RESOLUTION NO. 2021- 168

CITY OF POMPANO BEACH
Broward County, Florida

A RESOLUTION OF THE CITY COMMISSION OF THE CITY OF POMPANO BEACH, FLORIDA, ACCEPTING THE POMPANO BEACH SUSTAINABILITY BASELINE AND GOALS REPORT PREPARED BY RS&H, INC., COMPLETING PHASE 1 OF THE 8-PHASE WORKPLAN ESTABLISHED BY THE CITY'S SUSTAINABILITY STRATEGY; PROVIDING AN EFFECTIVE DATE.

WHEREAS, in September 2020, the City Commission adopted the Sustainability Strategy, which includes the 8-Phase Workplan, completing a 2019-20 High Priority Strategic Plan Action Agenda Item; and

WHEREAS, Phase 1 of the Workplan is to conduct a Sustainability Baseline and Goals Report including a Greenhouse Gas Inventory; and

WHEREAS, the City received a grant from the Florida Department of Economic Opportunity to conduct a Sustainability Baseline and Goals Report; and

WHEREAS, the City has hired RS&H in 2020 to prepare a Sustainability Baseline and Goals Report; now, therefore,

BE IT RESOLVED BY THE CITY COMMISSION OF THE CITY OF POMPANO BEACH, FLORIDA:

SECTION 1. That the City of Pompano Beach accepts the Pompano Beach Sustainability Baseline and Goals Report prepared by RS&H, Inc., a copy of which is attached hereto and set forth in full.

SECTION 2. This Resolution shall become effective upon passage.

PASSED AND ADOPTED this 27th day of April, 2021.

REX HARDIN, MAYOR

ATTEST:

ASCELETA HAMMOND, CITY CLERK

jrm
4/13/21
Reso/2021-162

City of Pompano Beach
Sustainability Baseline and Goals

RS&H

City of Pompano Beach
Sustainability Baseline and Goals

DRAFT
Date: April 13, 2021
Contract No.: 2021-05
RS&H No.: 301-0077-000

Prepared by RS&H, Inc. at the direction of the City of Pompano Beach, Florida

RS&H

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1. SUMMARY

Establishing a baseline for key areas of sustainability performance is crucial for identifying opportunities and measuring progress. The Sustainability Baseline and Goals document serves as a complement to the City's Sustainability Strategy, adopted by City Commission in September of 2020. The Sustainability Strategy evaluated qualitative aspects of the City's sustainability focus areas; this document evaluates quantitative aspects, including a Greenhouse Gas (GHG) inventory. It also includes preliminary sustainability goals for the City's consideration. The quantitative sustainability baseline evaluates performance in six focus areas:

- **Climate & Resilience:** The City's greenhouse gas (GHG) emissions are below the U.S. average of 17.5 metric tons of carbon dioxide equivalents (mtCO2e) per person at 12.3 mtCO2e, but swift and decisive action will be needed to reduce emissions in line with global agreements. The largest emissions sources for both local government operations and the community are those related to transportation. As transportation systems are projected to shift to electric and other more efficient vehicles, emissions will begin to fall, but significant additional effort will be needed to meet climate targets.
- **Resource Conservation:** City facilities consumed 2,648,253 kilowatt-hours (kWh) of electricity at a cost of $414,446, approximately 0.5% of total electricity use in the community. Five facilities that accounted for over 70% of this total represent the biggest opportunities for energy conservation. The City spent a significant amount on streetlights, although this end use is not among the biggest energy users. Water use in City facilities is falling, although costs continue to rise.
- **Materials Management:** Thirty-five City facilities generated an estimated 1,102 tons of municipal solid waste (MSW) in 2019. Based on dumpster capacity and pick-up frequency, the Broward County Sherriff's Office facility at 100 SW 3rd Street generated the most waste at 15% of the total. The City's waste diversion rate is estimated at about 15%, indicating significant room for improvement. In 2008, the Florida Legislature established a statewide recycling goal of 75% by 2020. In 2019 the stateside recycling rate was 49%.
- **Land Use & Transportation:** The City's fleet has 316 vehicles, which drove an estimated 2.6 million miles in 2019, consuming approximately160,000 gallons of unleaded gasoline and about the same amount of diesel fuel. The average gasoline vehicle in the fleet is 8 years old and the average diesel vehicle is 10 years old. Given these ages, there is significant opportunities to improve the efficiency of the City's fleet with newer vehicles. Community-wide, motor vehicles travelled 1.37 billion miles on City roads in 2019. Pollution from these vehicles is the most significant GHG emissions source in Pompano Beach.
- **Equity & Outreach:** RS&H recommends expanding data collection in this area to include metrics on homelessness, health, food security, workforce development and public engagement. The City currently tracks data related to affordable housing and health insurance costs. The City spends about $17 million each year on health insurance costs for its employees.
- **Policy & Economics:** The City's Budget has increased each year from 2016-2019. In 2019, the total Budget was over $363 million, a 37% increase over the previous year. The City has received over $2 million in recent grant funding for projects related to sustainability.

