99% ↓	397
Community Transportation and Mobile Sources		**638,092**	31% ↓	**441,156**	80% ↓	**126,520**	100% ↓	**99**
Sustainable Aviation		**94,591**	1% ↓	**93,567**	15% ↓	**80,560**	43% ↓	**53,738**
Community Waste Reduction and Diversion		**84,950**	1% ↓	**83,847**	34% ↓	**56,160**	100% ↓	**137**
Water and Wastewater Treatment		**19,347**	22% ↓	**15,135**	71% ↓	**5,705**	100% ↓	**42**
Process and Fugitive Emissions		**3,752**	7% ↑	**4,028**	14% ↑	**4,267**	20% ↑	**4,519**

Notes: Process and fugitive emissions were not considered when determining GHG emission reduction strategies in this Plan because they account for a small proportion of municipal and community emissions. Fort Lauderdale is committed to taking action to ensure these emissions continue to be minimized through regular maintenance and operations efficiency efforts.

Aviation emissions are included in the 2019 GHG Inventory as part of Community Transportation and Mobile sources. The modeling team was able to isolate these numbers from the larger category to analyze the impacts of strategies and actions on this category separately from the larger category.

COST ESTIMATES

Figure 15 provides a near-term cost estimate with an estimated range of costs expected to be borne by the City for implementation of that strategy in the next five years (by 2030). Appendix A, *Methodology*, provides more information on how these costs were quantified.

FIGURE 15.   NEAR-TERM COST ESTIMATE RANGES (COSTS BORNE BY THE CITY BETWEEN 2025 AND 2030) FOR EACH COMMUNITY-FOCUSED STRATEGY*

$3 M - $7 M
each

HIGH

None of the community-focused strategies are expected to have a cost of > $3 M.

$1 M - $3 M
each

MEDIUM

▸ Energy Efficiency: Commercial
▸ Renewable Efficiency: Commercial
▸ Renewable Efficiency: Residential
▸ Electric Vehicles
▸ Sustainable Aviation
▸ Community Waste Reduction and Diversion

< $1 M
each

LOW

▸ Energy Efficiency: Residential
▸ Energy Efficiency: Industrial
▸ Renewable Efficiency: Industrial
▸ Reduce VMT
▸ Water and Energy Conservation
▸ Tree Canopy Enhancement

*Note that cost ranges provided in this figure are for costs at the strategy level. Qualitative cost estimates provided at the action level do not correspond to these ranges.

ENERGY

> Energy consumption for the built environment in Fort Lauderdale contributes to more than 55% of community emissions. These emissions result primarily from electricity and natural gas consumption in residential, commercial, and industrial buildings. Two major strategies are needed to reduce and eliminate GHG emissions from energy: (1) improvements to energy efficiency, and (2) electrification and employing renewable energy.

Electricity emissions from residential single and multifamily homes are associated with household activities, including the use of air conditioning, water heating, lighting, refrigeration, cooking, and other appliances. Electricity emissions in the commercial sector come from restaurants, hotels, government facilities, community living facilities, colleges, and religious institutions, among others. Similar to the residential sector, GHG emissions in the commercial sector include the use of electricity for air conditioning, cooking, lighting, appliances, and other uses. Industrial sector activities are activities that produce, process, or assemble goods, agriculture, and building construction and fossil-fuel production. Water and wastewater processing electrical emissions are discussed in the *Municipal-Focused Strategies* section of the Plan.

The interim projections for reduced GHG emissions related to community uses of energy are shown in **Figure 16**. These percentages represent changes from 2019 baseline GHG emissions and reflect emissions reductions forecasted in the LA scenario and the implementation of the energy-related strategies and actions detailed in this Plan. A significant portion of these emissions will be reduced through external influences (the LA scenario) such as the decarbonization of the electrical grid as well as improved operational and energy efficiency. To ensure Fort Lauderdale is making progress toward its goals of net zero, it is critical to reduce energy usage, electrify where possible to move away from fuel use, and transition to renewable energy sources such as solar and wind power. Appendix B, *Detailed Interim Goals*, provides more details on emissions reductions from each strategy and action, including projected emissions in metric tons of CO_2 equivalent ($MTCO_2e$).

FIGURE 16.   PROJECTED CHANGES IN ENERGY-RELATED GHG EMISSIONS FOR COMMERCIAL, RESIDENTIAL, AND INDUSTRIAL COMMUNITY BUILDINGS

EMISSIONS ($MTCO_2e$)

COMMUNITY EMISSIONS SECTOR	2019 BASELINE EMISSIONS		2030 PROJECTED EMISSIONS		2040 PROJECTED EMISSIONS		2050 PROJECTED EMISSIONS
TOTAL % CHANGE FROM 2019 BASELINE							
Energy (Total)	**1,010,934**	-	**740,279**	-	**287,186**	-	**569**
Commercial Energy	583,921	30% ↓	410,730	72% ↓	163,806	100% ↓	118
Residential Energy	388,710	23% ↓	300,735	72% ↓	110,295	100% ↓	54
Industrial Energy	38,303	25% ↓	28,814	66% ↓	13,085	99% ↓	397

Strategy: Energy Efficiency

Improving energy efficiency is key for meeting net zero emissions, followed by electrifying operations and transitioning to renewable energy sources. By reducing energy waste, Fort Lauderdale can lower its carbon footprint and move toward net zero. The strategies and actions proposed below assume that the general improvements in renewable energy and energy efficiency options and grid decarbonization as projected in the LA scenario occur.

COMMERCIAL SECTOR

To reduce GHG emissions per unit of energy in the **commercial sector**, the community must focus on energy efficiency improvements and transitioning to cleaner energy sources.

- **By 2030, a 30% reduction in** community commercial sector emissions compared to the 2019 baseline requires widespread adoption of energy-efficient technologies. These technologies include LED lighting, high-efficiency HVAC systems, and smart building controls to optimize energy use. Energy audits, energy use disclosure, and retrofitting older facilities are key actions.

- **By 2040, a 72% reduction** from the 2019 community commercial sector baseline necessitates deeper efficiency measures, including advanced building automation systems and broader implementation of green building standards.

- **By 2050, a 100% reduction** from the 2019 community commercial sector baseline relies on transitioning commercial operations to net zero energy practices, supported by grid-supplied renewable energy, on-site generation, and continuous innovation in energy management systems. Policy incentives, technical assistance, and collaboration with the private sector are imperative to meeting these targets while supporting economic growth.

RESIDENTIAL SECTOR

Reducing emissions per unit of energy in the **residential sector** requires prioritizing energy efficiency upgrades and transitioning to renewable energy sources.

- **By 2030, a 23% reduction** in community residential sector emissions compared to the 2019 baseline involves promoting energy-efficient appliances, advocating for state and federal rental housing energy efficiency programs and policies, implementing home weatherization programs, and adopting smart thermostats and energy monitoring tools. Expanding access to energy audits and retrofit incentives helps residents identify and address inefficiencies.

- **By 2040, a 72% reduction** from the 2019 community residential sector baseline requires deeper retrofits, such as upgrading insulation, replacing older heating systems with more efficient HVAC technology, and installing rooftop solar systems.

- **By 2050, a 100% reduction** from the 2019 community residential sector baseline necessitates widespread adoption of net zero energy home designs, full electrification of residential energy systems, and sourcing electricity entirely from renewable energy. Community education programs; financial incentives at the federal, state, and local levels; and partnerships with the utility are essential to drive these changes while ensuring equitable access for all residents.

INDUSTRIAL SECTOR

To reduce emissions per unit of energy in the **industrial sector**, the community must emphasize energy efficiency measures, cleaner energy sourcing, and innovative process improvements.

- **By 2030, a 25% reduction** in community industrial sector emissions compared to the 2019 baseline requires adopting energy-efficient machinery, improving insulation in industrial facilities, and implementing real-time energy monitoring and control systems to minimize waste.

- **By 2040, a 66% reduction** compared to the 2019 industrial sector baseline necessitates deepening process optimization, transitioning to electrified industrial equipment where feasible, and integrating on-site renewable energy sources like solar or wind.

- **By 2050, a 99% reduction** compared to the 2019 industrial sector baseline depends on fully electrifying industrial operations, leveraging advanced technologies such as artificial intelligence for energy optimization, and ensuring all energy consumption is supplied by renewable sources. Supportive policies, financial incentives, and collaboration with industry leaders is essential for scaling these strategies while maintaining economic competitiveness.

Specific actions for achieving energy efficiency aimed at meeting these projections are described below.

<table>
<tr><td rowspan="2">**ACTION** **1**</td><td colspan="3">**Advocate for increased energy efficiency, water conservation, and other performance standards in the Florida Building Code in partnership with Broward County and other stakeholders.**</td></tr>
<tr><td>**Priority Level:** 1</td><td>**Timeframe:** Ongoing</td><td>**GHG Impact:** High</td></tr>
</table>

Funding: Federal and state grants, utility rebates

City Partners: City of Fort Lauderdale Public Works Department, City of Fort Lauderdale Development Services, Broward County, Transportation and Mobility Department (TAM)

Initial Cost: Low	**Life-Cycle Cost:** Low	**Additional Community Cost:** Medium
ROI: Low	**LOE:** Low	**Social Impact:** Medium

Strategic Priority Alignment: Housing, infrastructure, and resilience

Co-Benefits: Improved climate resilience

Performance Metrics: Kilowatt-hours (kWh) per square foot of building space, number of applications submitted to the Conservation Pays Toilet Rebate Program, number of faucet aerators and water efficient showerheads requested

Implementation:

↗ Work with Broward County, developers, businesses, and other stakeholders to understand current challenges with and best opportunities for and advocate for increased energy efficiency, water conservation, and other performance standards in building codes.

↗ Identify best practices in local governments to implement impactful and achievable standards.

↗ Monitor performance against new and existing green building standards for energy efficiency and water conservation.

ACTION 2

Incentivize net zero strategies in new development.

Priority Level: 1	Timeframe: Short-term	GHG Impact: High

Funding: Developer contributions, U.S. Environmental Protection Agency (EPA) Green Infrastructure grants, Florida Green Building Coalition grants, Florida Department of Environmental Protection (DEP)

City Partners: City of Fort Lauderdale Development Services, City of Fort Lauderdale Urban Design and Planning, City of Fort Lauderdale Building Services Division, developers

Initial Cost: Low	Life-Cycle Cost: Medium	Additional Community Cost: High
ROI: Low	LOE: Medium	Social Impact: Medium

Strategic Priority Alignment: Housing, business growth and support, infrastructure, and resilience

Co-Benefits: Improved public health and safety, improved air quality, improved climate resilience

Performance Metrics: kWh per square foot of building space, number of solar photovoltaic permits granted, total number of EV chargers in multifamily development, energy burden per the U.S. Department of Energy (DOE) LEAD Tool

Implementation:

↗ Collaborate with green building advocacy groups to explore net-zero building standards and certifications. Assess the projected financial implications of constructing buildings to meet net-zero standards.

↗ Modify and leverage building and zoning codes to promote and incentivize new developments that achieve net-zero emissions and reduce the energy cost burden to owners or tenants.

↗ Offer incentives such as density bonuses, expedited permitting, or reduced fees for projects that meet specific green infrastructure criteria (e.g., all-electric buildings, on-site renewables, on-site water reuse, permeable pavers, rain gardens, increased bicycle parking, EV charging, green space). Incentivize energy efficiency, electrification, and renewable energy in affordable housing units.

ACTION 3

Advocate for state and federal rental and low-income housing energy efficiency programs and policies.

Priority Level: 1	Timeframe: Short-term	GHG Impact: Medium

Funding: U.S. Department of Housing and Urban Development Green and Resilient Retrofit program, Inflation Reduction Act (IRA) funding

City Partners: City of Fort Lauderdale Housing and Community Development, City of Fort Lauderdale Public Works Department, and City of Fort Lauderdale City Commission

Initial Cost: Low	Life-Cycle Cost: Low	Additional Community Cost: Low
ROI: Low	LOE: Medium	Social Impact: High

Strategic Priority Alignment: Infrastructure and resilience

Co-Benefits: Improved climate resilience, reduced inequality, cost savings

Performance Metrics: kWh per square foot of building space

Implementation:

↗ Identify and monitor new and existing rental housing energy efficiency programs and policies.

↗ Advocate for stronger policies around energy efficiency programs for rental housing.

↗ Advocate for energy efficiency retrofit programs for low-income households.

ACTION 4

Promote electrification of existing buildings.

Priority Level: 1	Timeframe: Short-term	GHG Impact: High

Funding: DOE Weatherization Assistance Program, Florida Energy Efficiency and Conservation Act incentives, rebates and incentives from local utilities

City Partners: City of Fort Lauderdale Development Services , City of Fort Lauderdale Sustainability Division, City of Fort Lauderdale Economic Development

Initial Cost: High	Life-Cycle Cost: Low	Additional Community Cost: High
ROI: High	LOE: Medium	Social Impact: Medium

Strategic Priority Alignment: Infrastructure and resilience

Co-Benefits: Improved climate resilience, cost savings, improved air quality

Performance Metrics: Percent of Citywide energy usage derived from electricity

Implementation:

↗ Provide educational information on the benefits of electrification.

↗ Provide resources for electrification installments and programs for financial support.

↗ Incentivize electrification of existing commercial and residential buildings.

↗ Monitor transition to electrification in existing buildings.

ACTION 5

Increase awareness of energy efficiency in new and existing commercial buildings.

Priority Level: 2	Timeframe: Short-term	GHG Impact: Medium

Funding: Federal and state grants, DOE State Energy Program, ENERGY STAR grants, Resilient and Efficient Codes Implementation Initiative, utility rebates

City Partners: City of Fort Lauderdale Development Services, City of Fort Lauderdale Urban Design and Planning, local businesses, utility companies

Initial Cost: Low	Life-Cycle Cost: Low	Additional Community Cost: Medium
ROI: Low	LOE: Medium	Social Impact: Medium

Strategic Priority Alignment: Housing, business growth and support

Co-Benefits: Improved climate resilience

Performance Metrics: kWh electricity consumption reduced

Implementation:

↗ Review existing energy disclosure programs across the country to understand best practices and program infrastructure.

↗ Implement a voluntary energy efficiency disclosure program that encourages new and existing commercial buildings to annually report their energy performance and conduct energy audits.

↗ Develop working groups and resources to help developers and owners set impactful and achievable targets.

↗ Provide resources for developers and building owners to track and record progress toward targets.

↗ Determine cadence of reporting, suggested disclosure levels, reporting platform, performance improvement plans, and recognition of high-level performers.

↗ Raise awareness of disclosure programs and integrate data into better understanding community GHG emissions.

↗ Coordinate with Broward County and other regional governments on energy disclosure programs.

ACTION	**6**	**Create a Fort Lauderdale sustainable tourism program.**

Priority Level: 2	**Timeframe:** Medium term	**GHG Impact:** Medium

Funding: DOE energy grants, DEP grants, tourism development tax revenues

City Partners: City of Fort Lauderdale Sustainability Division, Visit Lauderdale, City of Fort Lauderdale Economic Development

Initial Cost: Medium	**Life-Cycle Cost:** Low	**Additional Community Cost:** Medium
ROI: Medium	**LOE:** Medium	**Social Impact:** Low

Strategic Priority Alignment: Business growth and support, infrastructure, and resilience

Co-Benefits: N/A

Performance Metrics: Number of hotels participating in the State Green Lodging Program

Implementation:

↗ Encourage and incentivize all new and existing hotels to participate in the State Green Lodging Program, increase energy and water conservation, and promote sustainable tourism.

↗ Provide educational materials to all new and existing hotels on the State Green Lodging program and how to get involved.

↗ Encourage all new and existing hotels to develop energy management programs, sustainable operations programs, and other conservation efforts.

↗ Promote and support waste reduction efforts at new and existing hotels and encourage increased awareness and utilization of recycling programs.

↗ Support the development of and promote a sustainable tourism program that provides educational materials about sustainability efforts and resources in Fort Lauderdale, ways for visitors and tourists to get involved, and information on making visits sustainable through reduced energy use, waste generation, and other efforts.

Strategy: Renewable Energy

Even with fully maximized energy efficiency, there will be remaining emissions from building operations to address. By electrifying operations and employing renewable energy, the remainder of these emissions can be addressed.

FPL distributes energy throughout Fort Lauderdale and has committed to eliminating carbon emissions by 2045 through the expansion of renewable energy such as solar and green hydrogen. The transition of grid energy to low- or zero-emission renewable sources will contribute significantly to the reduction of emissions from purchased electricity in Fort Lauderdale.

COMMERCIAL SECTOR

To achieve emissions reductions per unit of energy in the **commercial sector** through renewable energy adoption, the community must focus on scaling up renewable energy deployment and ensuring widespread access to clean energy.

- **By 2030, a 30% reduction** in community commercial sector emissions compared to the 2019 baseline can be achieved by incentivizing rooftop solar installations, deploying community solar projects, and encouraging commercial entities to purchase renewable energy through green power programs.

- **By 2040, a 72% reduction** from the 2019 community commercial sector baseline requires extensive large-scale renewable energy generation, coupled with energy storage systems to stabilize supply. Commercial facilities should also integrate on-site renewable energy generation, including solar panels and geothermal systems, into their operations.

- **By 2050, a 100% reduction** from the 2019 community commercial sector baseline depends on significantly transitioning to renewable energy for all electricity and thermal needs, supported by advanced grid infrastructure, net-zero energy building designs, and robust policy frameworks that mandate and support clean energy adoption.

RESIDENTIAL SECTOR

To reduce emissions per unit of energy in the **residential sector** through renewable energy adoption, the community must prioritize accessible, scalable clean energy solutions.

- **By 2030, a 23% reduction** in community residential sector emissions compared to the 2019 baseline can be achieved by incentivizing residential rooftop solar installations, promoting participation in community solar programs, and supporting net-metering policies to make renewable energy financially viable for homeowners.

- **By 2040, a 72% reduction** from the 2019 community residential sector baseline requires expanding access to renewable energy and enhancing energy storage options to ensure the availability of clean energy for residential use.

- **By 2050, a 100% reduction** from the 2019 community residential sector baseline depends on transitioning all residential energy systems to renewable sources, supported by policies that encourage electrification of heating and cooling systems, streamlined permitting processes for renewables, and investments in grid infrastructure to integrate and distribute clean energy effectively. To further accelerate this shift, the City must encourage, incentivize, and communicate opportunities such as utility rebates, utility solar energy programs, state rebate initiatives, and the Federal Solar Investment Tax Credit. Additionally, continued support for the Property Assessed Clean Energy (PACE) program and the SUN Co-op, as well as advocating for energy efficiency retrofits for low-income households, provides broad and equitable access to these benefits.

INDUSTRIAL SECTOR

To reduce emissions per unit of energy in the **industrial sector** through renewable energy, the community must implement strategies to transition operations to cleaner energy sources.

- **By 2030, a 25% reduction** in community industrial sector emissions compared to the 2019 baseline involves promoting on-site renewable energy generation, such as rooftop solar, wind turbines, and biomass systems tailored to industrial needs. Incentives for industrial entities to adopt renewable energy purchase agreements and participate in green energy programs are also essential.

- **By 2040, a 66% reduction** from the 2019 community industrial sector baseline requires significant utilization of renewable energy and the integration of advanced energy storage solutions to provide consistent power.

- **By 2050, a 99% reduction** from the 2019 community industrial sector baseline depends on substantial decarbonization of industrial energy systems, facilitated by innovations like renewable hydrogen, deep electrification of industrial processes, and advanced renewable technologies, supported by robust policy frameworks and public-private partnerships (P3s).

Specific actions for achieving renewable energy aimed at meeting these projections are described below.

ACTION **7**	Promote renewable energy improvements through financial incentives and increased awareness.		
	Priority Level: 1	**Timeframe:** Ongoing	**GHG Impact:** Medium

Funding: Federal Solar Investment Tax Credit (ITC), PACE program, Solar for All grants, Weatherization Assistance Program (WAP), Low-Income Home Energy Assistance Program (LIHEAP), Community Development Block Grant (CDBG) program, Database of State Incentives for Renewables & Efficiency

City Partners: City of Fort Lauderdale Public Works Department, City of Fort Lauderdale Sustainability Division, City of Fort Lauderdale Utilities Division, City of Fort Lauderdale Building Services division, FPL, Broward County Environmental Planning and Community Resilience Division, community organizations like WAP and LIHEAP

Initial Cost: Low	Life-Cycle Cost: Low	Additional Community Cost: Medium
ROI: Low	LOE: Medium	Social Impact: High

Strategic Priority Alignment: Housing, business growth and support

Co-Benefits: Improved climate resilience, reduced inequality, cost savings

Performance Metrics: Installed kilowatt capacity, number of solar permits issued, percent of renewable energy (kWh)

Implementation:

↗ Encourage, incentivize, and communicate opportunities for utility solar energy programs.

↗ Support and increase awareness of the Federal Solar Investment Tax Credit.

↗ Promote participation in the Florida Solar for All Program

↗ Continue to support the PACE program and the SUN Co-op.

ACTION **8**

Support FPL efforts to decarbonize by 2045.

Priority Level: 1	Timeframe: Long term	GHG Impact: High

Funding: NA

City Partners: City of Fort Lauderdale Public Works Department, FPL

Initial Cost: High	Life-Cycle Cost: High	Additional Community Cost: Medium
ROI: Medium	LOE: Low	Social Impact: Medium

Strategic Priority Alignment: Infrastructure and resilience

Co-Benefits: Job creation and workforce development, improved climate resilience

Performance Metrics: FPL fuel mix, FPL annual emission factors

Implementation:

↗ Establish a working group to outline feasible decarbonization strategies for Fort Lauderdale.

↗ Participate in education and awareness programs and campaigns.

↗ Assess Fort Lauderdale's potential for renewable energy installations to contribute.

↗ Advocate for community solar programs and streamline permitting for solar permitting.

ACTION 9

Participate in FPL SolarTogether® program.

Priority Level: 1	Timeframe: Medium term	GHG Impact: High

Funding: FPL Sun Assist program

City Partners: City of Fort Lauderdale Public Works Department, FPL

Initial Cost: Low	Life-Cycle Cost: High	Additional Community Cost: Low
ROI: High	LOE: Medium	Social Impact: Medium

Strategic Priority Alignment: Infrastructure and resilience

Co-Benefits: Job creation and workforce development, improved climate resilience, cost savings

Performance Metrics: Percent of municipal electricity demand participating in SolarTogether®

Implementation:

↗ Encourage and promote community participation.

↗ Participate in education and awareness programs and campaigns.

↗ Subject to program availability, enroll municipal electricity accounts in the FPL SolarTogether® program.

Note: SolarTogether is an FPL program that allows customers to subscribe to shares of energy from large-scale solar farms across Florida through a monthly flat rate, while receiving bill credits based on energy generated from the panels they invested in.

ACTION 10

Encourage, support, and expand private and community solar installations

Priority Level: 1	Timeframe: Medium term	GHG Impact: High

Funding: DOE Solar Energy Technologies Office, federal Solar ITC, PACE program, Solar and Energy Loan Fund (SELF), Florida Solar for All

City Partners: City of Fort Lauderdale Sustainability Division, City of Fort Lauderdale Public Works Department, City of Fort Lauderdale Development Services Department, and City of Fort Lauderdale Economic Development

Initial Cost: High	Life-Cycle Cost: Medium	Additional Community Cost: High
ROI: High	LOE: Medium	Social Impact: Medium

Strategic Priority Alignment: Infrastructure and resilience

Co-Benefits: Improved climate resilience, job creation and workforce development, cost savings

Performance Metrics: Installed renewable capacity (kW), number of solar permits issued

Implementation:

↗ Assemble working group for renewables education and outreach.

↗ Leverage working group to prepare and distribute materials about solar panels, renewable energy, grid mix, benefits of home installation, solar resiliency, programs like FPL SolarTogether®, community solar options, and other related topics.

↗ Promote participation in Florida Solar for All program and in Broward Solar Co-op.

↗ Advocate for community solar programs and streamline permitting for solar permitting. Assess feasibility of increasing SolSmart designation from gold to platinum.

↗ Support and partner with agencies that provide re-roofing and other preparations for low-income residents pursuing solar.

ACTION 11

Encourage use of tankless/solar water heater program to support low-income housing and reduce the cost of electricity/gas to heat water.

Priority Level: 2	Timeframe: Medium term	GHG Impact: Medium

Funding: Federal tax credits, WAP, LIHEAP

City Partners: City of Fort Lauderdale Public Works Department, community organizations like the Housing Authority of the City of Fort Lauderdale

Initial Cost: Medium	Life-Cycle Cost: Medium	Additional Community Cost: Low
ROI: Low	LOE: Medium	Social Impact: High

Strategic Priority Alignment: Infrastructure and resilience

Co-Benefits: Improved climate resilience, reduced inequality

Performance Metrics: Average cost of energy per capita

Implementation:
- ↗ Review existing programs to understand offerings.
- ↗ Assess feasibility of programs with Fort Lauderdale community needs and environment.
- ↗ Determine scope of implementation and requirements for participation.
- ↗ Raise awareness of program availability and implement program.

COMMUNITY TRANSPORTATION AND MOBILE SOURCES

Emissions associated with transportation and mobile sources accounted for 40% of 2019 community GHG emissions in Fort Lauderdale. This sector includes emissions associated with on-road vehicles, public transit, and air traffic from the Fort Lauderdale Executive Airport, which is owned and operated by the City of Fort Lauderdale. Two major strategies are needed to reduce and eliminate GHG emissions from transportation and mobile sources: (1) reduction of overall vehicle-miles traveled (VMTs), and (2) the transition to low-carbon modes of transportation, including alternative fuel vehicles such as electric vehicles (EVs).

The interim projections for reduced GHG emissions from community-wide transportation and mobility improvements are shown in **Figure 17**. These percentages represent changes from 2019 baseline GHG emissions and reflect emissions reductions forecasted in the LA scenario and the implementation of the strategies and actions specific to community transportation and mobile sources detailed in this Plan. A significant portion of these emissions will be reduced through external influences such as a generalized shift to EVs and expanded EV infrastructure, in combination with an increasingly renewable grid. For more details on emissions reductions from each strategy, including projected emissions in $MTCO_2e$, see Appendix B, *Detailed Interim Goals*.

FIGURE 17.   PROJECTED CHANGES IN TRANSPORTATION AND MOBILITY-RELATED GHG EMISSIONS

EMISSIONS ($MTCO_2e$)

COMMUNITY EMISSIONS SECTOR		2019 BASELINE EMISSIONS		2030 PROJECTED EMISSIONS		2040 PROJECTED EMISSIONS		2050 PROJECTED EMISSIONS
TOTAL % CHANGE FROM 2019 BASELINE								
Community Transportation and Mobile Sources		638,092	31% ↓	441,156	80% ↓	126,520	100% ↓	99

Strategy: Reduce VMT

Minimizing VMTs supports clean energy transportation solutions, such as EVs, by reducing the demand for energy, infrastructure, and critical resources (such as battery materials), while reducing up-front emissions. Additionally, numerous co-benefits accompany reduced VMTs, such as improved public health, accessibility, reduced inequality, decreased traffic congestion, and increased climate resilience. The strategies below outline actions that will contribute to lowering VMTs community-wide in Fort Lauderdale.

To meet GHG emissions projections for community-wide VMT reduction, the City needs to implement a multi-faceted strategy addressing transportation behavior, infrastructure, and technology. The actions below are envisioned to work in tandem with the forecasted benefits included in the LA scenario (i.e., more efficient vehicles, optimized public transportation options, and expanded EV accessibility and efficiency).

- **By 2030, a 31% reduction** in community VMT emissions compared to the 2019 baseline requires promoting public transit use, carpooling, and telecommuting, as well as updating permitting, zoning and related policies that prioritize transit-oriented development.

- **By 2040, an 80% reduction** from the 2019 community VMT baseline necessitates more comprehensive measures, including substantial public transit expansion, widespread adoption of active transportation modes like walking and cycling, and integrating land-use planning to create walkable, mixed-use neighborhoods that reduce the need for long-distance commutes.

- **By 2050, a 100% reduction** from the 2019 community VMT baseline requires sustaining these initiatives while refining operational systems to maintain efficiency.

Specific actions for reducing VMTs to meet these projections are described below.

ACTION **12**	Increase multimodal infrastructure by prioritizing pedestrian, bicycle, and transit infrastructure.
	Priority Level: 1 **Timeframe:** Short term **GHG Impact:** High

Funding: Rebuilding American Infrastructure with Sustainability and Equity grants, Federal Transit Administration (FTA) grant programs, Congestion Mitigation and Air Quality Improvement (CMAQ) Program, Florida Department of Transportation (FDOT) grants, private sector funding e.g., P3s

City Partners: City of Fort Lauderdale Transportation and Mobility, Broward Metropolitan Planning Organization (MPO), FDOT, private transit providers, South Florida Regional Transit Authority

Initial Cost: High	**Life-Cycle Cost:** Medium	**Additional Community Cost:** Medium
ROI: Medium	**LOE:** High	**Social Impact:** High

Strategic Priority Alignment: Public safety, infrastructure and resilience

Co-Benefits: Improved public health and safety, improved air quality, job creation and workforce development, reduced inequality, decreased traffic congestion

Performance Metrics: VMT per capita, percent of neighbors that use public transportation to commute, miles of bike lanes installed

Implementation:

↗ Install adequate pedestrian safety infrastructure, including sidewalks, signage, lighting, and shading of pedestrian corridors.

↗ Improve and prioritize pedestrian crossing safety and accessibility at intersections.

↗ Partner with developers to ensure that multimodal infrastructure is incorporated into developments near pedestrian corridors, such as sidewalks, bike lanes, bike racks, and transit stop shelters.

↗ Introduce active micro-transit options such as a bike-share program for last-mile accessibility.

↗ Assess high-traffic areas for implementation and expansion of protected bike lanes.

↗ Expand shuttle service options (LauderGO!, Circuit), especially in high-demand areas.

↗ Increase last mile options.

ACTION 13

Develop standards in the Unified Land Development Regulations and incentives to further encourage mixed-used development and urban infill.

Priority Level: 1	Timeframe: Ongoing	GHG Impact: High

Funding: City budget, developer contributions

City Partners: City of Fort Lauderdale Urban Design and Planning Department, Housing and Community Development, and developers

Initial Cost: Low	Life-Cycle Cost: Low	Additional Community Cost: Medium
ROI: Low	LOE: Medium	Social Impact: High

Strategic Priority Alignment: Housing, public places, infrastructure and resilience

Co-Benefits: Improved public health and safety, improved air quality, reduced inequality, reduced traffic congestion, increased cost savings, and reduced traffic congestion

Performance Metrics: VMT, percent of neighbors that use public transportation to commute, miles of bike lane installed, number of EV charger installations

Implementation:

↗ Update permitting, zoning, and related policies to prioritize mixed-use development, urban infill, and multimodal transportation.

↗ Include bicycle parking standards, EVCS, and other sustainable transportation infrastructure in all new developments.

↗ Seek additional funding program opportunities to provide density bonuses, expedited permitting, or reduced fees for projects that include affordable housing units.

ACTION 14

Partner with Broward County to enhance public transit options and increase regional transit system ridership.

Priority Level: 1	Timeframe: Ongoing	GHG Impact: Medium

Funding: FTA grant programs, FDOT grants

City Partners: City of Fort Lauderdale Transportation and Mobility Department, Broward County, South Florida Regional Transit Authority

Initial Cost: Medium	Life-Cycle Cost: Low	Additional Community Cost: Low
ROI: Medium	LOE: Medium	Social Impact: High

Strategic Priority Alignment: Infrastructure and resilience

Co-Benefits: Improved public health and safety, enhanced air quality, reduced inequality, reduced traffic congestion, increased cost savings

Performance Metrics: VMT, transit ridership, percent of neighbors that use public transportation to commute

Implementation:

↗ Analyze current routing, ridership, and scheduling to assess efficiency and accessibility.

↗ Implement changes to routing and scheduling to maximize ridership.

↗ Leverage technology to enhance reliability of transit services.

↗ Increase awareness of transit options and how to use them.

↗ Partner with Broward County, local businesses, and non-profits to offer low-cost ridership options for transit, including Brightline.

ACTION

15

Partner with developers, agencies, and businesses to incentivize and encourage alternative/public transit use and increase commuter carpooling.

Priority Level: 2	Timeframe: Ongoing	GHG Impact: High

Funding: CMAQ Program, private sector funding (P3s)

City Partners: City of Fort Lauderdale Transportation and Mobility Department, local businesses, Broward MPO, South Florida Regional Transit Authority

Initial Cost: Low	Life-Cycle Cost: Low	Additional Community Cost: Medium
ROI: Low	LOE: Medium	Social Impact: High

Strategic Priority Alignment: Business growth and support

Co-Benefits: Improved public health and safety, improved air quality, reduced traffic congestion

Performance Metrics: VMT per capita, percent of neighbors that use public transportation to commute

Implementation:

↗ Encourage and incentivize sheltered transit stops at new developments.

↗ Enhance and expand transit signage at new developments and existing buildings and businesses.

↗ Partner with local businesses to offer incentives to patrons who use public transit.

↗ Ensure public transit accessibility to new and existing developments and businesses.

↗ Encourage development near affordable housing.

↗ Increase awareness around public transit options and carpooling for employees through educational materials circulated to local businesses.

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ACTION 16

Partner with Broward County to install idle sensors in traffic signals and synchronize traffic signals to reduce idling and wait time.

Priority Level: 2	Timeframe: Medium term	GHG Impact: High

Funding: IRA tax credits and grants, PACE program, local green bonds, CDBG program

City Partners: Broward County, City of Fort Lauderdale Transportation and Mobility, City of Fort Lauderdale Sustainability Division, City of Fort Lauderdale Public Works Department

Initial Cost: Medium	Life-Cycle Cost: Low	Additional Community Cost: Low
ROI: Low	LOE: Medium	Social Impact: Low

Strategic Priority Alignment: Infrastructure and resilience

Co-Benefits: Reduced traffic congestion, improved air quality, improved public health and safety

Performance Metrics: Idle time (if available), percent of traffic signals using idle sensors

Implementation:

↗ Benchmark options for hardware and software, assessing price, installation, and ease of use.

↗ Assess locations for implementation, considering high-traffic areas, streets with consecutive traffic lights, and intersections with daily fluctuations in traffic congestion.

↗ Pilot installation at representative locations and monitor impact on idling and traffic congestion.

↗ Scale to additional intersections depending on most efficient implementation in pilot.

ACTION 17 — Establish car-free zones.

Priority Level: 3	Timeframe: Medium term	GHG Impact: High

Funding: City budget, local business sponsorships

City Partners: City of Fort Lauderdale Transportation and Mobility Department, City of Fort Lauderdale Urban Design and Planning, local businesses, community organizations, and developers

Initial Cost: High	Life-Cycle Cost: Medium	Additional Community Cost: High
ROI: Medium	LOE: High	Social Impact: High

Strategic Priority Alignment: Public safety, public places

Co-Benefits: Improved public health and safety, improved air quality, reduced traffic congestion, reduced inequality

Performance Metrics: VMT

Implementation:

↗ Assess impacts to surrounding traffic patterns from street closures, including timing, re-routing, and parking.

↗ Target areas with existing pedestrian infrastructure, foot-traffic, and frequently visited businesses (e.g., shopping areas).

↗ Leverage existing permits for street closures to pilot car-free zones through the use of car-free days.

↗ Ensure accessibility options are available, such as shuttle options, to and from parking areas.

↗ Ensure pedestrian safety infrastructure is in place.

↗ Introduce incentives for participants in car-free days/zones, such as discounted dining or shopping, discounted transit, or raffles.

↗ Explore opportunities to expand accessibility options, such as shuttle services to and from parking areas, and provide free commuter parking lots.

↗ Implement infrastructure to incentivize pedestrian traffic, including outdoor shopping booths, activity stations, artwork, seating, and music.

↗ Explore opportunities to launch a pilot program aimed to test and promote a more environmentally and traffic-friendly way of delivering goods.

Strategy: Electric Vehicles (EV)

Expanding EV infrastructure is essential to reducing emissions because it enables a transition away from fossil fuel-powered vehicles. Investing in EVCS will support cleaner transportation, encourage adoption of EVs, and align the City with sustainability efforts critical to climate resilience.

- **By 2030, a 31% reduction** in community-generated transportation GHG emissions compared to the 2019 baseline involves incentivizing the transition to fuel-efficient or zero-emission vehicles and optimizing routes with advanced scheduling technologies.

- **By 2040, an 80% reduction** from the 2019 community transportation baseline requires the widespread adoption of electric or hybrid vehicles, coupled with infrastructure investments such as EVCS.

- **By 2050, a 100% reduction** from the 2019 community transportation baseline is attained by transitioning fully to renewable energy-powered vehicles, leveraging autonomous and efficient fleet technologies, and ensuring continuous improvement in transit systems and community mobility options. These strategies reduce emissions and enhance quality of life and transportation equity across the community.

Specific actions for achieving vehicle electrification aimed at meeting these projections are described below.

ACTION **18**	Introduce awareness campaigns and implementation incentives for citizens, businesses, and residents on EVs, EV infrastructure, and proper charging etiquette.

Priority Level: 1	**Timeframe:** Short term	**GHG Impact:** Low

Funding: CMAQ Program, private sector funding (P3s)

City Partners: City of Fort Lauderdale Urban Design and Planning, local businesses, local organizations like Drive Electric Florida, Broward MPO, Florida Solar Energy Center

Initial Cost: Low	**Life-Cycle Cost:** Low	**Additional Community Cost:** Low
ROI: Low	**LOE:** Medium	**Social Impact:** High

Strategic Priority Alignment: Business growth and support, infrastructure and resilience

Co-Benefits: Improved public health and safety, improved air quality, increased climate resilience, reduced inequality

Performance Metrics: Number of new EV chargers installed, number of EV registrations

Implementation:

↗ Share educational information about the pros and cons of EVs for various stakeholder groups, including available financial incentives to support EV adoption.

↗ Develop and promote a Fort Lauderdale guide outlining public EV charging locations and access.

↗ Promote phone-enabled public website that indicates precise locations of public EV charging locations.

ACTION	19	Develop Citywide EV Charging Master Plan and review opportunities for strategic placement and elevated charging stations, as well as resilience plans such as backup power.

Priority Level: 1	**Timeframe:** Short term	**GHG Impact:** Medium

Funding: Rebuilding American Infrastructure with Sustainability and Equity grants, FDOT National Electric Vehicle Infrastructure (NEVI) formula program, Federal Highway Administration Charging and Fueling Infrastructure grant program, private sector funding, e.g., P3s

City Partners: City of Fort Lauderdale Transportation and Mobility Department, City of Fort Lauderdale Urban Design and Planning, private sector partners

Initial Cost: Medium	**Life-Cycle Cost:** Low	**Additional Community Cost:** Low
ROI: Low	**LOE:** Medium	**Social Impact:** High

Strategic Priority Alignment: Infrastructure and resilience

Co-Benefits: Improved air quality, job creation and workforce development, improved climate resilience

Performance Metrics: Number of new EV chargers installed, number of EV registrations

Implementation:

↗ Establish Fort Lauderdale EV infrastructure steering committee to foster ongoing community collaboration, ensure alignment with regional transportation electrification and climate resiliency goals, and promote the rapid growth of EV infrastructure in Fort Lauderdale.