2. INTRODUCTION

This Sustainability Baseline and Goals document represents an important step in a sustainability planning process for the City of Pompano Beach. It establishes a quantitative sustainability baseline, including greenhouse gas emissions, and begins to identify opportunities for improvement. It also makes recommendations for managing key performance indicators and proposes climate action and focus area goals. This document represents the culmination of Phase 1 of the City's Sustainability Work Plan (see Figure 1), inclusive of a kick-off meeting with the City, data collection period, and data gap analysis. It also lays the groundwork to complete the next phases of the Work Plan especially Phase 3, "establish a Sustainability Project portfolio and Implementation Plan".

The document is intended as a basis for discussion and collaboration. Pompano Beach staff have the

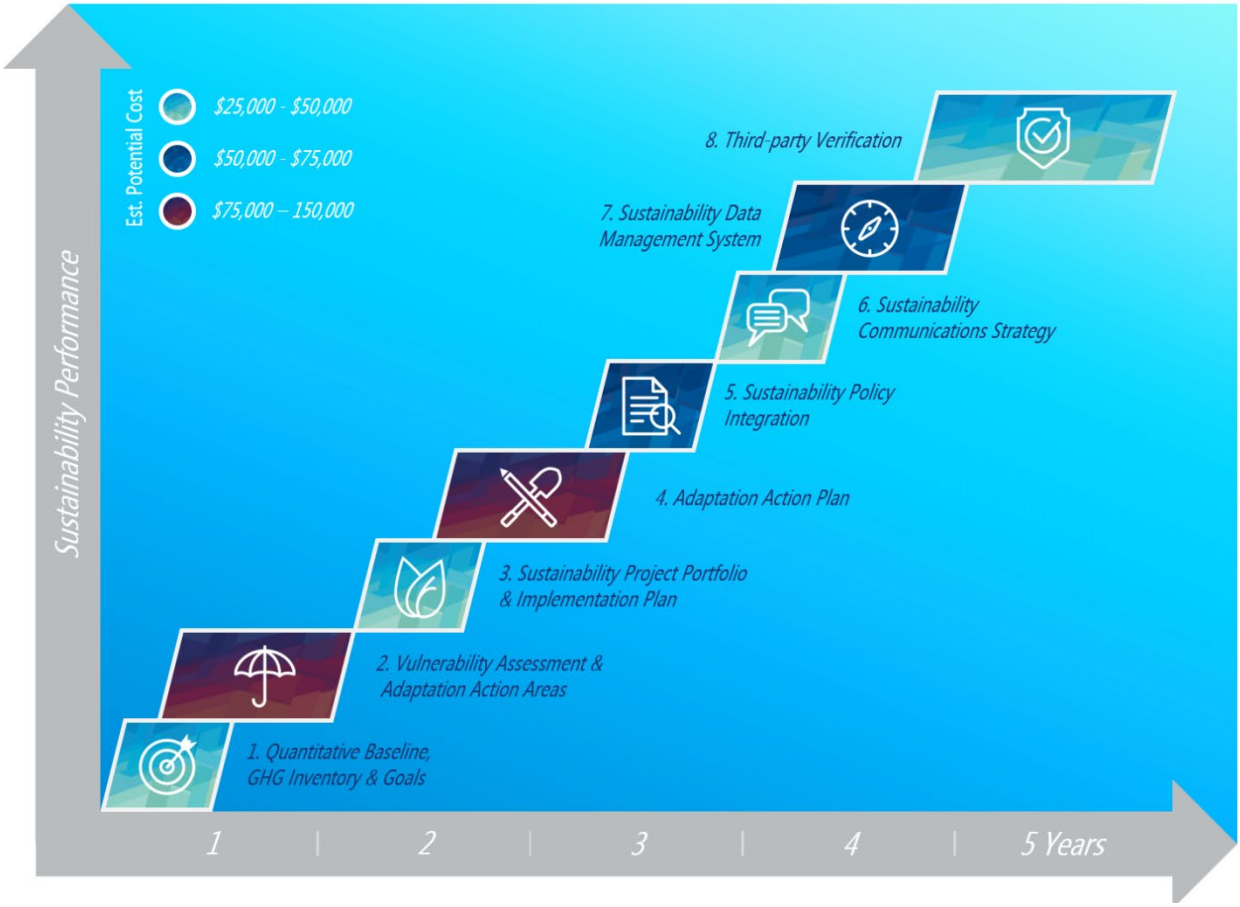

FIGURE 1: CITY OF POMPANO BEACH SUSTAINABILITY WORKPLAN

greatest knowledge of the City's operations. This document would not be possible without their extensive data collection effort. Staff input is essential for designing solutions based on this performance baseline, which lays the groundwork for subsequent phases of the City's Sustainability Work Plan, and acts as a reference for evaluating the performance of future initiatives.

The document is divided into three sections: 1) Summary and Goals, 2) Quantitative Baseline and 3) Greenhouse Gas Inventory

- The Goals and Recommendations section includes climate action goals, potential sustainability opportunities indicated by baseline results, and recommendations for sustainability data management and performance.