↗ Align with local long-range plans, including the Broward MPO Electric Vehicle Master Plan, *Commitment 2045 Metropolitan Transportation Plan,* the *Route to 2050 Metropolitan Transportation Plan,* and regional partner studies like the *Regional Climate Action Plan, 2015 Compact Unified Sea Level Rise Projection,* and the *South Florida Climate Change Vulnerability Assessment and Adaptation Pilot Project.*

↗ Using the completed EV supply equipment suitability study, identify feasible locations for potential elevated charging stations and backup power locations. Align with federal goals associated with the Charging and Fueling Infrastructure grant program and other future opportunities.

↗ Strategically install EVCS on publicly accessible City parking lots and other facilities to provide EVCS infrastructure to equitably provide access to City residents.

↗ Ensure the plan prioritizes equitable access for all communities (i.e., a proportional percentage of new public charging stations are in Justice40 census tracts).

ACTION **20**	**Support the conversion of public transit to electric fleet in alignment with 2030 Broward County fleet electrification goals.**

Priority Level: 2	**Timeframe:** Medium term	**GHG Impact:** High

Funding: FTA grant programs, FDOT grants

City Partners: City of Fort Lauderdale Transportation and Mobility Department, Broward County, South Florida Regional Transit Authority

Initial Cost: High	**Life-Cycle Cost:** Low	**Additional Community Cost:** Low
ROI: Medium	**LOE:** High	**Social Impact:** Medium

Strategic Priority Alignment: Infrastructure and resilience

Co-Benefits: Improved public health and safety, improved air quality, increased cost savings

Performance Metrics: Percentage of the public transit fleet converted to EVs annually

Implementation:

↗ Prepare routes and schedules to allow for EV charging needs.

↗ Expedite permitting processes for EVCS installation.

↗ Partner with the County to install EVCS and strategically place fast chargers along key transit corridors.

↗ Partner with the County to apply for state or federal funding to support fleet electrification and charging infrastructure.

↗ Provide specialized training for transit operators and maintenance teams.

↗ Engage with riders to promote awareness and public support for electric transit solutions.

AVIATION

Fort Lauderdale is uniquely positioned to impact aviation emissions from the Fort Lauderdale Executive Airport. Note that aviation emissions are included in the 2019 GHG Inventory as part of Community Transportation and Mobile sources. The modeling team was able to isolate these numbers from the larger category to analyze the impacts of strategies and actions on this category separately from the larger category. The Plan includes initiatives to advocate for more efficient and sustainable aviation technology and the increased use of sustainable aviation fuel (SAF) to reduce emissions.

The interim projections for reduced GHG emissions from aviation improvements are shown in **Figure 18**. These percentages represent changes from 2019 baseline GHG emissions and reflect emissions reductions forecasted in the LA scenario, including the increased availability and efficiency of SAF and increased aircraft efficiency. They also reflect the implementation of the sustainable aviation strategies and actions detailed in this Plan. For more details on emissions reductions from each strategy, including projected emissions in $MTCO_2e$, see Appendix B, *Detailed Interim Goals*.

FIGURE 18. PROJECTED CHANGES IN AVIATION-RELATED GHG EMISSIONS

EMISSIONS ($MTCO_2e$)

COMMUNITY EMISSIONS SECTOR		2019 BASELINE EMISSIONS		2030 PROJECTED EMISSIONS		2040 PROJECTED EMISSIONS		2050 PROJECTED EMISSIONS
TOTAL % CHANGE FROM 2019 BASELINE								
Sustainable Aviation		94,591	1% ↓	93,567	15% ↓	80,560	43% ↓	53,738

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Strategy: Sustainable Aviation

To achieve the emissions reduction projections in Fort Lauderdale's aviation sector, a multi-faceted strategy is essential, emphasizing energy efficiency, renewable energy adoption, and operational optimization.

- **By 2030, a 1% reduction** in community-generated aviation GHG emissions compared to the 2019 baseline requires a focus on implementing energy-efficient technologies such as more aerodynamic aircraft designs and SAFs. This effort should be supported by integrating carbon offset programs and optimizing flight routes to minimize fuel consumption.

- **By 2040, a 15% reduction** from the 2019 community aviation baseline requires continued investment in SAFs and the transition to electrified ground support equipment.

- **By 2050, a 43% reduction** from the 2019 community aviation baseline requires transformative shifts, including the adoption of hydrogen-powered aircraft and advanced electrification technologies, as well as incorporating renewable energy sources to power airport operations. Collaborative efforts between the City, airlines, and technology innovators is key to meeting these progressively ambitious benchmarks.

Specific actions for reducing aviation emissions to meet these projections are described below.

ACTION 21	Advocate for the development and implementation of new, more efficient aircraft and engine technologies.
	Priority Level: 3 **Timeframe:** Medium term **GHG Impact:** Medium

Funding: Federal Aviation Administration Continuous Lower Energy Emissions and Noise Program, Fueling Aviation's Sustainable Transportation grants, DOE funding, Sustainable Flight National Partnership

City Partners: City of Fort Lauderdale Transportation and Mobility Department, City of Fort Lauderdale Sustainability Division Fleet Services, Fort Lauderdale Executive Airport

Initial Cost: Low	Life-Cycle Cost: High	Additional Community Cost: Medium
ROI: Medium	LOE: Medium	Social Impact: Low

Strategic Priority Alignment: Infrastructure and resilience

Co-Benefits: Job creation and workforce development, increased cost savings

Performance Metrics: Gallons of conventional aviation fuel usage, gallons of SAF usage (percent)

Implementation:

↗ Develop policies, programs, and targets to incentivize and encourage the use of SAF.

↗ Advocate for international initiatives such as the International Civil Aviation Organization Committee on Aviation Environmental Protection airplane CO_2 standard and the Carbon Offsetting and Reduction Scheme for International Aviation.

COMMUNITY WASTE REDUCTION AND DIVERSION

> While emissions from waste only account for 4% of total community-wide emissions, solid waste management is an important aspect of Fort Lauderdale's pathway to net zero GHG emissions. By reducing the amount of solid waste generated for disposal, Fort Lauderdale can significantly cut down on GHG emissions produced.

The interim projections for reduced GHG emissions from community-wide waste management improvements are shown in **Figure 19**. These percentages represent changes from 2019 baseline GHG emissions and reflect emissions reductions forecasted in the LA scenario and the implementation of the strategies and actions specific to waste management reduction and diversion detailed in this Plan. A significant portion of these emissions will be reduced through external influences such as improved waste management processes, cleaner waste hauling options, reduced waste generation, and improved recyclability and diversion of waste. For more details on emissions reductions from each strategy, including projected emissions in $MTCO_2e$, see Appendix B, *Detailed Interim Goals*.

FIGURE 19.   PROJECTED CHANGES IN WASTE REDUCTION AND DIVERSION-RELATED GHG EMISSIONS

EMISSIONS ($MTCO_2e$)

COMMUNITY EMISSIONS SECTOR		2019 BASELINE EMISSIONS		2030 PROJECTED EMISSIONS		2040 PROJECTED EMISSIONS		2050 PROJECTED EMISSIONS
TOTAL % CHANGE FROM 2019 BASELINE								
Community Waste Reduction and Diversion		84,950	1% ↓	83,847	34% ↓	56,160	100% ↓	137

Strategy: Waste Reduction and Diversion

To achieve community-wide solid waste GHG emissions reduction projections, a comprehensive strategy focusing on waste prevention, reuse, and recycling is essential, in addition to decreased waste production, more efficient waste management practices, and improved overall diversion rates as projected in the LA scenario.

▪ **By 2030, a 1% reduction** in community waste GHG emissions compared to the 2019 baseline emissions requires expanding education programs on waste reduction, encouraging businesses and residents to adopt composting and recycling practices, and introducing incentives for minimizing waste generation. Additionally, to begin reducing emissions per unit of energy in solid waste operations, efforts to partner with haulers to improve waste processing efficiency and transition to low-emission technologies are necessary.

▪ **By 2040, a 34% reduction** from the 2019 community waste baseline requires scaling up infrastructure for waste diversion, such as advanced recycling facilities and organics processing centers, and implementing policies to support circular economy practices, including extended producer responsibility programs. Additionally, the adoption of anaerobic digesters for organic waste, and supporting the electrification of processing equipment, paired with expanded recycling and composting programs all contribute to reductions in waste management emissions.

▪ **By 2050, a 100% reduction** from the 2019 community waste baseline depends on integrating zero-waste principles into community operations, introducing waste audits for large commercial entities, and advocating for innovation in waste management technologies. Collaboration between public and private sectors is critical to drive progress and ensure equitable access to waste reduction resources across the community. Additionally, advocating for and supporting fully decarbonized waste operations, transitioning to renewable energy sources for facility operations, and achieving near-zero emissions through innovations in waste conversion technologies and carbon capture further reduce emissions from waste management.

Collaborative efforts with the Broward SWA, authorized waste hauler companies, and policymakers are crucial to align with these projections while ensuring sustainable waste practices.

Specific actions for achieving waste reduction and diversion actions aimed at meeting these projections are described below.

ACTION 22

Create and operationalize a community-wide food rescue plan in collaboration with local nonprofits, supermarkets, and restaurants.

Priority Level: 1	**Timeframe:** Long term	**GHG Impact:** Medium

Funding: Solid Waste Infrastructure for Recycling Grant Program, local government funds

City Partners: City of Fort Lauderdale, local nonprofits, supermarkets, restaurants

Initial Cost: Low	**Life-Cycle Cost:** Low	**Additional Community Cost:** Low
ROI: Low	**LOE:** Low	**Social Impact:** High

Strategic Priority Alignment: Infrastructure and resilience

Co-Benefits: Improved public health and safety, job creation and workforce development, reduced inequality, improved waste management

Performance Metrics: Number of meals provided or individuals served per month as a result of rescued food redistribution

Implementation:

↗ Create and coordinate a not-for-profit organization in partnership with existing local nonprofits, supermarkets, and restaurants to create and monitor a food rescue plan.

↗ Review existing programs to understand best practices and identify potential program infrastructure to implement.

↗ Identify champions and leaders to own and manage the food rescue plan.

↗ Support the efforts of the food rescue program and spread awareness of available resources.

ACTION 23
Advocate at the state and federal level for policies to reduce the usage of single use plastics.

Priority Level: 1	**Timeframe:** Short term	**GHG Impact:** Medium

Funding: EPA grants, DEP grants

City Partners: City of Fort Lauderdale Sustainability Division, City of Fort Lauderdale Public Works Department, City of Fort Lauderdale Attorney's Office and City of Fort Lauderdale Strategic Communications

Initial Cost: Low	**Life-Cycle Cost:** Low	**Additional Community Cost:** Medium
ROI: Low	**LOE:** Low	**Social Impact:** Low

Strategic Priority Alignment: N/A

Co-Benefits: Improved waste management, public health and safety

Performance Metrics: Total waste (tons), percent plastic waste

Implementation:

↗ Partner with other municipalities to advocate for the reduction and ban of single use plastics in both state and federal legislative efforts.

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ACTION

24

Promote existing programs and implement new programs to enhance education and awareness around waste reduction and diversion.

Priority Level: 2	**Timeframe:** Medium term	**GHG Impact:** Medium

Funding: Solid Waste Infrastructure for Recycling grant program, local government funds

City Partners: City of Fort Lauderdale Public Works Department, City of Fort Lauderdale Sustainability Division, Broward SWA, Waste Management, local schools and businesses

Initial Cost: Medium	**Life-Cycle Cost:** Low	**Additional Community Cost:** Low
ROI: Low	**LOE:** Medium	**Social Impact:** Medium

Strategic Priority Alignment: N/A

Co-Benefits: Improved waste management, cost savings

Performance Metrics: Total waste collected (tons per year), contamination rates, percent waste diverted to recycling

Implementation:

↗ Improve awareness of the Take5 program and work to expand its reach.

↗ Partner with schools, employers, restaurants, and businesses to spread awareness of waste reduction and waste management, including recycling guidelines, and connect them with resources.

↗ Introduce more detailed waste tracing and auditing to identify the largest contributors to waste and potential reduction and diversion efforts.

ACTION 25

Continue engaging with Broward County on a long-term vision and plan for a county-wide composting program.

Priority Level: 2	Timeframe: Ongoing	GHG Impact: High

Funding: Solid Waste Infrastructure for Recycling grant program, EPA's Consumer Recycling Education and Outreach grant program, and local government funds

City Partners: City of Fort Lauderdale Solid Waste and Recycling program, Broward SWA

Initial Cost: Low	Life-Cycle Cost: Low	Additional Community Cost: Low
ROI: Medium	LOE: Low	Social Impact: Low

Strategic Priority Alignment: N/A

Co-Benefits: Job creation and workforce development, improved waste management

Performance Metrics: Waste composted (tons), number of participants

Implementation:

↗ Review existing municipal and county-wide composting programs to identify best practices and gain insight into potential program options.

↗ Create a near- and long-term plan for composting in Fort Lauderdale and Broward County.

↗ Work with stakeholder groups to identify challenges, opportunities, support, and opposition for a composting program.

↗ Ensure all new residential and commercial developments and major retrofit projects consider space requirements and infrastructure to enable future composting capabilities.

ACTION 26

Address the reduction and management of construction and demolition waste.

Priority Level: 2	Timeframe: Medium term	GHG Impact: High

Funding: EPA's Sustainable Materials Management grant program, DEP recycling grants, Broward County Environmental Protection and Growth Management Department

City Partners: City of Fort Lauderdale Public Works, City of Fort Lauderdale Solid Waste and Recycling program, Broward SWA

Initial Cost: Medium	Life-Cycle Cost: Medium	Additional Community Cost: Medium
ROI: Medium	LOE: Medium	Social Impact: Low

Strategic Priority Alignment: N/A

Co-Benefits: Job creation and workforce development, improved waste management, cost savings

Performance Metrics: Tons of construction and demolition waste diverted

Implementation:

↗ Ensure first efforts are taken to reduce materials at the source at all construction and demolition sites. Focus on material reuse and recycling.

↗ Partner with Broward County to develop a construction and demolition waste implementation plan.

↗ Identify additional materials that should be separate and controlled (besides metal, concrete, and wood).

↗ Collaborate with Broward SWA to identify relevant green building standards that require specific proportions of construction and demolition waste to be diverted from the landfill.

↗ Determine current practices in Fort Lauderdale and where there may be an opportunity to increase diversion rates.

↗ Determine whether existing standards should be modified.

↗ Determine and implement enforcement measures where standards are not met.

↗ Investigate franchising of temporary hauling activities to direct volumes toward construction and demolition recycling facilities to be developed by Broward SWA.

ACTION 27

Introduce innovative programs and technology for managing irregular waste streams.

Priority Level: 3	Timeframe: Medium term	GHG Impact: Medium

Funding: EPA's Sustainable Materials Management grant program, DEP recycling grants, Broward County Environmental Protection and Growth Management Department

City Partners: City of Fort Lauderdale Public Works, City of Fort Lauderdale Sustainability Division, Broward SWA, Waste Management

Initial Cost: High	Life-Cycle Cost: Medium	Additional Community Cost: Medium
ROI: Medium	LOE: High	Social Impact: Low

Strategic Priority Alignment: Infrastructure and resilience

Co-Benefits: Job creation and workforce development, improved waste management

Performance Metrics: Tons of waste diverted

Implementation:

↗ Introduce segregation of yard waste from bulk collections.

↗ Raise awareness of yard waste collection and composting.

↗ Assess options for investment in biochar for waste streams such as seaweed and yard waste.

↗ Develop a convenience/reuse center open to residents and businesses to divert, reuse, and repurpose household items, e-waste, and household hazardous waste.

URBAN FORESTS AND PARKS

City parcels, rights-of-way, and parks provide open space to enhance the urban forest and are integral to Fort Lauderdale's environmental sustainability and climate resilience efforts. By planting more trees, maintaining existing ones, and identifying City-owned or other viable public lands that may be densely planted with trees, Fort Lauderdale can improve air quality, sequester carbon, and provide cooling effects to combat urban heat islands. Water and energy conservation strategies implemented in green spaces enhance the sustainability of green spaces by reducing their resource demands, increasing their resilience to climate impacts, and minimizing their overall contribution to Fort Lauderdale's GHG emissions.

GHG emissions data from for urban forests and parks are not quantified in any inventory, so GHG emissions reductions associated with these strategies are not quantified separately.

Strategy: Water and Energy Conservation

Urban forests and parks play a vital role in Fort Lauderdale's sustainability efforts. Implementing water and energy conservation measures within these green spaces can contribute to the City's net zero goal. These measures help reduce water and energy consumption, lower operational costs, and enhance the resilience of urban green spaces. Additionally, minimizing reliance on potable water for irrigation through efficient landscaping, smart irrigation, and rainwater harvesting further reduces the energy required for water treatment and distribution and enhances overall conservation efforts.

Specific actions for achieving energy and water conservation in parks and urban forests are described below.

ACTION

28

Ensure trees and landscaping are designed for rainwater retention and include drought-resistant and low-water-needs vegetation.

Priority Level: 1	Timeframe: Ongoing	GHG Impact: Medium

Funding: WaterSmart grants, EPA's Water Infrastructure Finance and Innovation Act (WIFIA)

City Partners: City of Fort Lauderdale Parks and Recreation, City of Fort Lauderdale Public Works Department

Initial Cost: Medium	Life-Cycle Cost: Low	Additional Community Cost: Low
ROI: High	LOE: High	Social Impact: Low

Strategic Priority Alignment: Infrastructure and resilience

Co-Benefits: Job creation and workforce development, improved climate resilience, increased cost savings

Performance Metrics: Water consumed by irrigation (square meters)

Implementation:

↗ Follow, incentivize, and raise awareness of Florida-friendly landscaping principles.

↗ Increase awareness of "right tree right place" principles. For example, develop a palette of trees that are drought resistant when established and can withstand periodic inundation from extreme rain events.

↗ Develop additional incentives and protections for the preservation of existing old growth trees.

↗ Review opportunities to simplify processes for permitting the installation of trees planted in the right-of-way

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ACTION 29

Continue to expand smart irrigation systems and consider piloting rainwater harvesting in parks for irrigation.

Priority Level: 1	Timeframe: Ongoing	GHG Impact: Medium

Funding: WaterSmart grants, EPA's WIFIA

City Partners: City of Fort Lauderdale Parks and Recreation, City of Fort Lauderdale Public Works Department

Initial Cost: High	Life-Cycle Cost: Medium	Additional Community Cost: Medium
ROI: High	LOE: Medium	Social Impact: Low

Strategic Priority Alignment: Infrastructure and resilience

Co-Benefits: Job creation and workforce development, improved climate resilience, increased cost savings

Performance Metrics: Water consumed by irrigation (square meters)

Implementation:

↗ Use advanced metering infrastructure to identify and enforce irrigation time schedules.

↗ Benchmark and assess feasibility for rainwater collection options.

↗ Consider greywater systems for irrigation in parks.

Strategy: Tree Canopy Enhancement

Expanding and maintaining the urban tree canopy is a key strategy for mitigating climate change and enhancing urban resilience. Trees provide numerous benefits, including carbon sequestration, temperature regulation, and improved air quality. Increasing tree canopy coverage can create cooler, healthier, and more attractive neighborhoods while contributing to the City's net zero emissions goal. Additionally, trees save energy by providing shade and reducing the need for air conditioning.

Specific actions for enhancing tree canopy cover in parks and urban areas are described below.

ACTION 30	Implement tree planting and preservation initiatives from the Urban Forestry Master Plan (UFMP) that will advance the Comprehensive Plan goal of 33% tree canopy coverage by 2040.		
	Priority Level: 1	**Timeframe:** Long term	**GHG Impact:** High

Funding: Urban and Community Forestry grants, DEP grants, Sustainability Fund

City Partners: City of Fort Lauderdale Parks and Recreation

Initial Cost: Medium	**Life-Cycle Cost:** Medium	**Additional Community Cost:** Low
ROI: Low	**LOE:** Medium	**Social Impact:** High

Strategic Priority Alignment: Public places

Co-Benefits: Improved public health and safety, improved climate resilience

Performance Metrics: Tree canopy percent, caliper inches of trees planted

Implementation:

↗ Address tree planting initiatives via the UFMP in areas with low canopy, optimizing tree species for the changing Fort Lauderdale environment.

↗ Develop tree preservation incentives to encourage retention of existing old-growth trees during development projects.

ACTION 31

Advocate for increased percentage of greenspace in new urban developments.

| Priority Level: 1 | Timeframe: Short term | GHG Impact: Medium |

Funding: Land and Water Conservation Fund, Parks Bond, Urban and Community Forestry grants, Recreational Trails Program, Transportation Alternatives Program, Urban and Community Forestry grants, DEP grants, Sustainability Fund

City Partners: City of Fort Lauderdale Parks and Recreation, City of Fort Lauderdale Public Works Department

| Initial Cost: Medium | Life-Cycle Cost: Medium | Additional Community Cost: High |
| ROI: Low | LOE: Medium | Social Impact: Medium |

Strategic Priority Alignment: Public places

Co-Benefits: Improved air quality, improved water quality, improved climate resilience

Performance Metrics: Area of City-owned green space or other viable public lands

Implementation:

↗ Enhance compliance with replacement of code-required trees.

↗ Continue to improve and expand parks and green spaces through the voter-approved parks bond.

↗ Increase green space, especially along pedestrian pathways.

↗ Ensure inclusive accessibility to parkland, open space, playgrounds, trails and related facilities through pedestrian-friendly design, partnerships with transit agencies, mixed use development with residential, and connections to walking and bicycling paths

Municipal-Focused Strategies

Using the forecasted emissions from the BAU scenario (shown by the gray line) as a starting point to net zero municipal emissions, **Figure 20** illustrates the total projected reduction in GHG emissions resulting from the external influences captured in the LA scenario (shown by the yellow dashed line) in addition to GHG emissions impacts from strategies and actions in this Plan (shown by the area between the yellow dashed LA scenario line and the white dotted net zero line). The figure also details the remaining GHG emissions at each interim year by source (shown by the solid-colored wedges under the net zero line).

The largest sources of emissions in the municipal inventory are water and wastewater treatment (displayed in orange), vehicle fleet (displayed in emerald), and buildings and facilities (displayed in dark green). A significant portion of these emissions will be reduced through external influences such as the increased share of renewable energy in the electrical grid, as shown by the area between the BAU line and the LA scenario line; however, remaining emissions will need to be reduced through the implementation of strategies and actions in this Plan, especially for vehicle fleet emissions.

FIGURE 20.   MUNICIPAL PATHWAY TO NET ZERO
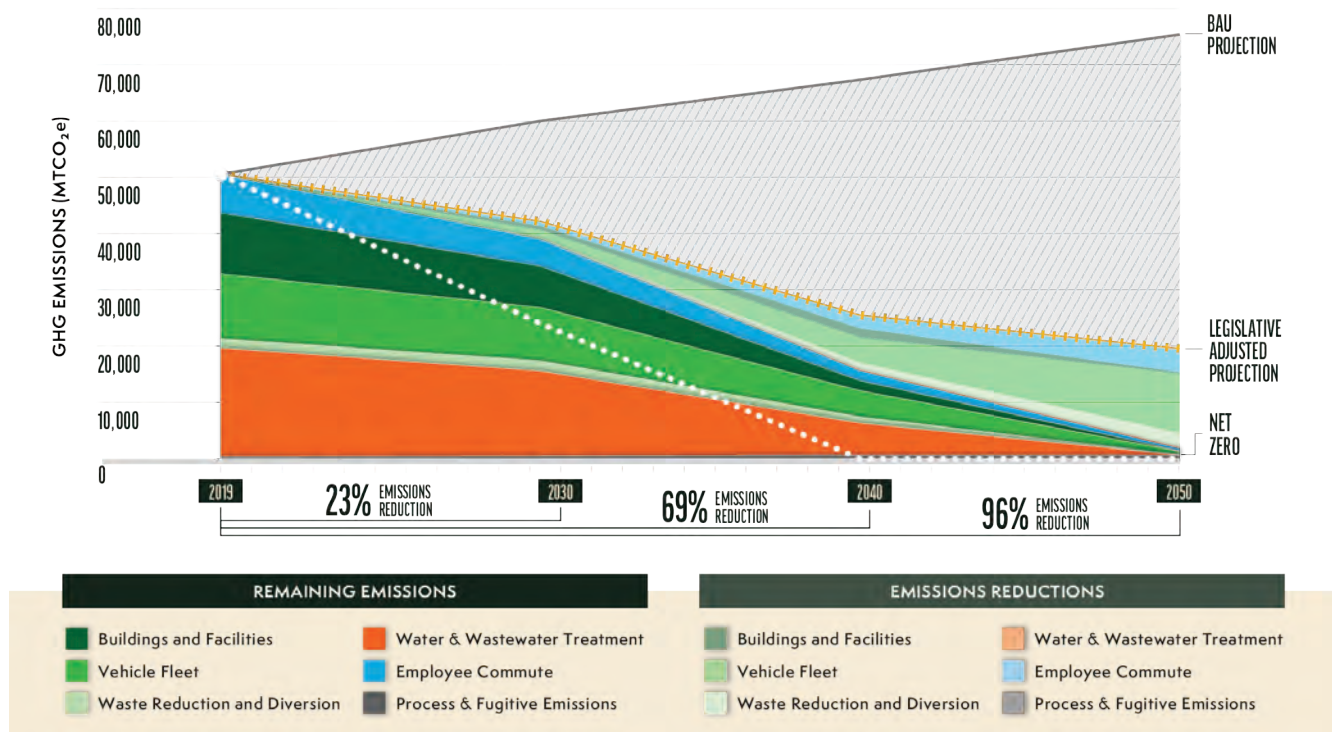
Figure 21 details projections of remaining GHG emissions for each municipal emissions category, as well as the resulting percent change from the 2019 baseline at each interim year. The changes in emissions over time reflect a combination of impacts from the modeled GHG reductions from the LA scenario and the implementation of the strategies and actions outlined in this Plan. A key

component of this effort will be the City's enrollment in FPL's SolarTogether® program. If granted the ability to enroll in the program, this action alone is expected to make the City's electricity usage net zero. Building on this foundation, Fort Lauderdale will continue to monitor the Plan, incorporate feedback, and identify additional strategies to further reduce emissions and enhance progress toward its objectives. Together, these actions are projected to reduce municipal GHG reductions 69% compared to the 2019 baseline by the 2040 goal year.

FIGURE 21.   INTERIM GHG EMISSIONS PROJECTIONS AND PERCENT CHANGES FOR EACH EMISSIONS CATEGORY WITHIN THE MUNICIPAL SECTOR
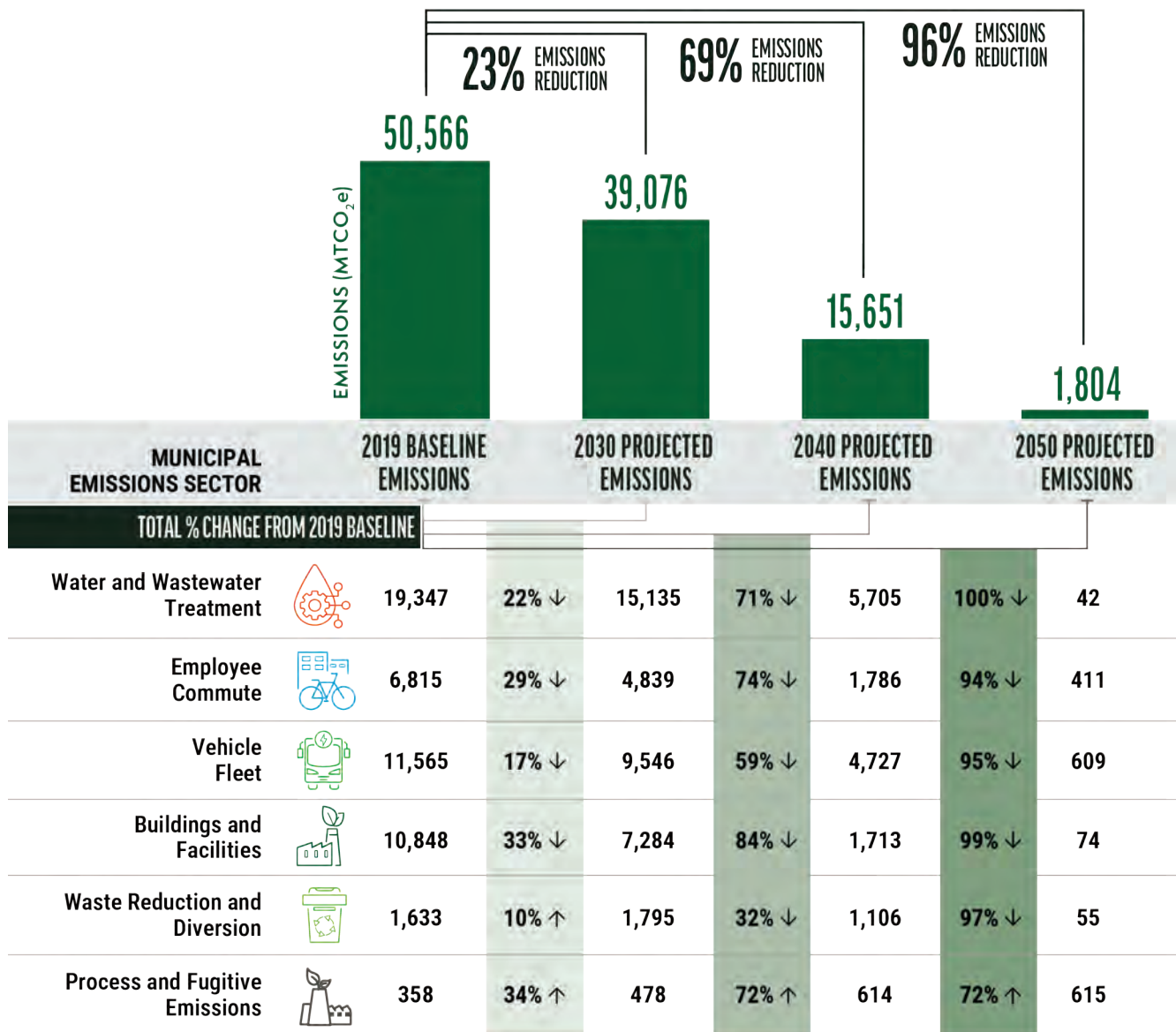
MUNICIPAL EMISSIONS SECTOR	2019 BASELINE EMISSIONS	TOTAL % CHANGE FROM 2019 BASELINE	2030 PROJECTED EMISSIONS		2040 PROJECTED EMISSIONS		2050 PROJECTED EMISSIONS
Water and Wastewater Treatment	19,347	22% ↓	15,135	71% ↓	5,705	100% ↓	42
Employee Commute	6,815	29% ↓	4,839	74% ↓	1,786	94% ↓	411
Vehicle Fleet	11,565	17% ↓	9,546	59% ↓	4,727	95% ↓	609
Buildings and Facilities	10,848	33% ↓	7,284	84% ↓	1,713	99% ↓	74
Waste Reduction and Diversion	1,633	10% ↑	1,795	32% ↓	1,106	97% ↓	55
Process and Fugitive Emissions	358	34% ↑	478	72% ↑	614	72% ↑	615

Notes: *Process and fugitive emissions were not considered when determining GHG emission reduction strategies in this plan because they account for a very small proportion of municipal and community emissions. Fort Lauderdale is committed to taking action to ensure these emissions continue to be minimized through regular maintenance and operations efficiency efforts.*

Baseline 2019 emissions and all emissions reductions for streetlights are included in the Buildings and Facilities total for this report.

COST ESTIMATES

Each of the strategies below includes a near-term cost estimate that provides an estimated range of costs expected to be borne by the City for implementation of actions within that strategy in the next five years (by 2030). For more information on how these costs were quantified, see Appendix A, *Methodology*. The ranges are detailed in **Figure 22**.

FIGURE 22.   NEAR-TERM COST ESTIMATE RANGES (COSTS BORNE BY THE CITY BETWEEN 2025 AND 2030) FOR EACH MUNICIPAL-FOCUSED STRATEGY*

VERY HIGH > $2 M each

- ▸ Electric Vehicles
- ▸ Energy Efficiency and Water Conservation
- ▸ Renewable Energy

$1 M - $2 M each

- ▸ Sustainability Administration
- ▸ Water and Wastewater Treatment

HIGH

$10,000 - $1 M each

- ▸ Reduce VMT
- ▸ Municipal Waste Reduction and Diversion

MEDIUM

LOW < $10,000
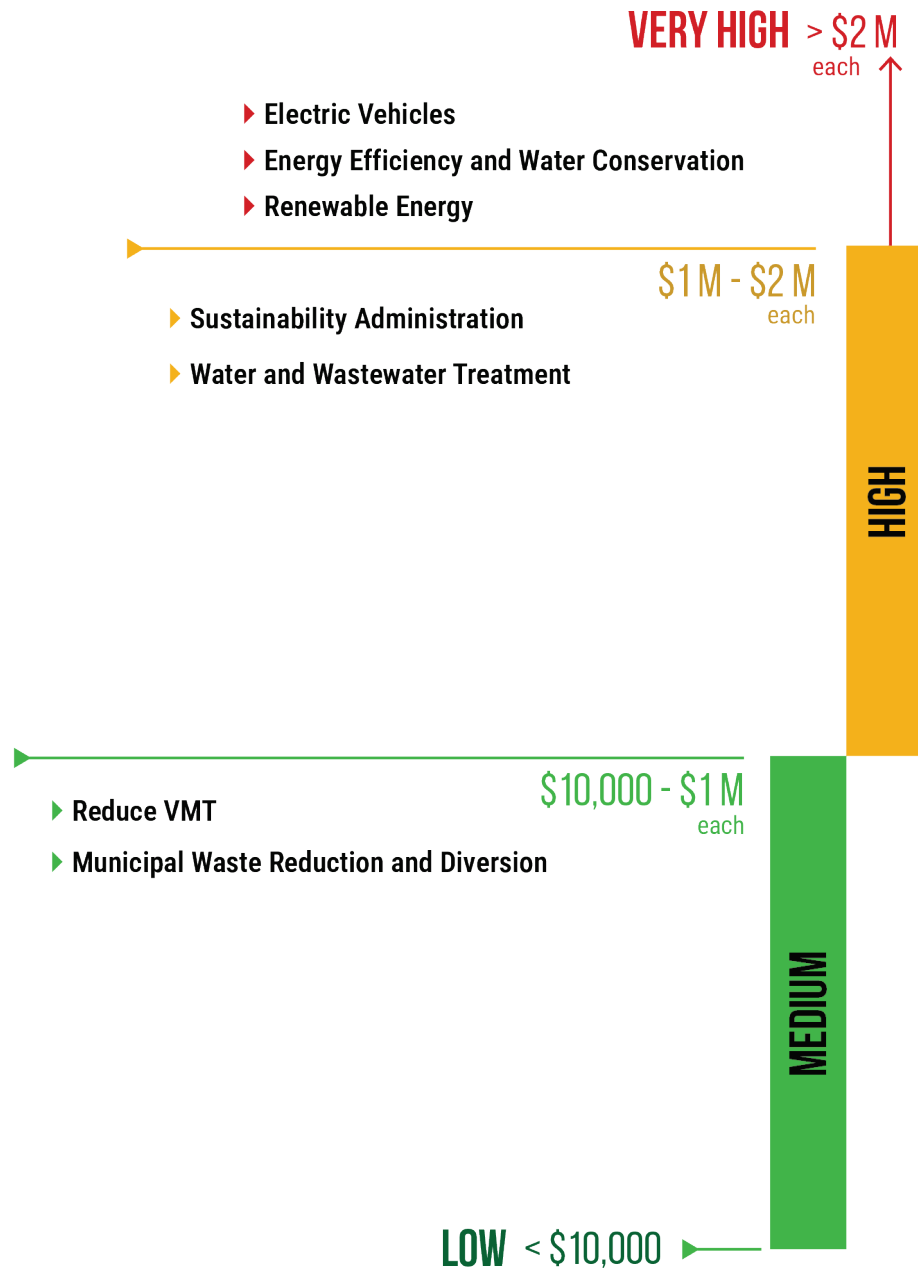
Note that cost ranges provided here are for costs at the <u>strategy</u> level.
Qualitative cost estimates provided at the <u>action</u> level do not correspond to these ranges.

SUSTAINABILITY ADMINISTRATION

Several administrative efforts need to be implemented to achieve the strategies and actions proposed throughout this plan and to monitor and report progress. These efforts are not directly linked to emissions reductions and cannot be tied back to any emission category in the 2019 GHG Inventory, but they are necessary and enable other strategies that will directly reduce GHG emissions.

Specific actions for driving and monitoring progress, measuring impacts, and reporting progress on the strategies laid out in this Plan, and other administrative efforts are described below.

ACTION 32	Create working groups to champion, drive, and report progress on each sector.		
Priority Level: 1	**Timeframe:** Short term		**GHG Impact:** High

Funding: N/A

City Partners: City of Fort Lauderdale Sustainability Division

Initial Cost: Low	**Life-Cycle Cost:** Low	**ROI:** High
LOE: Medium	**Social Impact:** Low	

Strategic Priority Alignment: N/A

Co-Benefits: N/A

Performance Metrics: N/A

Implementation:

↗ Identify committees and leaders to manage efforts in each sector and/or strategy.

↗ Ensure committees are driving action, monitoring progress, and identifying funding opportunities on a regular basis.

↗ Regularly meet with committees to share progress, workshop challenges, and ensure a holistic approach.

ACTION

33

Identify and establish funding streams to support net zero efforts in city operations and Citywide.

Priority Level: 1	Timeframe: Short term	GHG Impact: High

Funding: N/A

City Partners: City of Fort Lauderdale Sustainability Division

Initial Cost: High	Life-Cycle Cost: Low	ROI: High
LOE: Medium	Social Impact: Low	

Strategic Priority Alignment: N/A

Co-Benefits: N/A

Performance Metrics: Funds allocated for sustainability, grant funding awarded

Implementation:

↗ Further explore grants and other funding recommendations detailed throughout this plan.

↗ Regularly review available grants to ensure new opportunities are not missed.

↗ Explore allocation of a portion of electric utility franchise fee to invest in reducing energy costs for the City and residents.

↗ Fund and expand the Sustainability Investment Fund.

ACTION

34

Publicly report on progress on the Net Zero Plan.

| **Priority Level:** 1 | **Timeframe:** Ongoing | **GHG Impact:** Low |

Funding: City budget

City Partners: City of Fort Lauderdale Sustainability Division

| **Initial Cost:** Medium | **Life-Cycle Cost:** Low | **ROI:** Low |
| **LOE:** Medium | **Social Impact:** Low | |

Strategic Priority Alignment: N/A

Co-Benefits: N/A

Performance Metrics: N/A

Implementation:

↗ Report progress toward overall net zero goals, strategies, actions, and KPIs on a regular basis, at least every three years.

↗ Ensure engagement with key stakeholders and community members.

↗ Allow for an evolving strategy as trends, challenges, and successes emerge.

ACTION 35

Support green workforce development.

Priority Level: 1	Timeframe: Ongoing	GHG Impact: Medium

Funding: Greater Fort Lauderdale Alliance, City of Fort Lauderdale Housing and Community Development, Community Foundation of Broward Grants, DOE fellowship opportunities, and Urban Sustainability Directors Network fellowship opportunities.

City Partners: City of Fort Lauderdale Sustainability Division, City of Fort Lauderdale Education & Workforce Development Office, City of Fort Lauderdale Organizational Development & Training Division

Initial Cost: Low	Life-Cycle Cost: Low	ROI: Medium
LOE: Medium	Social Impact: Medium	

Strategic Priority Alignment: Business growth and support

Co-Benefits: Job creation and workforce development, improved climate resilience, reduced inequality

Performance Metrics: Green jobs created, number of green buildings training hosted for City staff, number of training participants, number of employees earning recognized green certifications (e.g., LEED)

Implementation:

↗ Provide training for City employees on emerging initiatives and technologies related to resilient and sustainable buildings, including solar photovoltaic systems, energy storage, EV charging infrastructure, energy efficiency measures, electrification, and climate adaptation policies.