- The Quantitative Baseline summarizes the City's sustainability data for 2019 in the City's six focus areas, and analyzes trends over the period 2016-2019.
- The Greenhouse Gas Inventory quantifies emissions for local government operations and the community for calendar year 2019 and includes a business as usual forecast of future emissions. While technically part of the Quantitative Baseline, the GHG Inventory is provided as a separate section due to its scope and complexity. GHG emissions are an important sustainability indicator that allow a variety of emissions-producing activities to be compared using a common unit of measure. They can also be viewed as an indicator of waste, identifying opportunities to improve operational efficiency.

3. GOALS AND RECOMMENDATIONS

3.1 CLIMATE ACTION GOALS

Preliminary recommended climate action goals are shown in Table 1. Climate goals typically consist of three parts: a percent emissions reduction, a baseline year and a target year. Goals can apply to the community and / or government operations. RS&H recommends the City consider establishing a long-term goal of net zero emissions by 2050 for both City operations and the community, with an interim term goal of 45% reduction by 2030 compared to the 2019 baseline, and a mid-term goal of 75% by 2040 compared to the 2019 baseline.

These recommended goals represent a first step in the process of setting specific, measurable, achievable, relevant and time-bound (SMART) goals for climate action. They are informed by the City's GHG inventory and forecast, a survey of peer South Florida local governments, international political agreements and current climate science. The City should analyze the feasibility of a portfolio of specific emissions reductions strategies to calibrate and finalize these preliminary recommendations.