↗ Continue to provide summer internships that align with the City's sustainability and resilience goals and seek funding opportunities to host fellows who can contribute to advancing key initiatives while gaining valuable professional experience for future jobs in the field.

WATER AND WASTEWATER TREATMENT

Water and wastewater treatment accounted for 38% of municipal GHG emissions in 2019, making this one of the most impactful categories for municipal mitigation. Water and wastewater treatment plants consume energy Citywide for pumping, distribution, and treatment processes that include aeration, filtration, and sludge management, as well as for maintaining and operating equipment.

The interim projections for reduced GHG emissions from water and wastewater treatment improvements are shown in **Figure 23**. These percentages represent changes from 2019 baseline GHG emissions and reflect reductions forecasted in the LA scenario and the implementation of the water and wastewater strategies and actions that are described below. For more details on emissions reductions from each strategy, including projected emissions in $MTCO_2e$, see Appendix B, *Detailed Interim Goals*.

FIGURE 23.   PROJECTED CHANGES IN GHG EMISSIONS FOR WATER AND WASTEWATER TREATMENT STRATEGIES

EMISSIONS ($MTCO_2e$)

MUNICIPAL EMISSIONS SECTOR		2019 BASELINE EMISSIONS	2030 PROJECTED EMISSIONS		2040 PROJECTED EMISSIONS		2050 PROJECTED EMISSIONS	
TOTAL % CHANGE FROM 2019 BASELINE								
Water and Wastewater Treatment		19,347	22% ↓	15,135	71% ↓	5,705	100% ↓	42

To meet emissions reduction projections for water and wastewater treatment, the municipality should focus on energy efficiency, process optimization, and renewable energy integration.

▪ **By 2030, a 22% reduction** in municipal water and wastewater treatment emissions compared to the 2019 baseline relies on upgrading to energy-efficient equipment and optimizing treatment processes.

▪ **By 2040, a 71% reduction** from the 2019 municipal water and wastewater treatment baseline requires on-site renewable energy generation (e.g., solar, wind, or biogas) and implementing advanced low-energy treatment technologies.

- **By 2050, a 100% reduction** from the 2019 municipal water and wastewater treatment baseline depends on fully transitioning to renewable energy, optimizing resource recovery, and using carbon capture technologies. Ongoing monitoring and adaptive management ensure sustained progress.

Specific actions for reducing emissions from water and wastewater treatment to meet these projections are described below.

ACTION 36	Prioritize energy efficiency and the integration of renewable energy at water and wastewater facilities.		
	Priority Level: 2	**Timeframe:** Long term	**GHG Impact:** High

Funding: Sewer Overflow and Stormwater Reuse Municipal grants program, water and waste disposal loan and grant program, DOE funding for water resource recovery facilities, DOE Office of Energy Efficiency and Renewable Energy (EERE) funding opportunities

City Partners: City of Fort Lauderdale Public Works Utilities Division, City of Fort Lauderdale Sustainability Division, private sector partners

Initial Cost: High	**Life-Cycle Cost:** High	**ROI:** High
LOE: High	**Social Impact:** Low	

Strategic Priority Alignment: Infrastructure and resilience

Co-Benefits: Improved water quality, job creation and workforce development, improved climate resilience, increased cost savings

Performance Metrics: Water and wastewater facility energy consumption (kWh), electrification percent, renewable energy percent

Implementation:

↗ Evaluate feasibility of battery storage and solar power for pump stations.

↗ Continue to invest in innovative technology to reduce energy intensity of water and wastewater treatment processes.

↗ Identify highest areas of energy use and opportunities for renewable energy installations.

↗ Work with water and wastewater treatment staff to optimize processes.

↗ Benchmark innovative programs and identify opportunities at each facility based on unique needs and challenges.

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NETZERO

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MUNICIPAL TRANSPORTATION AND MOBILE SOURCES

The vehicle fleet accounted for nearly a quarter of municipal GHG emissions in 2019. Aligned with the Community Strategies, there are two major strategies to reduce and eliminate GHG emissions from transportation and mobility: (1) reduction of overall VMTs, and (2) the transition to electric modes of transportation.

The interim projections for reduced GHG emissions from municipal vehicle fleet and employee commute improvements are shown in **Figure 24**. These percentages represent changes from 2019 baseline GHG emissions and reflect emissions reductions forecasted in the LA scenario and the implementation of the strategies and actions described in this Plan. A significant portion of these emissions will be reduced through external influences such as the increased availability of EVs and EV infrastructure and improved public transit options. For more details on emissions reductions from each strategy, including projected emissions in $MTCO_2e$, see Appendix B, *Detailed Interim Goals*.

FIGURE 24. PROJECTED CHANGES IN GHG EMISSIONS FOR MUNICIPAL TRANSPORTATION AND MOBILITY STRATEGIES

EMISSIONS ($MTCO_2e$)

MUNICIPAL EMISSIONS SECTOR		2019 BASELINE EMISSIONS	2030 PROJECTED EMISSIONS		2040 PROJECTED EMISSIONS		2050 PROJECTED EMISSIONS	
TOTAL % CHANGE FROM 2019 BASELINE								
Employee Commute		6,815	29% ↓	4,839	74% ↓	1,786	94% ↓	411
Vehicle Fleet		11,565	17% ↓	9,546	59% ↓	4,727	95% ↓	609

To meet the reductions in GHG emissions related to employee commuting, the City needs to:

▪ **By 2030, reduce emissions by 29%** from the 2019 baseline by encouraging and incentivizing employees to use public transportation and educating them about EVs.

▪ **By 2040, reduce emissions by 74%** from the 2019 baseline by embracing flexible and remote work schedules, where feasible, and reducing unnecessary business travel.

▪ **By 2050, reduce emissions by 94%** from the 2019 baseline GHG emissions with continued provision of charging for EVs, ensuring that employees are using alternative transportation where possible, and partnering with transit agencies to transition to an EV fleet.

To meet the reductions in GHG emissions related to the municipal vehicle fleet, the City needs to:

▪ **By 2030, reduce fleet emissions by 17%** from the 2019 baseline through more efficient vehicle sharing between departments, reduced idling, and the introduction of an EV policy and program.

▪ **By 2040, reduce fleet emissions by 59%** from the 2019 baseline with the continued and expanded installation of EV chargers and adoption of EV vehicles across the fleet, in addition to increased focus on reducing VMTs through the optimization and elimination of trips.

▪ **By 2050, to reduce fleet emissions by 95%** from the 2019 baseline requires EV adoption for the entire fleet and widespread EV infrastructure.

Strategy: Reduce VMT

Specific actions for reducing municipal VMT to meet these projections are described below.

ACTION **37**	Continue to enhance vehicle utilization tracking.		
	Priority Level: 1	**Timeframe:** Ongoing	**GHG Impact:** High

Funding: City Sustainability Fund

City Partners: City of Fort Lauderdale Transportation and Mobility Department, City of Fort Lauderdale Sustainability Division

Initial Cost: Medium	**Life-Cycle Cost:** Medium	**ROI:** High
LOE: Medium	**Social Impact:** Low	

Strategic Priority Alignment: N/A

Co-Benefits: Cost savings

Performance Metrics: Municipal VMT

Implementation:
↗ Introduce a policy and improve the system to more efficiently plan for municipal pool vehicle and equipment use, track usage by function, and monitor charges.
↗ Use insights to modify fleet based on usage pattern and needs.

ACTION 38
Incentivize public transit and alternative transportation (bike/walk) for employees.

Priority Level: 2	Timeframe: Short term	GHG Impact: Medium

Funding: City Fund, incentives from transportation agencies and partners

City Partners: All departments

Initial Cost: Low	Life-Cycle Cost: Low	ROI: Low
LOE: Low	Social Impact: Low	

Strategic Priority Alignment: N/A

Co-Benefits: Improved public health and safety, improved air quality, reduced traffic congestion

Performance Metrics: Municipal VMT

Implementation:

↗ Offer reduced cost transit fares for employees.

↗ Continue to expand facilities and amenities needed for employees who bicycle or walk to work, such as bike racks, bike repair infrastructure along bike paths, and storage for equipment.

↗ Offer small incentives for employees who use alternative transportation to travel to work, such as a raffle for free lunch or coffee or recognition on social media.

ACTION **39** Continue to monitor and reduce municipal vehicle idling.

Priority Level: 2	Timeframe: Ongoing	GHG Impact: Medium

Funding: City Fund

City Partners: City of Fort Lauderdale Sustainability Division Fleet Services

Initial Cost: Low	Life-Cycle Cost: Low	ROI: Medium
LOE: Low	Social Impact: Low	

Strategic Priority Alignment: N/A

Co-Benefits: Improved public health and safety, improved air quality, increased cost savings

Performance Metrics: Idle time (average, maximum)

Implementation:

- ↗ Update idling policy to decrease allowable idle time.
- ↗ Continue to notify users who are idling past time limits.
- ↗ Set an idling reduction target for all municipal vehicles, keeping emergency vehicle needs in mind.
- ↗ Update the City's 4-year strategic plan to reduce fuel consumption by 2% within its fleet and set new targets.

ACTION

40

Expand implementation of virtual/digital monitoring of parking enforcement.

Priority Level: 2	Timeframe: Ongoing	GHG Impact: Low

Funding: Parking Division

City Partners: City of Fort Lauderdale Transportation and Mobility Department, City of Fort Lauderdale Sustainability Division

Initial Cost: Medium	Life-Cycle Cost: Medium	ROI: Medium
LOE: Medium	Social Impact: Low	

Strategic Priority Alignment: N/A

Co-Benefits: Improved public health and safety, improved air quality, reduced traffic congestion, increased cost savings

Performance Metrics: Municipal VMT

Implementation:

↗ Assess new areas to implement digital parking enforcement.

↗ Reduce miles driven by parking enforcement vehicles.

↗ Optimize parking enforcement routes to minimize mileage and idling.

ACTION 41

Encourage or allow remote work hours or flexible work hours for City employees.

Priority Level: 3	Timeframe: Short term	GHG Impact: Medium

Funding: City Fund

City Partners: All departments

Initial Cost: Low	Life-Cycle Cost: Low	ROI: Medium
LOE: Low	Social Impact: Medium	

Strategic Priority Alignment: N/A

Co-Benefits: Improved public health and safety, improved air quality, reduced traffic congestion, increased cost savings

Performance Metrics: Municipal VMT, percent of all employees that participate in partial work from home

Implementation:

↗ Introduce remote work policy to allow employees to work remotely for some percentage of the week to reduce commuting days and decrease the need for office space.

↗ Introduce flexible work policy.

Strategy: Electric Vehicles

Specific actions for transitioning to an electric fleet to meet these projections are described below.

ACTION **42**	**Develop a comprehensive fleet electrification and EV infrastructure policy and program.**

Priority Level: 1	**Timeframe:** Short term	**GHG Impact:** High

Funding: Clean Cities Coalition Network, CDBG program, EPA Heavy-Duty Vehicles grant program, Florida Electric Vehicle Infrastructure grant program, City Sustainability Fund

City Partners: City of Fort Lauderdale Transportation and Mobility Department, Urban Design and Planning, Development Services, private sector partners, City of Fort Lauderdale Sustainability Division

Initial Cost: High	**Life-Cycle Cost:** High	**ROI:** High
LOE: High	**Social Impact:** Low	

Strategic Priority Alignment: Infrastructure and resilience

Co-Benefits: Improved public health and safety, improved air quality, job creation and workforce development, improved climate resilience, increased cost savings

Performance Metrics: Number of City EV chargers installed, EV as a percent of municipal fleet, fleet fuel consumption

Implementation:

- ↗ Convene a task force and develop a fleet procurement policy and regulations. Have the task force review and approve acquisitions of all vehicles.
- ↗ Set short-, medium-, and long-term fleet electrification goals. All vehicles and equipment purchased by the City should be electric, plug-in hybrid, hybrid electric, or use an alternative fuel unless the vehicle or equipment is determined to be, and is documented as, exempt.
- ↗ Commit to convert 100% of non-emergency light-duty vehicles to electric by 2035.
- ↗ Revise fleet procurement policies to consider the life-cycle costs of new fleet vehicles so that operational savings (maintenance, fuel) can be considered when purchasing new vehicles.
- ↗ Continue to invest in EV charging at City facilities.
- ↗ Develop a process for incorporating EV charging into the design of new facilities.
- ↗ Develop a medium-term transition to EV options for high-clearance emergency vehicles (police and fire) and heavy-duty vehicles.
- ↗ Develop medium-term options for solar panels on emergency vehicles.
- ↗ Develop long-term transition to EV options for highly specialized fire trucks, emergency vehicles, and other heavy-duty vehicles.
- ↗ Explore efforts around electrification of LauderGO! Water Trolley.

ACTION **43**	Develop policies to address at-home charging for take-home EVs, working with police, fire, and unions.

Priority Level: 1	**Timeframe:** Short term	**GHG Impact:** Medium

Funding: NEVI formula program, Discretionary Grant Program for Charging and Fueling Infrastructure, American Rescue Plan Act, Electrification Coalition's EV Funding Finder

City Partners: City of Fort Lauderdale Police and Fire Rescue Departments, City of Fort Lauderdale Transportation and Mobility Department, City of Fort Lauderdale Sustainability Division, unions such as FOP Lodge 31 or IAFF Local 765

Initial Cost: Medium	**Life-Cycle Cost:** Medium	**ROI:** Medium
LOE: Medium	**Social Impact:** Low	

Strategic Priority Alignment: Infrastructure and resilience

Co-Benefits: Improved climate resilience, cost savings

Performance Metrics: Percent of municipal fleet take-home vehicles that are EVs

Implementation:

↗ Benchmark practices of existing programs.

↗ Work with stakeholders to understand needs, concerns, and challenges.

↗ Develop policies and incentives to encourage transitioning to EV for take-home vehicles.

ACTION 44

Increase employee education about EVs.

Priority Level: 1	Timeframe: Short term	GHG Impact: Low

Funding: City Sustainability Fund

City Partners: City of Fort Lauderdale Sustainability Division, City of Fort Lauderdale Transportation and Mobility Department

Initial Cost: Low	Life-Cycle Cost: Low	ROI: Low
LOE: Medium	Social Impact: Low	

Strategic Priority Alignment: N/A

Co-Benefits: Improved climate resilience, cost savings

Performance Metrics: Number of educational sessions conducted, participation rate

Implementation:

↗ Develop an internal program to raise awareness of the capabilities and benefits of EVs. Include EV education as part of the onboarding process for new employees, ensuring that sustainability initiatives, including the adoption of EVs, are communicated from the start.

↗ Debunk common assumptions regarding limitations of EVs.

↗ Increase staff comfort with using EVs by offering test-drive opportunities.

ACTION 45

Monitor market availability of EVs across vehicle classes used by the City and identify opportunities to introduce EVs to more vehicle classes.

Priority Level: 1	Timeframe: Short term	GHG Impact: Low

Funding: NEVI formula program, Florida Department of Agriculture and Consumer Services - Office of Energy, FTA Low or No Emission Vehicle program

City Partners: City of Fort Lauderdale Transportation and Mobility Department, City of Fort Lauderdale Sustainability Division, City of Fort Lauderdale Police and Fire Rescue Departments

Initial Cost: Low	Life-Cycle Cost: Low	ROI: Medium
LOE: Medium	Social Impact: Low	

Strategic Priority Alignment: Infrastructure and resilience

Co-Benefits: Improved climate resilience, cost savings

Performance Metrics: N/A

Implementation:

↗ Conduct a study into successful deployment of heavy-duty fleet vehicles (including emergency fleets) and identify best practices and strategies for implementation, such as vehicle type, crisis planning, and rapid charging infrastructure.

ACTION 46

Electrify City off-road equipment (mowers, backhoes, etc.)

Priority Level: 1	Timeframe: Medium term	GHG Impact: Medium

Funding: EPA Diesel Emissions Reduction Act grants, DEP EV grants, city budget allocations and/or green bonds

City Partners: City of Fort Lauderdale Public Works, City of Fort Lauderdale Fleet Services Program, City of Fort Lauderdale Sustainability Division

Initial Cost: Medium	Life-Cycle Cost: Low	ROI: High
LOE: Medium	Social Impact: Low	

Strategic Priority Alignment: Infrastructure and resilience

Co-Benefits: Improved climate resilience, improved air quality, cost savings

Performance Metrics: Percent electrified off-road equipment

Implementation:

↗ Benchmark existing programs that use electric equipment and identify potential challenges and solutions.

↗ Pilot electric equipment before fully investing in an entire inventory.

↗ Identify most impactful and efficient equipment types on which to focus initial efforts.

ACTION 47

Install L2 and direct-current fast charging electric vehicle charging stations (EVCS) throughout the City for municipal fleet use in City parking lots.

Priority Level: 2	Timeframe: Medium term	GHG Impact: High

Funding: Charging and Fueling Infrastructure grant program, Charge Ready Light Duty: Direct Current Fast Charging program

City Partners: City of Fort Lauderdale Transportation and Mobility Department, City of Fort Lauderdale Sustainability Division, Fort Lauderdale Executive Airport, City of Fort Lauderdale Public Works Department

Initial Cost: High	Life-Cycle Cost: Medium	ROI: Low
LOE: High	Social Impact: Medium	

Strategic Priority Alignment: Infrastructure and resilience

Co-Benefits: Job creation and workforce development, improved climate resilience, increased cost savings

Performance Metrics: Number of EVCS installed for fleet use

Implementation:

↗ Identify needs based on existing and projected electric fleet.

↗ Assess suitable locations for installation.

↗ Identify funding sources.

MUNICIPAL BUILDINGS AND FACILITIES

> Energy consumption in buildings accounted for 15% of municipal GHG emissions in 2019.

The interim projections for reduced GHG emissions from municipal building energy improvements are shown in **Figure 25**. These percentages represent changes from 2019 baseline GHG emissions and reflect emissions reductions forecasted in the LA scenario and the implementation of the strategies and actions specific to municipal buildings and facilities that are detailed below. A significant portion of these emissions will be reduced through external influences such as the increased share of renewable energy in the electrical grid as well as improved operational and energy efficiency. For more details on emissions reductions from the strategies and actions, including projected emissions in MTCO$_2$e, see Appendix B, *Detailed Interim Goals*.

FIGURE 25.   PROJECTED CHANGES IN GHG EMISSIONS FOR MUNICIPAL BUILDING AND FACILITY STRATEGIES

EMISSIONS (MTCO$_2$e)

MUNICIPAL EMISSIONS SECTOR	2019 BASELINE EMISSIONS		2030 PROJECTED EMISSIONS		2040 PROJECTED EMISSIONS		2050 PROJECTED EMISSIONS
TOTAL % CHANGE FROM 2019 BASELINE							
Buildings and Facilities	10,848	33% ↓	7,284	84% ↓	1,713	99% ↓	74

Strategy: Energy Efficiency and Water Conservation

Reducing GHG emissions from municipal buildings and facility operations requires improvements to energy efficiency and water conservation.

- **By 2030, a 33% reduction** from 2019 municipal buildings and facilities GHG emissions requires assessing current energy use in facilities and updating reduction targets, completing the conversion of remaining streetlights to LEDs, and updating building standards to meet net zero requirements.

- **By 2040, an 84% reduction** from the 2019 municipal buildings and facilities baseline requires continued efforts and investments to enhance energy efficiency and participation in the Better Building Challenge and Better Climate Challenge to leverage resources.

- **By 2050, a 99% reduction** from the 2019 municipal buildings and facilities baseline requires ongoing review and investment in energy efficiency of operations and implementation of net zero building standards in new builds and retrofitting of existing buildings and facilities.