TABLE 1: RECOMMENDED GHG EMISSIONS REDUCTION TARGETS

Goal	Target					Sector
Short Term	45%	below	2019	by	2030	LGO & Community
Mid Term	75%	below	2019	by	2040	LGO & Community
Long Term	Net-zero			by	2050	LGO & Community

Table 2 includes several targets set by peer governments in South Florida.

TABLE 2: SELECTED GHG EMISSIONS REDUCTION TARGETS SET BY SOUTH FLORIDA GOVERNMENTS

City / County	Target					Sector
Boynton Beach	18%	below	2006	by	2035	LGO
Coral Gables	20%	Below	2013	by	2035	LGO
Fort Lauderdale	20%	below	2010	by	2020	LGO
Miami	25%	below	2007	by	2015	LGO
Sunrise	7%	below	2016	by	2030	LGO
Sunrise	43%	below	2016	by	2060	LGO
Broward County	80%	below	2007	by	2050	Community
City of Miami	Net-zero			by	2050	LGO
Miami-Dade County	20%	below	2008	by	2020	Community
Miami-Dade County	80%	below	2008	by	2050	Community
St. Petersburg	80%			by	2050	LGO
West Palm Beach	25%	below	2013	by	2025	Community
West Palm Beach	Net-zero			by	2050	Community
Sarasota County	Carbon-neutral			by	2030	Buildings/renovations
Orlando	Carbon-neutral & renewable			by	2030	LGO

In 2010, the United Nations Framework Convention on Climate Change (UNFCCC) met in Cancun, Mexico and agreed that future global warming should be limited below 2°C relative to pre-industrial levels. This equated to an emissions reduction of about 80% to 90% below 1990 levels by 2050 for industrialized areas. The Cancun Agreements influenced many local government GHG reduction targets, with many

adopting an 80% reduction and the 2050 target year (e.g., Broward and Miami-Dade County). Most local governments have found establishing a 1990 baseline year infeasible due to lack of data. Instead, they have established base years as practical. This has the effect of making it difficult to compare goals between local governments.

After 2010, many parties to UN climate talks expressed concern that limiting warming to below 2°C was insufficient. Limiting warming to 1.5˚ C would result in severe climate impacts, but at 2˚ C impacts would likely be catastrophic. The Paris Agreement, adopted in 2015, is a legally binding international accord with the goal of limiting global warming to well below 2°C and preferably to 1.5°C. The U.S. left the Paris Agreement in November 2020, but reentered the agreement in February 2021.

Meeting the Paris Agreement requires aggressive emissions cuts. In recent years, many local governments have adopted net-zero emissions goals, effectively meaning no emissions after considering sequestration or offsets. For instance, the Cities of Miami and West Palm Beach recently announced a goal to achieve net-zero emissions by 2050. In 2006, Sarasota County adopted the Architecture 2030 challenge, meaning all new buildings and major renovations have to be carbon-neutral by 2030. The City of Orlando has a goal for its local government operations to be carbon neutral and powered by renewable energy by 2030.

These goals reflect the substance of the Paris Agreement. The world has warmed by about 1.1˚ C to date. According to the United Nations, keeping warming below 1.5˚ C will require achieving zero emissions by 2050, only 29 years from now. Global emissions reductions over the next decade will be critical. By 2030, 45% emissions reductions from present levels will be necessary.

The GHG emissions reduction targets recommended for the City will require average emissions reduction of about 4.5% per year from 2021 to 2030. For comparison, global emissions dropped by about 7% in 2020 due to the COVID-19 pandemic. If the 2030 goal is met, a continuing annual reduction of only 3-3.5% might be sufficient. Annual emissions targets typically become harder to achieve as time goes on as the easiest and least costly mitigation measures are implemented. Meanwhile, policy and technology innovations will open new opportunities for decarbonization. Accordingly, these targets require significant effort and engagement.

3.2 FOCUS AREA GOALS

Goals to enhance performance in focus areas can support actions that reduce GHG emissions. Preliminary goals in these areas are recommended for the City's consideration. They are recommended based on targets set by peer local governments in the region as well as the contribution of each focus area to the overall climate action goal of net zero emissions by 2050.

Goals are designed to be SMART and are set for short-term, mid-term and long-term time frames. Unless otherwise specified these correspond to 2030, 2040 and 2050. Annual targets are the amount of increase or reduction needed each year to accomplish the goals. Metrics are the indicators the City would need to measure to determine if the goal had been achieved. Potential solutions are examples of possible initiatives, policies, or engagement strategies that could contribute to meeting the goals.

3.2.1 Resource Conservation

3.2.1.1 Electricity Consumption

- Short Term: Reduce electricity consumption for City operations by 15% by 2030

- Mid Term: Reduce electricity consumption for City operations by 30% by 2040
- Long Term: Reduce electricity consumption for City operations by 45% by 2050

Annual Target: 1.5% reduction beginning in 2021
Metric: Total annual electricity consumption for City operations
Potential Solutions: Recommissioning buildings, implementing energy conservation measures (ECMs) such as upgrades to lighting and mechanical systems, switching to ENERGY STAR and other certified efficient devices, and conducting employee engagement campaigns for energy conservation.

3.2.1.2 Renewable Energy

- **Short Term:** Achieve 33% renewable energy supply for City operations by 2040
- **Mid Term:** Achieve 66% renewable energy supply for City operations by 2040
- **Long Term:** Achieve 100% renewable energy supply for City operations by 2050

Annual Target: 3.3% increase beginning in 2021
Metric: Percentage of City's energy supply from renewable sources
Potential Solutions: Installing solar PV array or other renewable generation, entering into a lease agreement with a solar provider, working with the utility to procure more renewable energy, participating in a renewable energy tariff program such as FPL's "Solar Together", advocating for Florida legislative changes to renewable energy policy, purchasing renewable energy credits (RECs).

3.2.1.3 Water Use

- Short Term: Reduce potable water use by 13% from 2019 baseline by 2050
- Mid Term: Reduce potable water use by 27% from 2019 baseline by 2050
- Long Term: Reduce potable water use by 40% from 2019 baseline by 2050

Annual Target: 1.3% reduction
Metric: Total potable water use for City operations
Potential Solutions: Conducting water audits, installing high efficiency fixtures, improving irrigation systems, expanding the reuse water system, and conducting employee outreach on water conservation.

3.2.2 Materials Management

3.2.2.1 Sustainable Procurement

- **Short Term:** Develop and implement a Sustainable Procurement Policy by 2025
- **Mid Term:** 66% of all City purchases meet sustainable purchasing criteria under the City's Sustainable Procurement Policy by 2040
- **Long Term:** 100% of all City purchases meet sustainable purchasing criteria under the City's Sustainable Procurement Policy by 2050

Annual Target: 4% annual increase in Sustainable Procurement after 2025
Metric: Percent of all City purchases meeting sustainable purchasing criteria
Potential Solutions: Requiring City departments to comply with Sustainable Purchasing policy, and conducting employee outreach/training regarding the policy.

3.2.2.2 Waste Diversion

The City's existing LGO diversion rate is about 15%; the community-wide rate is unknown. Note that Florida has an existing statewide goal of achieving 75% waste diversion each year.[1]

- **Short Term:** Achieve a 20% LGO and community diversion rate
- **Mid Term:** Achieve 55% LGO and community diversion rate
- **Long Term:** Achieve a 75% LGO and community diversion rate

Annual Target: 2% increase in diversion rate
Metrics: LGO and Community diversion rates
Potential Solutions: Conducting public outreach campaigns on waste reduction and recycling, enacting single-use product bans, improving recycling systems, implementing composting solutions, requiring commercial and multifamily recycling, and supporting extended producer responsibility (EPR) initiatives.