Specific actions for improving energy and water use efficiency to meet these projections are described below.

ACTION **48**	Update energy reduction targets for existing municipal facilities.		
	Priority Level: 1	**Timeframe:** Medium term	**GHG Impact:** High

Funding: PACE program, Resilient Florida grants, IRA funding, EERE funding opportunities (eXCHANGE)

City Partners: City of Fort Lauderdale Public Works, City of Fort Lauderdale Sustainability Division, City of Fort Lauderdale City Commission

Initial Cost: Low	**Life-Cycle Cost:** Medium	**ROI:** High
LOE: Medium	**Social Impact:** Medium	

Strategic Priority Alignment: Infrastructure and resilience

Co-Benefits: Infrastructure and resilience, cost savings, housing

Performance Metrics: Municipal energy use (kWh)

Implementation:
- ↗ Assess current energy use in municipal facilities.
- ↗ Identify ambitious and achievable target for energy reduction.
- ↗ Update published targets for municipal facilities.

ACTION 49

Complete conversion of streetlights to LEDs, in partnership with FPL and FDOT.

Priority Level: 1	Timeframe: Short term	GHG Impact: High

Funding: City budget, federal, and state

City Partners: City of Fort Lauderdale Parks and Recreation, FPL, FDOT

Initial Cost: Low	Life-Cycle Cost: Low	ROI: High
LOE: Low	Social Impact: Low	

Strategic Priority Alignment: Infrastructure and resilience

Co-Benefits: Improved public health and safety, cost savings

Performance Metrics: Municipal energy use (kWh), percent streetlights converted

Implementation:

↗ Continue partnership with FPL and FDOT to complete conversion of remaining FPL and FDOT streetlights to LEDs.

↗ Identify strategies for LED conversion of any remaining streetlights.

↗ Ensure consideration for aesthetics and minimizing light pollution when transitioning to LEDs.

ACTION 50

Require all new buildings to be built to zero net energy standards starting in 2030. Retrofit existing municipal buildings to be all-electric and net zero energy by 2040.

Priority Level: 1	Timeframe: Ongoing	GHG Impact: High

Funding: City budget, federal, and state grants

City Partners: City of Fort Lauderdale Urban Design and Planning, City of Fort Lauderdale Development Services, City of Fort Lauderdale Sustainability Division

Initial Cost: High	Life-Cycle Cost: Medium	ROI: Medium
LOE: High	Social Impact: Low	

Strategic Priority Alignment: Infrastructure and resilience

Co-Benefits: Improved public health and safety, improved air quality, improved climate resilience, job creation and workforce development, improved climate resilience, cost savings

Performance Metrics: Municipal energy use (kWh), on-site natural gas use in City buildings (therms)

Implementation:

↗ Codify requirements for all new municipal buildings to be built to net zero energy standards by 2030, with incremental energy use reduction targets from 2025.

↗ Develop a plan for all existing buildings to be retrofit to all-electric net zero energy standards by 2040.

ACTION

51

Continue participation in the Better Building Challenge and pledge to the Better Climate Challenge.

Priority Level: 2	**Timeframe:** Short term	**GHG Impact:** Medium

Funding: DOE Better Buildings Initiative, DOE Better Climate Initiative

City Partners: City of Fort Lauderdale Public Works, City of Fort Lauderdale Sustainability Division, City of Fort Lauderdale City Commission

Initial Cost: Low	**Life-Cycle Cost:** Low	**ROI:** Medium
LOE: Low	**Social Impact:** Low	

Strategic Priority Alignment: Infrastructure and resilience

Co-Benefits: Infrastructure and resilience, increased cost savings, climate resilience

Performance Metrics: Municipal energy use (kWh)

Implementation:

↗ Continue to enhance energy efficiency and leverage resources from the Better Building Challenge.

↗ Determine requirements for participation in the Better Climate Challenge.

↗ Pledge to the Better Climate Challenge and leverage support and resource available through the DOE to reduce emissions and meet net zero goals.

Strategy: Renewable Energy

Ensuring the City can meet the reduction targets for buildings and facility GHG emissions, the City needs to implement efforts to transition to clean, low-carbon energy sources.

- **By 2030, a 33% reduction** from 2019 municipal buildings and facilities GHG emissions requires subscribing to FPL SolarTogether® for all municipal operations, conducting studies and pilot programs to evaluate the feasibility of on-site renewable energy, identifying priority areas and developing a Citywide plan for a transition to renewable energy, and advocating for renewable energy mandates for utilities.

- **By 2040, an 84% reduction** from the 2019 municipal buildings and facilities baseline relies on continuing engagement with stakeholders to build support for renewable energy initiatives, providing staff training on the operation and maintenance of renewable energy systems, updating City policies to facilitate renewable energy installations, forming coalitions to strengthen advocacy efforts, and submitting proposals to state and federal agencies outlining renewable energy initiatives and funding requirements.

- **By 2050, a 99% reduction** from the 2019 municipal buildings and facilities baseline requires the establishment of a system for monitoring and evaluating renewable energy projects to track progress, and continued engagement with external stakeholders to ensure available renewable energy on the grid continues to expand.

Specific actions for increasing municipal renewable energy use to meet these projections are described below.

ACTION **52**	**Install renewable energy systems and backup batteries at new and existing City facilities to create resilient net zero buildings.**		
	Priority Level: 1	**Timeframe:** Ongoing	**GHG Impact:** High

Funding: State Energy Program (SEP), Energy Efficiency and Conservation Block Grant program, federal and state grants

City Partners: City of Fort Lauderdale Public Works, City of Fort Lauderdale Sustainability Division, FPL

Initial Cost: High	**Life-Cycle Cost:** Medium	**ROI:** High
LOE: Medium	**Social Impact:** Low	

Strategic Priority Alignment: Infrastructure and resilience

Co-Benefits: Improved climate resilience, cost savings

Performance Metrics: Municipal percent renewable energy installed capacity (kW)

Implementation:

↗ Conduct feasibility studies to evaluate the technical and economic viability of renewable energy sources for each municipal building.

↗ Initiate pilot projects to test the effectiveness of renewable energy technologies in select municipal buildings. Use the results to inform broader implementation strategies.

↗ Engage with stakeholders, including City officials, employees, and the community to gather input and build support for renewable energy initiatives.

↗ Provide training for municipal staff on the operation and maintenance of renewable energy systems.

ACTION 53
Develop Citywide plan for renewable energy installations.

Priority Level: 1	Timeframe: Ongoing	GHG Impact: High

Funding: SEP, Energy Efficiency and Conservation Block Grant Program, federal and state grants

City Partners: City of Fort Lauderdale Public Works, City of Fort Lauderdale Parks and Recreation, City of Fort Lauderdale Sustainability Division, FPL

Initial Cost: High	Life-Cycle Cost: Low	ROI: High
LOE: Medium	Social Impact: Low	

Strategic Priority Alignment: Infrastructure and resilience, public places

Co-Benefits: Improved climate resilience, cost savings

Performance Metrics: Renewable energy generation capacity

Implementation:

↗ Subscribe to FPL's SolarTogether® program for all municipal operations.

↗ Conduct resource mapping to identify areas with high potential for renewable energy generation, such as solar and wind.

↗ Review and update City policies and regulations to facilitate the installation of renewable energy systems.

↗ Establish a system for ongoing monitoring and evaluation of renewable energy projects to track progress and make necessary adjustments.

ACTION 54

Advocate for incorporation of renewable energy-related policies and programs in state and federal infrastructure funding programs.

Priority Level: 1	Timeframe: Short term	GHG Impact: Medium

Funding: DOE Clean Energy Infrastructure funding, EERE funding opportunities, PACE program

City Partners: City of Fort Lauderdale Sustainability Division, City of Fort Lauderdale Public Works, City of Fort Lauderdale City Commission

Initial Cost: Low	Life-Cycle Cost: Low	ROI: Medium
LOE: Low	Social Impact: Medium	

Strategic Priority Alignment: Infrastructure and resilience

Co-Benefits: Improved climate resilience

Performance Metrics: Percent renewable energy (kWh)

Implementation:

↗ Advocate for state renewable energy mandates for the utilities.

↗ Support SELF and Solar for All.

↗ Establish regular communication with state and federal legislators to advocate for the inclusion of renewable energy policies in infrastructure funding programs.

↗ Form coalitions with other municipalities, environmental organizations, and industry groups to strengthen advocacy efforts.

↗ Draft and submit policy proposals to state and federal agencies that outline specific renewable energy initiatives and funding requirements.

↗ Participate in public hearings and provide testimonies to legislative bodies and regulatory agencies to advocate for renewable energy mandates and funding.

MUNICIPAL WASTE REDUCTION AND DIVERSION

Solid waste facilities accounted for 3% of municipal GHG emissions in 2019.

The interim projections for reduced GHG emissions from waste management improvements are shown in **Figure 26**. These percentages represent changes from 2019 baseline GHG emissions and reflect emissions reductions forecasted in the LA scenario and the implementation of the municipal waste reduction strategy and action described in this Plan. A significant portion of emissions related to waste management will be reduced through external influences such as improved waste management processes, cleaner waste hauling options, reduced waste generation, and improved recyclability and diversion of waste. For more details on emissions reductions from the strategy described below, including projected emissions in $MTCO_2e$, see Appendix B, *Detailed Interim Goals*.

FIGURE 26.   PROJECTED CHANGES IN GHG EMISSIONS FOR WASTE MANAGEMENT AND DIVERSION STRATEGIES

EMISSIONS ($MTCO_2e$)

MUNICIPAL EMISSIONS SECTOR	2019 BASELINE EMISSIONS		2030 PROJECTED EMISSIONS		2040 PROJECTED EMISSIONS		2050 PROJECTED EMISSIONS
TOTAL % CHANGE FROM 2019 BASELINE							
Waste Reduction and Diversion	1,633	10% ↑	1,795	32% ↓	1,106	97% ↓	55

Strategy: Waste Reduction and Diversion

To meet the emissions reduction projections for waste disposal in municipal operations, the City will implement a phased strategy focused on minimizing emissions per unit of waste processed.

▪ **By 2030, a 10% increase** from the 2019 municipal baseline is projected as the City phases in the implementation of waste reduction and diversion strategies.

▪ **By 2040, a 32% reduction** from the 2019 municipal baseline requires more stringent guidelines and education around what can placed in the garbage, advocating for composting, and increasing recycling.

▪ **By 2050, achieving an 97% reduction** from the 2019 municipal baseline depends on using clean energy–powered garbage disposal facilities and companies, and reducing and eliminating single-use cartons and bottles.

A specific action to reduce emissions from waste generation and management to meet these projections is described below.

ACTION **55**	**Consider a zero-waste target for City operations.**		
	Priority Level: 2	**Timeframe:** Medium term	**GHG Impact:** High

Funding: Solid Waste Infrastructure for Recycling grant program, local government funds

City Partners: City of Fort Lauderdale Solid Waste and Recycling program, Broward SWA

Initial Cost: Medium	**Life-Cycle Cost:** Medium	**ROI:** Medium
LOE: Low	**Social Impact:** Low	

Strategic Priority Alignment: N/A

Co-Benefits: Cost savings, improved waste management

Performance Metrics: Waste generation total, tons waste diverted, percent plastic waste, contamination rates, diversion rate

Implementation:

↗ Set a near- and long-term target for City waste reduction.

↗ Implement waste reduction and diversion education for City employees.

↗ Benchmark existing programs for zero-waste municipal events and City operations.

↗ Pilot a zero-waste event.

↗ Partner with suppliers and haulers with lower carbon alternatives for waste management.

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CONCLUSIONS

The strategies and actions set forth in this Plan are the next steps in Fort Lauderdale's race to net zero. They lay the groundwork for the City's efforts toward net zero and should be used to inform and guide future actions and decisions regarding partnerships, stakeholder engagement, development, policy, and growth in Fort Lauderdale.

The 15 strategies and 55 actions introduced in this Plan lay the foundation for Fort Lauderdale to equitably decarbonize the community and economy, aiming to reach near net zero by 2050. Community GHG emissions are projected to be reduced by 70% in 2040 and 97% in 2050, while municipal GHG emissions are projected to be reduced by 69% (from the 2019 baseline) in 2040 and by 96% in 2050 (**Figure 27**).

The actions in this Plan focus on improving energy efficiency and increasing access to and the usage of renewable energy; reducing VMTs and transitioning to EVs; conserving water and reducing waste; and expanding urban greenery. High-priority actions with the greatest potential for GHG emissions reductions should be pursued first. Overall, these actions will contribute to diversification of the regional economy and enhance economic resilience by promoting growth in green industries and generating demand for living-wage jobs that are more resistant to the economic disruptions caused by weather events and global pandemics.

FIGURE 27.   PROJECTED GHG EMISSIONS CHANGES FROM 2019 BASELINE GHG EMISSIONS

With this Net Zero Plan, Fort Lauderdale takes its place in the global effort to reduce GHG emissions and to avoid the worst impacts of climate change. Fort Lauderdale is already a nationally recognized leader in climate resilience, investing more than $200 million to date in stormwater, seawall, and other improvements; embedding consideration of climate change into its planning and operations; and collaborating regionally as part to the Southeast Florida Regional Climate Change Compact. Future City resilience efforts include expanding the Stormwater Master Plan to address a total of 25 neighborhoods; developing a Roadway Elevation Master Plan; and encouraging resilience improvements on private property. Throughout this Plan, the City seeks to concurrently address the root cause of climate

change and to increase resilience, such as increased use of solar panels with battery backup. The City will invest in initiatives that both decrease GHG emissions and increase climate resilience.

Monitoring Progress and Next Steps

Guided by the strategies and actions of this Plan, the City of Fort Lauderdale aims to achieve net zero municipal GHG emissions by 2040 and net zero community GHG emissions by 2050. While the escalating impacts of the climate crisis demand immediate action to reduce GHG emissions, the City also recognizes the enormous opportunity to invest in its City staff, residents, communities, and future. Intentional, targeted, and coordinated implementation is imperative to this Plan's success.

To ensure success of the actions and strategies outlined in this Plan, a foundational accountability framework is essential. Fort Lauderdale is committed to transparency in reporting, with updates on this Plan outlining progress to date, outstanding items, challenges, and next steps published every two years. GHG inventories will continue to be conducted to track total community and municipal emissions. These inventories will also include comprehensive updates on the implementation of the Net Zero Plan and the strategies and actions contained within the Plan. Progress on the Plan and annual GHG inventory updates will be provided on the City's Net Zero webpage.

Make no mistake, the road to net zero is ambitious; it is also hard. Reaching net zero requires the transformational changes outlined in this document and can only be achieved through collaborative partnerships between City departments, state and federal agencies, community-based organizations, residents, businesses, and advocates. However, net zero is an investment in Fort Lauderdale's future that will have repercussions for decades to come, and the time to take action is now.
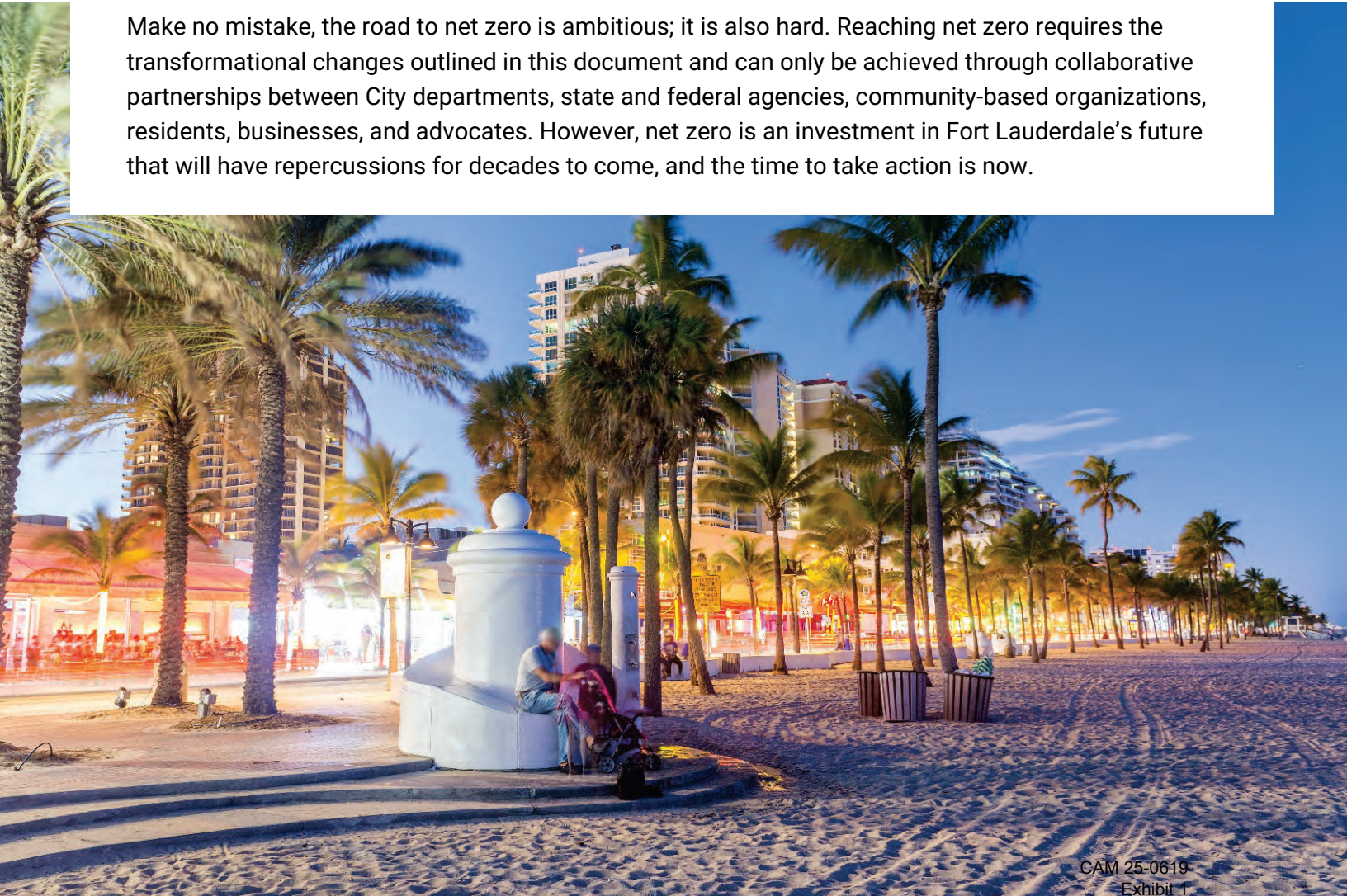
APPENDICES

APPENDIX A: METHODOLOGY

The development of Fort Lauderdale's Net Zero Plan involved a thorough review of existing energy, emissions, waste, and climate policies. By analyzing state and City policies, ordinances, and plans, the team identified both strengths and challenges. This Plan aligns with key City and regional strategies, such as the Fast Forward 2035 Vision Plan, the Advance Fort Lauderdale 2040 Comprehensive Plan, and the Southeast Florida Priority Climate Action Plan. The Plan inputs include GHG emissions inventory and forecast modeling, stakeholder engagement, and the development of GHG reduction strategies. The inventory is largely based on the accounting guidance outlined in the U.S. Protocol for Community-Scale Greenhouse Gas Emissions Inventories, published by ICLEI, and focuses on monitoring progress on the largest emissions sources that local government actions can most directly influence. Two forecast scenarios were created—business-as-usual (BAU) and legislative-adjusted (LA)—for 2030, 2040, and 2050, considering population growth based on Bureau of Economic and Business Research Projections of Florida Population by County and Municipal 2020-2045 and potential future regulatory actions. These scenarios are described in more detail below in the section on *Quantitative Modeling*.

Stakeholder Engagement

Stakeholder engagement was a central part of the process, with nine internal City department meetings, two presentations to the Sustainability Advisory Board, two virtual informational meetings, and two in-person community workshops conducted to ensure broad input and buy-in.