3.2.2.3 Paperless Policy

- **Short Term**: Develop a policy to reduce the use of paper in City operation by substituting electronic alternatives by 2025
- **Mid Term:** 45% reduction in paper use realized under the terms of the Policy by 2040
- **Long Term:** 75% reduction in paper use realized under the terms of the Policy by 2050

Annual Target: 3% reduction in paper use each year after 2025
Metric: Percentage reduction in paper use for City operations
Potential Solutions: Developing and implementing a paperless policy, providing electronic software and hardware alternatives to paper use, and conducting employee engagement to drive behavior change.

3.2.3 Land Use and Transportation

3.2.3.1 Fleet

- **Short Term:** Transition 33% of City's fleet vehicles to non-fossil fuel sources or electricity by 2030
- **Mid Term:** Transition 66% of City's fleet vehicles to non-fossil fuel sources or electricity by 2040
- **Long Term**: Transition 100% of City's fleet vehicles to non-fossil fuel sources or electricity by 2050

Annual Target: Transition 3.3% of the City's fleet each year
Metric: Percentage of the City's fleet that is not fossil-fueled

[1] Florida House Bill 7135 (2008) created Florida Statutes Section 403.7032, and established a statewide recycling goal of 75% to be achieved by the year 2020.

Potential Solutions: Developing annual procurement targets for EVs, hybrids, and/or alternative-fueled vehicles, providing EV charging and/or alternative fuel infrastructure, and seeking grant funding to accelerate EV transition.

3.2.3.2 Green Building

» **Short Term:** Update the City's Green Building Program (Chapter 152.51) to include City-owned renovations, existing buildings and infrastructure. Require certification at specified levels, and /or include minimum performance requirements by 2025.
  - **Mid Term:** 30% of new construction and major renovations shall meet updated Green Building Program standards by 2040
  - **Long Term:** 50% of new construction and major renovations shall meet updated Green Building Program standards by 2040

Annual Target: N/A
Metric: Percentage of new construction and major renovations meeting updated Green Building Program standards
Potential Solutions: Updating Green Building Program and requiring qualifying building/renovation projects to meet Green Building criteria, and conducting outreach to employees, designers, contractors and other stakeholders to support the program.

3.2.3.3 Multi-modal transportation

- Short Term: To reduce employee commuting emissions, develop and implement an incentive program to encourage City employees to telecommute, use public transportation, walk or bicycle to work by 2025. Also establish criteria for incentivizing and evaluating multi-modal trips by 2025.
- Mid Term: Achieve a balanced transportation system with no single mode accounting for more than 20% of trips by 2040
- Long Term: Achieve a balanced transportation system with no single mode accounting for more than 30% of trips by 2050

Annual Target: 1.25% annual increase in the number of multi-modal trips meeting criteria
Metric: Percentage of trips using each mode
Potential Solutions: Developing incentives for employees that allow alternatives to single-occupancy commuting, developing and implementing a Multimodal Transportation Plan (referenced in the City's Complete Street Design Manual), developing and implementing a comprehensive bicycle and pedestrian plan., and establishing criteria to measure and evaluate multi-modal trips within the City to track and evaluate performance towards the multi-modal transportation goals.

3.2.4 Equity and Outreach

3.2.4.1 Outreach and Communications

- Short Term: Develop an outreach and communications plan for the City's sustainability program by 2025 that addresses both City employees and community members
- Mid Term: Conduct surveys showing at least 45% of community members are aware of and engaged with the City's sustainability programs by 2040

- Long Term: Conduct surveys showing at least 75% of community members are aware of and engaged with the City's sustainability programs by 2050

Annual Target: 3% increase in awareness and engagement after 2025

Metric: Percentage of community members who report being aware of and engaged with the City's sustainability programs

Potential Solutions: Developing and implementing an outreach and communications plan and conducting follow-up surveys to assess the plan's effectiveness.