Internal stakeholder engagement included multiple City Departments, including Transportation and Mobility, Parks and Recreation, Public Works, and Development Services. These departments coordinated multimodal policies, urban tree canopy, solid waste management, energy efficiency, and smart growth initiatives.

External stakeholders included City residents, the Broward County Resilient Environment Department, Green Your Routine representatives, The Climate Leadership Engagement Opportunities (CLEO) Institute, and Miami Waterkeeper.

These stakeholders played crucial roles in discussing topics such as energy utility services, climate advocacy, water conservation, business policies, real estate decarbonization, housing affordability, and innovative GHG reduction strategies. This engagement focused on creating a sense of ownership and building strong relationships between citizens, neighborhoods, and government.

All comments received from both internal and external stakeholders through the stakeholder engagement process were considered for incorporation into this Plan, as appropriate. Recommendations for actions were prioritized based on the emissions mitigation potential of the action as a contribution to the relevant sector's emissions total included in the GHG inventory.

Net Zero Roadmap

Actions described in this Plan were compiled through review of existing Fort Lauderdale plans, policies, and publications; benchmarking of existing Climate Action Plans across the country; and engagement with internal and external stakeholders, including Fort Lauderdale department leads and employees, community members, and organizations across the City. Actions are categorized into broader strategies and sectors to compile emissions impacts and reductions from the baseline GHG inventory.

Priority levels are assigned to each action based on a high-level qualitative analysis of various factors, including timeframe, GHG impact, initial cost to the City, life-cycle cost to the City, return on investment (ROI) for the City, level of effort (LOE) for the City, social equity impacts for the community, alignment with existing strategic priorities, and co-benefits. Community strategies also include a qualitative estimate of additional costs borne by the community. Actions are categorized as priority 1, 2, or 3 (with priority 1 indicating the highest level of importance and urgency) based on both quantitative and qualitative assessments of these prioritization factors.

Quantitative Modeling

For quantitative GHG impact modeling, underlying emissions trend projections were made by calculating a business-as-usual (BAU) scenario, in which all baseline energy use practices and emissions remain constant between 2019 and 2050. However, total energy usage continues to increase due to projected growth in the Citywide population, workforce, vehicle usage, and projected airport activity. While residential and commercial energy usage is assumed to increase with population growth, industrial growth is held constant, in accordance with the Southeast Florida Priority Climate Action Plan. When combined, this scenario leads to substantial increases in GHG emissions over time.

Legislative-adjusted (LA) projections were also calculated; the LA scenario adjusts the BAU scenario by incorporating existing pledges and commitments for grid decarbonization and increased operational efficiency measures formally made by the state and federal governments and other regional organizations. In particular, the reductions in the LA strategy are driven by the FPL Real Zero Plan, which commits to eliminating fossil fuels from its portfolio by 2045. The LA scenario also accounts for National Highway Fuel Efficiency Standards and updates to the State of Florida Building Code on energy conservation. Future GHG emissions are calculated by subtracting from the BAU both

of the following (1) emissions reductions of the LA scenario, and (2) emissions reductions from strategy implementation.

The quantitative GHG impact model used to showcase the City's pathway to net zero uses 2019 as the baseline year. Impacts from each of the strategies in the Plan are calculated by assigning a percent reduction in underlying activity level (e.g., energy consumption, waste generated, miles traveled); a percent reduction in activity blended emissions rate (i.e., CO_2e/MMBtu, CO_2e/ton of waste); or both simultaneously compared to the BAU every 10 years, starting in 2030 and ending in 2050. The percent reduction in energy consumption assumed in the model, as a cumulative result of the actions within each strategy in the Plan, corresponds with the operating entity reducing its activity by that percentage, whether it be a reduction in energy usage , vehicle miles traveled, or waste processed. This would reduce the overall activity, which would in turn reduce GHG emissions to make progress toward the net zero goal. Assumed activity reductions are based on an assessment of each strategy's reasonable reduction potential over time, as needed to achieve reductions for that strategy.

The assigned percent reduction in the blended emissions factor corresponds to reduction in emissions for every unit of energy consumed by the activity. Rather than reducing the activity to reduce emissions, the entity can instead reduce its emissions by changing its source of energy to less carbon intensive sources. In the forecast modeling, this is considered separately from grid decarbonization, which is part of the LA scenario, and would require an entity to produce carbon-free energy on site or switch to alternative fuels to meet these projections. Reducing reliance on grid decarbonization and increasing power production on-site would improve the likelihood that the entity could sustain its activity needs while reducing emissions in the process.

Strategy components that both reduce energy usage and blended emissions rate simultaneously (such as replacing a natural gas water with a more efficient electric equipment) are quantified by calculating emissions impact from a reduction in activity level and blended emissions rate simultaneously. Similar to reductions in activity consumption (energy, waste, etc.), reductions in blended emissions factors for each strategy are set based on reasonable reduction potential over time, based on an assessment of other cities' climate action plans.

Emissions reductions projections are quantified by adding strategy emissions impacts to LA impacts and calculating the remaining projected emissions for each year. For the purpose of tracking progress toward the City's net zero goals, the remaining emissions are compared to the 2019 baseline emissions overall and for each sector.

Cost Analysis

High-level carbon abatement costs expressed in dollar per metric ton of carbon dioxide equivalent ($/MTCO_2e) were obtained from sources including the International Energy Agency, the World Bank, and publicly available cost data from similar initiatives in other cities. The $/MTCO_2e cost was then applied to the projected annual carbon reductions relative to the legislative-adjusted baseline for 2025 through 2030. These cost estimates are intended to provide rough amounts to facilitate initial implementation planning efforts. More precise costs should be obtained as the details of implementation efforts are filled out.

For community-focused strategies, the data available to quantify costs borne by the City were limited. These estimates are derived using the abatement costs outlined above multiplied by the percentage expected to be borne by the City, supplemented by labor cost estimates expressed in full-time equivalent hours for city personnel and vendors. This approach is intended to communicate the level of coordination and planning required for community actions and initiatives. These costs are also quantified at the strategy level. Qualitative estimates for costs borne by the community are included at the action level.

While the overall GHG impact of strategies is estimated at both the municipal and community level, cost estimates provided in this Plan focus exclusively on the anticipated costs to the City at the strategy level. Community strategies also include a qualitative estimate for costs borne by the community.

Assumptions and Limitations

To forecast GHG emissions under multiple scenarios, several assumptions were required. This section provides an overview of the assumptions and limitations of the modeling used in this Plan.

Although Fort Lauderdale has been tracking GHG emissions since 2010, the City selected 2019 as its baseline year for its net zero goals because 2019 was one of the first years that offered improved data for its inventory, particularly in the transportation sector. The GHG emissions report for 2019 encompasses scopes 1, 2, and a limited subset of scope 3 emissions. Chapter 2 of this report defines emission scopes. It is important to note that additional non-energy emissions not directly related to energy production or consumption have not been included in the baseline inventory and are therefore not accounted for in the modeled projections. Among these, hydrofluorocarbons are of particular concern because of their widespread use and significantly higher global warming potential compared to carbon dioxide. Commonly used in air conditioning, refrigeration, and spray cans, the EPA closely monitors and regulates hydrofluorocarbons.

For future emissions outlined in the BAU scenario, change over time was calculated based on historical population, activity, and economic data fluctuations between consecutive years. This

change was extrapolated to conduct future linear projections. Additionally, the data were adjusted to produce the LA scenario projections that were linearly interpolated to meet the 2050 projections stated in the City's net zero goals. While the model data are based on existing data, the linearity of future projections do not reflect the actual expected changes over the years between the baseline year and the 2050 goal year.

As for the modeled percentage reductions resulting from strategies in this Plan, projected reductions are only available at the strategy level and not for individual actions due to the limited data for the model. While more detailed analysis can be conducted to determine action-level GHG emissions reductions, more specific community and operational data would be needed. Because of the high-level projections based on strategy, it is assumed that individual percent reduction projections are attained with a combination of actions within each strategy. It should also be noted that there is uncertainty in the projected strategy emissions reductions, which are reasonable estimates based on an assessment of other cities' climate action plans. In addition, attainment of the projected emissions reductions for many strategies requires actions by others not directly under the City's control, such as residents, the utility, and state and federal agencies.

Water and wastewater treatment optimization and decarbonization strategies are addressed in the municipal sector strategies.

Process and fugitive emissions were not modeled when determining GHG emission reduction strategies in this Net Zero Plan as they account for a small proportion of both community and municipal emissions. However, Fort Lauderdale is committed to taking action to ensure these emissions continue to be minimized through regular maintenance and operations efficiency efforts.

To calculate abatement costs for each strategy in emissions reduction, data were used and collected from various public domains. While these data can be reflective of the overall average abatement cost, they do not reflect the regional-specific abatement costs. The City of Fort Lauderdale is assumed to have equivalent abatement costs to those provided as US national averages. While more detailed cost quantification typically requires a detailed, ground-up approach, this approach will facilitate the prioritization of efforts and inform strategic planning.

APPENDIX B: DETAILED INTERIM GOALS

TABLE B-1.   PROJECTED PERCENTAGE GHG EMISSIONS REDUCTIONS RELATIVE TO 2019 BASELINE EMISSIONS, INCORPORATING IMPACTS OF THE LA SCENARIO AND STRATEGY IMPLEMENTATION

EMISSIONS SOURCE	2030 EMISSIONS REDUCTIONS, COMPARED TO 2019 BASELINE	2040 EMISSIONS REDUCTIONS, COMPARED TO 2019 BASELINE	2050 EMISSIONS REDUCTIONS, COMPARED TO 2019 BASELINE
Community Emissions	26%	70%	97%
Municipal Emissions	23%	69%	96%

TABLE B-2.   REMAINING GHG EMISSIONS, AFTER INCORPORATING IMPACTS OF THE LA SCENARIO AND STRATEGY IMPLEMENTATION (MTCO$_2$e)

EMISSIONS SOURCE	2019 BASELINE EMISSIONS	2030 PROJECTED TOTAL EMISSIONS	2040 PROJECTED TOTAL EMISSIONS	2050 PROJECTED TOTAL EMISSIONS
Community Emissions	1,851,667	1,378,011	560,398	59,103
Municipal Emissions	50,566	39,076	15,651	1,804

Detailed Projections

The detailed projections tables below display the following information for community and municipal GHG emissions:

- 2019 baseline emissions (MTCO$_2$e). Note that the 2019 municipal baseline emissions for streetlights were included in the Buildings and Facilities total for this report.

- Aviation-related emissions in the 2019 GHG Inventory are included within transportation emissions and are not broken out separately. In addition, the 2019 Inventory does not include emissions for urban forests and parks.

- Projected emissions from the BAU scenario for 2030, 2040, and 2050.

- Changes in GHG emissions projected as part of the LA scenario for 2030, 2040, and 2050.

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- GHG emissions changes projected from the strategies in this plan for 2030, 2040, and 2050.

- Projected remaining emissions for 2030, 2040, and 2050.

- Total percentage reduction between the 2019 baseline and the projected remaining emissions for 2030, 2040, and 2050.

- Total percentage reduction between the projected BAU scenario forecast and the projected remaining emissions for 2030, 2040, and 2050.

DETAILED COMMUNITY PROJECTIONS

TABLE B-3.   2030 EMISSIONS REDUCTION FROM 2019 BASELINE (MTCO$_2$e)

COMMUNITY STRATEGY	2019 BASELINE EMISSIONS	2030 BAU EMISSIONS	LA FORECASTED GHG EMISSIONS CHANGE FROM BAU BY 2030	NET ZERO STRATEGIES GHG EMISSIONS CHANGE FROM LA BY 2030	TOTAL EMISSIONS CHANGE 2030 (LA + EMISSIONS REDUCTION)	2030 TARGET EMISSIONS	TOTAL % CHANGE FROM 2019 BASELINE BY 2030	TOTAL % CHANGE FROM 2030 BAU
Commercial Energy	583,921	630,896	-198,549	-21,617	-220,166	410,730	-30%	-35%
Residential Energy	388,710	471,047	-170,312	0	-170,312	300,735	-23%	-36%
Industrial Energy	38,303	39,012	-5,269	-4,929	-10,198	28,814	-25%	-26%
Transportation & Mobility	638,092	698,646	-179,640	-77,851	-257,491	441,156	-31%	-37%
Sustainable Aviation	94,591	103,963	0	-10,396	-10,396	93,567	-1%	-10%
Waste Reduction and Diversion Community	84,950	103,515	0	-19,668	-19,668	83,847	-1%	-19%
Water & Wastewater Treatment Community	19,347	23,461	-8,327	0	-8,327	15,135	-22%	-35%
Process & Fugitive Emissions	3,752	4,059	-31	0	-31	4,028	7%	-1%
Total	**1,851,667**	**2,074,599**	**-562,127**	**-134,462**	**-696,588**	**1,378,011**	**-26%**	**-34%**

TABLE B-4.   2040 EMISSIONS REDUCTION FROM 2019 BASELINE (MTCO$_2$e)

COMMUNITY STRATEGY	2040 BAU EMISSIONS	LA FORECASTED GHG EMISSIONS CHANGE FROM BAU BY 2040	NET ZERO STRATEGIES GHG EMISSIONS CHANGE FROM LA BY 2040	TOTAL EMISSIONS CHANGE 2040 (LA + EMISSIONS REDUCTION)	2040 TARGET EMISSIONS	TOTAL % CHANGE FROM 2019 BASELINE BY 2040	TOTAL % CHANGE FROM 2040 BAU
Commercial Energy	679,657	-454,901	-60,950	-515,851	163,806	-72%	-76%
Residential Energy	507,432	-384,408	-12,729	-397,137	110,295	-72%	-78%
Industrial Energy	39,686	-11,476	-15,125	-26,601	13,085	-66%	-67%
Transportation & Mobility	770,950	-430,331	-214,099	-644,430	126,520	-80%	-84%
Sustainable Aviation	113,696	0	-33,135	-33,135	80,560	-15%	-29%
Waste Reduction and Diversion Community	111,511	0	-55,351	-55,351	56,160	-34%	-50%
Water & Wastewater Treatment Community	25,274	-19,269	-300	-19,569	5,705	-71%	-77%
Process & Fugitive Emissions	4,324	-57	0	-57	4,267	14%	-1%
Total	**2,252,531**	**-1,300,443**	**-391,689**	**-1,692,133**	**560,398**	**-70%**	**-75%**

TABLE B-5.   2050 EMISSIONS REDUCTION FROM 2019 BASELINE (MTCO$_2$e)

COMMUNITY STRATEGY	2050 BAU EMISSIONS	LA FORECASTED GHG EMISSIONS CHANGE FROM BAU BY 2050	NET ZERO STRATEGIES GHG EMISSIONS CHANGE FROM LA BY 2050	TOTAL EMISSIONS CHANGE 2050 (LA + EMISSIONS REDUCTION)	2050 TARGET EMISSIONS	TOTAL % CHANGE FROM 2019 BASELINE BY 2050	TOTAL % CHANGE FROM 2050 BAU
Commercial Energy	732,186	-631,248	-100,820	-732,068	118	-100%	-100%
Residential Energy	539,533	-524,827	-14,652	-539,479	54	-100%	-100%
Industrial Energy	40,372	-15,097	-24,878	-39,975	397	-99%	-99%
Transportation & Mobility	851,210	-504,332	-346,779	-851,112	99	-100%	-100%
Sustainable Aviation	124,105	0	-70,367	-70,367	53,738	-43%	-57%
Waste Reduction and Diversion Community	118,565	0	-118,428	-118,428	137	-100%	-100%
Water & Wastewater Treatment Community	26,873	-26,493	-338	-26,831	42	-100%	-100%
Process & Fugitive Emissions	4,604	-85	0	-85	4,519	20%	-2%
Total	**2,437,448**	**-1,702,082**	**-676,262**	**-2,378,344**	**59,103**	**-97%**	**-98%**

DETAILED MUNICIPAL PROJECTIONS

TABLE B-6.   2030 EMISSIONS REDUCTION FROM 2019 BASELINE (MTCO$_2$e)

MUNICIPAL STRATEGY	2019 BASELINE EMISSIONS	2030 BAU EMISSIONS	LA FORECASTED GHG EMISSIONS CHANGE FROM BAU BY 2030	NET ZERO STRATEGIES GHG EMISSIONS CHANGE FROM LA BY 2030	TOTAL EMISSIONS CHANGE 2030 (LA + EMISSIONS REDUCTION)	2030 TARGET EMISSIONS	TOTAL % CHANGE FROM 2019 BASELINE BY 2030	TOTAL % CHANGE FROM 2030 BAU
Employee Commute	6,815	7,652	-2,107	-706	-2,813	4,839	-29%	-37%
Buildings and Facilities	10,848	12,421	-4,442	-694	-5,137	7,284	-33%	-41%
Vehicle Fleet	11,565	13,927	-2,969	-1,413	-4,382	9,546	-17%	-31%
Waste Reduction and Diversion	1,633	2,086	0	-292	-292	1,795	10%	-14%
Water and Wastewater Treatment	19,347	23,461	-8,327	0	-8,327	15,135	-22%	-35%
Process and Fugitive Emissions	358	478	0	0	0	478	34%	0%
Total	**50,566**	**60,026**	**-17,845**	**-3,105**	**-20,950**	**39,076**	**-23%**	**-35%**

TABLE B-7. 2040 EMISSIONS REDUCTION FROM 2019 BASELINE (MTCO$_2$e)

MUNICIPAL STRATEGY	2040 BAU EMISSIONS	LA FORECASTED GHG EMISSIONS CHANGE FROM BAU BY 2040	NET ZERO STRATEGIES GHG EMISSIONS CHANGE FROM LA BY 2040	TOTAL EMISSIONS CHANGE 2040 (LA + EMISSIONS REDUCTION)	2040 TARGET EMISSIONS	TOTAL % CHANGE FROM 2019 BASELINE BY 2040	TOTAL % CHANGE FROM 2040 BAU
Employee Commute	8,479	-4,425	-2,268	-6,693	1,786	-74%	-79%
Buildings and Facilities	13,646	-10,384	-1,549	-11,933	1,713	-84%	-87%
Vehicle Fleet	17,047	-7,783	-4,536	-12,319	4,727	-59%	-72%
Waste Reduction and Diversion	2,312	0	-1,205	-1,205	1,106	-32%	-52%
Water and Wastewater Treatment	25,274	-19,269	-300	-19,569	5,705	-71%	-77%
Process and Fugitive Emissions	614	0	0	0	614	72%	0%
Total	**67,370**	**-41,861**	**-9,858**	**-51,719**	**15,651**	**-69%**	**-77%**

TABLE B-8.   2050 EMISSIONS REDUCTION FROM 2019 BASELINE (MTCO$_2$e)

MUNICIPAL STRATEGY	2050 BAU EMISSIONS	LA FORECASTED GHG EMISSIONS CHANGE FROM BAU BY 2050	NET ZERO STRATEGIES GHG EMISSIONS CHANGE FROM LA BY 2050	TOTAL EMISSIONS CHANGE 2050 (LA + EMISSIONS REDUCTION)	2050 TARGET EMISSIONS	TOTAL % CHANGE FROM 2019 BASLINE BY 2050	TOTAL % CHANGE FROM 2050 BAU
Employee Commute	9,395	-4,903	-4,082	-8,985	411	-94%	-96%
Buildings and Facilities	14,937	-14,637	-226	-14,863	74	-99%	-100%
Vehicle Fleet	21,062	-9,871	-10,583	-20,453	609	-95%	-97%
Waste Reduction and Diversion	2,562	0	-2,507	-2,507	55	-97%	-98%
Water and Wastewater Treatment	26,873	-26,493	-338	-26,831	42	-100%	-100%
Process and Fugitive Emissions	615	0	0	0	615	72%	0%
Total	**75,443**	**-55,903**	**-17,736**	**-73,639**	**1,804**	**-96%**	**-98%**

APPENDIX C: PRIORITIZATION FRAMEWORK MATRIX

TABLE C-1.   COMMUNITY, PRIORITY 1

ACTION NUMBER	ACTION	TIMEFRAME	GHG IMPACT	INITIAL COST	LIFE CYCLE COST	ADDITIONAL COMMUNITY COST	ROI	LOE	SOCIAL IMPACT	CO-BENEFITS
1	Advocate for increased energy efficiency, water conservation, and other performance standards in the Florida Building Code in partnership with Broward County and other stakeholders.	Ongoing	High	Low	Low	Medium	Low	Low	Medium	Improved climate resilience
2	Incentivize net zero strategies in new development	Short term	High	Low	Medium	High	Low	Medium	Medium	Improved public health and safety, improved air quality, improved climate resilience
3	Advocate for state and federal rental and low-income housing energy efficiency programs and policies.	Short term	Medium	Low	Low	Low	Low	Medium	High	Improved climate resilience, reduced inequality, cost savings
4	Promote electrification of existing buildings.	Short term	High	High	Low	High	High	Medium	Medium	Improved climate resilience, cost savings, improved air quality

ACTION NUMBER	ACTION	TIMEFRAME	GHG IMPACT	INITIAL COST	LIFE CYCLE COST	ADDITIONAL COMMUNITY COST	ROI	LOE	SOCIAL IMPACT	CO-BENEFITS
7	Promote renewable energy improvements through financial incentives and increased awareness.	Ongoing	Medium	Low	Low	Medium	Low	Medium	High	Improved climate resilience, reduced inequality, cost savings
8	Support FPL efforts to decarbonize by 2045.	Long term	High	High	High	Medium	Medium	Low	Medium	Job creation and workforce development, improved climate resilience
9	Participate in FPL SolarTogether® program.	Medium term	High	Low	High	Low	High	Medium	Medium	Job creation and workforce development, improved climate resilience, cost savings
10	Encourage, support, and expand private and community solar installations.	Medium term	High	High	Medium	High	High	Medium	Medium	Improved climate resilience, job creation and workforce development, cost savings
12	Increase multimodal infrastructure by prioritizing pedestrian, bicycle, and transit infrastructure.	Short term	High	High	Medium	Medium	Medium	High	High	Improved public health and safety, improved air quality, job creation and workforce development, reduced inequality, decreased traffic congestion

ACTION NUMBER	ACTION	TIMEFRAME	GHG IMPACT	INITIAL COST	LIFE CYCLE COST	ADDITIONAL COMMUNITY COST	ROI	LOE	SOCIAL IMPACT	CO-BENEFITS
13	Develop standards in the Unified Land Development Regulations and incentives to further encourage mixed-used development and urban infill.	Ongoing	High	Low	Low	Medium	Low	Medium	High	Improved public health and safety, improved air quality, reduced inequality, reduced traffic congestion, increased cost savings, and reduced traffic congestion
14	Partner with Broward County to enhance public transit options and increase regional transit system ridership.	Ongoing	Medium	Medium	Low	Low	Medium	Medium	High	Improved public health and safety, enhanced air quality, reduced inequality, reduced traffic congestion, increased cost savings
18	Introduce awareness campaigns and implementation incentives for citizens, businesses, and residents on EVs, EV infrastructure, and proper charging etiquette.	Short term	Low	Low	Low	Low	Low	Medium	High	Improved public health and safety, improved air quality, increased climate resilience, reduced inequality
19	Develop Citywide EV Charging Master Plan and review opportunities for strategic placement and elevated charging stations, as well as resilience plans such as backup power.	Short term	Medium	Medium	Low	Low	Low	Medium	High	Improved air quality, job creation and workforce development, Improved climate resilience

ACTION NUMBER	ACTION	TIMEFRAME	GHG IMPACT	INITIAL COST	LIFE CYCLE COST	ADDITIONAL COMMUNITY COST	ROI	LOE	SOCIAL IMPACT	CO-BENEFITS
22	Create and operationalize a community-wide food rescue plan in collaboration with local nonprofits, supermarkets, and restaurants.	Long term	Medium	Low	Low	Low	Low	Low	High	Improved public health and safety, job creation and workforce development, reduced inequality, improved waste management
23	Advocate at the state and federal level for policies to reduce the usage of single use plastics.	Short term	Medium	Low	Low	Medium	Low	Low	Low	Improved waste management, public health and safety
28	Ensure trees and landscaping are designed for rainwater retention and include drought-resistant and low-water-needs vegetation.	Ongoing	Medium	Medium	Low	Low	High	High	Low	Job creation and workforce development, improved climate resilience, increased cost savings
29	Continue to expand smart irrigation systems and consider piloting rainwater harvesting in parks for irrigation.	Ongoing	Medium	High	Medium	Medium	High	Medium	Low	Job creation and workforce development, improved climate resilience, increased cost savings
30	Implement tree planting and preservation initiatives from the Urban Forestry Master Plan (UFMP) that will advance the Comprehensive Plan goal of 33% tree canopy coverage by 2040.	Long term	High	Medium	Medium	Low	Low	Medium	High	Improved public health and safety, improved climate resilience

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FORT LAUDERDALE NET ZERO PLAN

ACTION NUMBER	ACTION	TIMEFRAME	GHG IMPACT	INITIAL COST	LIFE CYCLE COST	ADDITIONAL COMMUNITY COST	ROI	LOE	SOCIAL IMPACT	CO-BENEFITS
31	Advocate for increased percentage of greenspace in new urban developments.	Short term	Medium	Medium	Medium	High	Low	Medium	Medium	Improved air quality, improved water quality, improved climate resilience

TABLE C-2.   COMMUNITY, PRIORITY 2

ACTION NUMBER	ACTION	TIMEFRAME	GHG IMPACT	INITIAL COST	LIFE CYCLE COST	ADDITIONAL COMMUNITY COST	ROI	LOE	SOCIAL IMPACT	CO-BENEFITS
5	Increase awareness of energy efficiency in new and existing commercial buildings.	Short term	Medium	Low	Low	Medium	Low	Medium	Medium	Improved climate resilience
6	Create a Fort Lauderdale sustainable tourism program.	Medium term	Medium	Medium	Low	Medium	Medium	Medium	Low	N/A
11	Encourage use of tankless/solar water heater program to support low-income housing and reduce the cost of electricity/gas to heat water.	Medium term	Medium	Medium	Medium	Low	Low	Medium	High	Improved climate resilience, reduced inequality
15	Partner with developers, agencies, and businesses to incentivize and encourage alternative/public transit use and increase commuter carpooling.	Ongoing	High	Low	Low	Medium	Low	Medium	High	Improved public health and safety, improved air quality, reduced traffic congestion

ACTION NUMBER	ACTION	TIMEFRAME	GHG IMPACT	INITIAL COST	LIFE CYCLE COST	ADDITIONAL COMMUNITY COST	ROI	LOE	SOCIAL IMPACT	CO-BENEFITS
16	Partner with Broward County to install idle sensors in traffic signals and synchronize traffic signals to reduce idling and wait time.	Medium term	High	Medium	Low	Low	Low	Medium	Low	Reduced traffic congestion, improved air quality, improved public health and safety.
20	Support the conversion of public transit to electric fleet in alignment with 2030 Broward County fleet electrification goals.	Medium term	High	High	Low	Low	Medium	High	Medium	Improved public health and safety, improved air quality, increased cost savings
24	Promote existing programs and implement new programs to enhance education and awareness around waste reduction and diversion.	Medium term	Medium	Medium	Low	Low	Low	Medium	Medium	Improved waste management, cost savings
25	Continue engaging with Broward County on long-term vision and plan for county-wide composting program.	Ongoing	High	Low	Low	Low	Medium	Low	Low	Job creation and workforce development, improved waste management
26	Address the reduction and management of construction and demolition waste.	Medium term	High	Medium	Medium	Medium	Medium	Medium	Low	Job creation and workforce development, improved waste management, Cost savings

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TABLE C-3.   COMMUNITY, PRIORITY 3

ACTION NUMBER	ACTION	TIMEFRAME	GHG IMPACT	INITIAL COST	LIFE CYCLE COST	ADDITIONAL COMMUNITY COST	ROI	LOE	SOCIAL IMPACT	CO-BENEFITS
17	Establish car-free zones.	Medium term	High	High	Medium	High	Medium	High	High	Improved public health and safety, improved air quality, reduced traffic congestion, reduced inequality
21	Advocate for the development and implementation of new, more efficient aircraft and engine technologies.	Medium term	Medium	Low	High	Medium	Medium	Medium	Low	Job creation and workforce development, increased cost savings
27	Introduce innovative programs and technology for managing irregular waste streams.	Medium term	Medium	High	Medium	Medium	Medium	High	Low	Job creation and workforce development, improved waste management

TABLE C-4.   MUNICIPAL, PRIORITY 1

ACTION NUMBER	ACTION	TIMEFRAME	GHG IMPACT	INITIAL COST	LIFE CYCLE COST	ADDITIONAL COMMUNITY COST	ROI	LOE	SOCIAL IMPACT	CO-BENEFITS
32	Create working groups to champion, drive, and report progress on each sector.	Short term	High	Low	Low	N/A	High	Medium	Low	N/A
33	Identify and establish funding streams to support net zero efforts in City operations and Citywide.	Short term	High	High	Low	N/A	High	Medium	Low	N/A
34	Publicly report on progress on the Net Zero Plan.	Ongoing	Low	Medium	Low	N/A	Low	Medium	Low	N/A
35	Support green workforce development.	Ongoing	Medium	Low	Low	N/A	Medium	Medium	Medium	Job creation and workforce development, improved climate resilience, reduced inequality
37	Continue to enhance vehicle utilization tracking.	Ongoing	High	Medium	Medium	N/A	High	Medium	Low	Cost savings

ACTION NUMBER	ACTION	TIMEFRAME	GHG IMPACT	INITIAL COST	LIFE CYCLE COST	ADDITIONAL COMMUNITY COST	ROI	LOE	SOCIAL IMPACT	CO-BENEFITS
42	Develop a comprehensive fleet electrification and EV infrastructure policy and program.	Short term	High	High	High	N/A	High	High	Low	Improved public health and safety, improved air quality, job creation and workforce development, improved climate resilience, increased cost savings
43	Develop policies to address at home charging for take-home EVs, working with police, fire, and unions.	Short term	Medium	Medium	Medium	N/A	Medium	Medium	Low	Improved climate resilience, cost savings
44	Increase employee education about EVs.	Short term	Low	Low	Low	N/A	Low	Medium	Low	Improved climate resilience, cost savings
45	Monitor market availability of EVs across vehicle classes used by the City and identify opportunities to introduce EVs to more vehicle classes.	Short term	Low	Low	Low	N/A	Medium	Medium	Low	Improved climate resilience, cost savings
46	Electrify City off-road equipment (mowers, backhoes, etc.)	Medium term	Medium	Medium	Low	N/A	High	Medium	Low	Improved climate resilience, improved air quality, cost savings
48	Update energy reduction targets for existing municipal facilities.	Medium term	High	Low	Medium	N/A	High	Medium	Medium	Infrastructure and resilience, cost savings, housing

ACTION NUMBER	ACTION	TIMEFRAME	GHG IMPACT	INITIAL COST	LIFE CYCLE COST	ADDITIONAL COMMUNITY COST	ROI	LOE	SOCIAL IMPACT	CO-BENEFITS
49	Complete conversion of streetlights to LEDs, in partnership with FPL and FDOT.	Short term	High	Low	Low	N/A	High	Low	Low	Improved public health and safety, cost savings
50	Require all new buildings to be built to zero net energy standards starting in 2030. Retrofit existing municipal buildings to be all-electric and net zero energy by 2040.	Ongoing	High	High	Medium	N/A	Medium	High	Low	Improved public health and safety, improved air quality, improved climate resilience, job creation and workforce development, improved climate resilience, cost savings
52	Install renewable energy systems and backup batteries at new and existing City facilities to create resilient net zero buildings.	Ongoing	High	High	Medium	N/A	High	Medium	Low	Improved climate resilience, cost savings
53	Develop Citywide plan for renewable energy installations.	Ongoing	High	High	Low	N/A	High	Medium	Low	Improved climate resilience, cost savings
54	Advocate for incorporation of renewable energy-related policies and programs in state and federal infrastructure funding programs.	Short term	Medium	Low	Low	N/A	Medium	Low	Medium	Improved climate resilience

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TABLE C-5.   MUNICIPAL, PRIORITY 2

ACTION NUMBER	ACTION	TIMEFRAME	GHG IMPACT	INITIAL COST	LIFE CYCLE COST	ADDITIONAL COMMUNITY COST	ROI	LOE	SOCIAL IMPACT	CO-BENEFITS
36	Prioritize energy efficiency and the integration of renewable energy at water and wastewater facilities.	Long term	High	High	High	N/A	High	High	Low	Improved water quality, job creation and workforce development, improved climate resilience, increased cost savings
38	Incentivize public transit and alternative transportation (bike/walk) for employees.	Short term	Medium	Low	Low	N/A	Low	Low	Low	Improved public health and safety, improved air quality, reduced traffic congestion
39	Continue to monitor and reduce municipal vehicle idling.	Ongoing	Medium	Low	Low	N/A	Medium	Low	Low	Improved public health and safety, improved air quality, increased cost savings
40	Expand implementation of virtual/digital monitoring of parking enforcement.	Ongoing	Low	Medium	Medium	N/A	Medium	Medium	Low	Improved public health and safety, improved air quality, reduced traffic congestion, increased cost savings
47	Install L2 and direct-current fast charging electric vehicle charging stations (EVCS) throughout the City for municipal fleet use in City parking lots.	Medium term	High	High	Medium	N/A	Low	High	Medium	Job creation and workforce development, improved climate resilience, increased cost savings

ACTION NUMBER	ACTION	TIMEFRAME	GHG IMPACT	INITIAL COST	LIFE CYCLE COST	ADDITIONAL COMMUNITY COST	ROI	LOE	SOCIAL IMPACT	CO-BENEFITS
51	Continue participation in the Better Building Challenge and pledge to the Better Climate Challenge.	Short term	Medium	Low	Low	N/A	Medium	Low	Low	Infrastructure and resilience, increased cost savings, climate resilience
55	Consider a zero-waste target City operations.	Medium term	High	Medium	Medium	N/A	Medium	Low	Low	Cost savings, improved waste management

TABLE C-6. MUNICIPAL, PRIORITY 3

ACTION NUMBER	ACTION	TIMEFRAME	GHG IMPACT	INITIAL COST	LIFE CYCLE COST	ADDITIONAL COMMUNITY COST	ROI	LOE	SOCIAL IMPACT	CO-BENEFITS
41	Encourage or allow remote work hours or flexible work hours for City employees.	Short term	Medium	Low	Low	N/A	Medium	Low	Medium	Improved public health and safety, improved air quality, reduced traffic congestion, increased cost savings

APPENDIX D: MONITORING PROGRESS

Monitoring Progress Toward Goals

The following table presents the projected emissions for 2030, 2040, and 2050 for all community and municipal strategies, as well as the performance metrics that will be used to track and report progress on these goals (in addition to reporting the total CO_2e attributed to each sector).

MONITORING COMMUNITY PROGRESS

TABLE D-1.   COMMUNITY STRATEGIES

STRATEGY	PERFORMANCE METRICS	2030 TARGET EMISSIONS (MTCO₂e)	2040 TARGET EMISSIONS (MTCO₂e)	2050 TARGET EMISSIONS (MTCO₂e)
Commercial Energy	▪ kWh per square foot of building space ▪ Number of applications submitted to the Conservation Pays Toilet Rebate Program	410,730	163,806	118
Residential Energy	▪ Number of faucet aerators and water efficient showerheads requested	300,735	110,295	54
Industrial Energy	▪ Number of solar photovoltaic permits granted ▪ Total number of EV chargers in multifamily development ▪ Energy burden per the DOE LEAD Tool ▪ Percent of Citywide energy usage derived from electricity ▪ kWh electricity consumption reduced ▪ Number of hotels participating in the State Green Lodging Program ▪ Installed renewable capacity (kilowatts) ▪ Percent of renewable energy (kWh) ▪ FPL fuel mix ▪ FPL annual emission factors ▪ Percent of municipal electricity demand participating in SolarTogether® ▪ Average cost of energy per capita	28,814	13,085	397

STRATEGY	PERFORMANCE METRICS	2030 TARGET EMISSIONS (MTCO$_2$e)	2040 TARGET EMISSIONS (MTCO$_2$e)	2050 TARGET EMISSIONS (MTCO$_2$e)
Transportation & Mobility	▪ VMT per capita ▪ Percent of neighbors that use public transportation to commute ▪ Miles of bike lanes installed ▪ Number of EV charger installations ▪ Transit ridership ▪ Idle time (if available) ▪ Percent of traffic signals using idle sensors ▪ Number of new EV chargers installed ▪ Number of EV registrations ▪ Percentage of the public transit fleet converted to EVs annually	441,156	126,520	99
Sustainable Aviation	▪ Conventional aviation fuel usage ▪ SAF usage (percent)	93,567	80,560	53,738
Waste Reduction and Diversion Community	▪ Number of meals provided or individuals served per month as a result of rescued food redistribution ▪ Total waste (tons) ▪ Percent plastic waste ▪ Contamination rates ▪ Percent waste diverted from landfill ▪ Waste composted (tons) ▪ Number of participants in composting ▪ Tons of construction and demolition waste diverted	83,847	56,160	137
Urban Forests & Parks	▪ Water consumed by irrigation (square meters) ▪ Tree canopy percent ▪ Caliper inches of trees planted ▪ Area of City-owned green space or other viable public lands	Not Quantified	Not Quantified	Not Quantified

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MONITORING MUNICIPAL PROGRESS

TABLE D-2. MUNICIPAL STRATEGIES

STRATEGY	PERFORMANCE METRICS	2030 TARGET EMISSIONS (MTCO$_2$e)	2040 TARGET EMISSIONS (MTCO$_2$e)	2050 TARGET EMISSIONS (MTCO$_2$e)
Employee Commute	▪ Municipal VMT ▪ Idle time (average, maximum)	4,839	1,786	411
Vehicle Fleet	▪ Percent of all employees that participate in partial work from home ▪ Number of City EV chargers installed ▪ EV as a percent of municipal fleet ▪ Fleet fuel consumption ▪ Percent of municipal fleet take-home vehicles that are EVs ▪ Number of EV educational sessions conducted and participation rate ▪ Percent electrified off-road equipment ▪ Number of EVCS installed for fleet use	9,546	4,727	609
Buildings and Facilities	▪ Municipal energy use (kWh) ▪ Percent streetlights converted ▪ On-site natural gas use in city buildings (therms) ▪ Municipal percent renewable energy installed capacity (kilowatts) ▪ Renewable energy generation capacity ▪ Percent renewable energy (kWh)	7,284	1,713	74
Waste Reduction and Diversion	▪ Waste generation total ▪ Tons waste diverted ▪ Percent plastic waste ▪ Contamination rates ▪ Diversion rate	1,795	1,106	55
Water and Wastewater Treatment	▪ Water and wastewater facility energy consumption (kWh) ▪ Electrification percent ▪ Renewable energy percent	15,135	5,705	42
Sustainable Administration	▪ Funds allocated for sustainability, grant funding awarded ▪ Green jobs created ▪ Number of green buildings training hosted for City staff ▪ Number of training participants ▪ Number of employees earning recognized green certifications (e.g., LEED)	Not Quantified	Not Quantified	Not Quantified

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APPENDIX F: ACKNOWLEDGEMENTS

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- Elaine Franklin, Environmental Sustainability Coordinator, City of Hollywood
- Raymer Maguire, Director of Campaigns and Policy, CLEO Institute
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- Noelia Suarez, Heal the Planet
- Laura Tellez, Solar United Neighbors
- Tricia Halliday, Residents for Resilience representative

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