3.2.5 Policy and Economics

3.2.5.1 Sustainability Funding

- Short Term: Establish a sustainability revolving fund (SRF) by 2025 and fund selected sustainability initiatives to be developed in Phase 3 of the Work Plan (Sustainability Project Portfolio & Implementation Plan). Note that resilience projects developed in Phase 2 of the Work Plan will require separate funding through grants, public-private partnership (P3) or other means.
- Mid Term: None.
- Long Term: Achieve a self-funding sustainability program in which cost savings realized by efficiency and resource conservation initiatives fund at least 50% of new initiatives by 2050

Annual Target: N/A

Metric: Percentage of planned sustainability initiatives that receive funding

Potential Solutions: Setting up an SRF with initial funding for selected sustainability initiatives. The fund should have a mechanism to recover money saved through the initiatives in terms of reduced expenses or recovered costs, and allow that money to be redirected to other initiatives that meet sustainability criteria. Over time the SRF can grow and help increase the number of initiatives the City is able to implement, including those that are less cost-effective but have important social, environmental or resilience benefits.

3.3 OPPORTUNITIES

A review of Pompano Beach's baseline points towards a number of high-level opportunities to improve sustainability performance and reduce emissions:

» **Decarbonize the Transportation Sector**

Transportation is the most significant emissions source for both LGO and the community. It is also the most promising opportunity for emissions reductions. Vehicle emissions are projected to decline as vehicle fuel economy increases and electric vehicle technology continues to improve and gain mass acceptance. Accelerating this trend through aggressive measures within the City's fleet would establish Pompano Beach as a leader and exemplar in this area. On the community side, providing charging infrastructure and other incentives to the community could result in substantial emissions reductions even as the City's population continues to grow. Smart growth planning techniques and promotion of alternative transportation modes also have a role to play in decarbonizing the transportation sector.

- **Improve Energy Efficiency**
  Just five City facilities use 70% of electricity for government operations. Energy audits and commissioning can help identify energy conservation measures and improve efficiency. To meet its climate mitigation goals, the City should also aggressively pursue policies to promote energy efficiency in the community for commercial, residential and industrial uses.
- **Promote Renewable Energy**
  Renewable energy is disadvantaged in Florida by state-level energy policies that can make it difficult to achieve reasonable payback periods for investment. Still, renewable energy is needed to reduce carbon emissions. The City should advocate for better energy policy and for FPL to increase the percentage of renewables in its generation portfolio. The City should evaluate FPL's SolarTogether program, which offers to offset up to 100% energy use with solar as part of a long-term power purchase agreement. The City should also pursue its own renewable installations where they are cost effective, have significant environmental benefits or when grant funding can be obtained. Alternative project delivery methods may also facilitate solar installations on City property. For example, some cities have entered into agreements with solar providers who own, manage and maintain photovoltaic systems installed on city property, while charging the city a fixed price under a long-term lease agreement.
- **Reduce Water Use Intensity**
  While total water use has decreased, potable water use intensity and costs for City facilities continues to trend higher. Water efficiency measures in City facilities could reverse this trend, saving money and resources. Conducting water audits in facilities, installing low flow / flush fixtures, and using smart irrigation controls are potential ways to further reduce water use. Expansion reuse water should be continued, while exploring additional sources of alternative water supply, including HVAC condensate, non-potable well water, etc. The City currently conducts public outreach on water conservation to all ratepayers of the water-system, both inside and outside its jurisdiction, and should continue and expand those efforts. The water utility's existing conservation outreach measures are discussed in Section 4.2.2.
- **Increase Waste Diversion**
  The waste diversion rate for City facilities is low at an estimated 15.2%. The City is not tracking community-wide waste diversion or recycling rates. Consider conducting waste audits for LGO and the community and implement strategies to increase the diversion rate. Also reduce source materials through developing and implementing a sustainable purchasing policy. The City should coordinate with Waste Management (WM) to obtain annual waste and recycling data and engage with WM, the Monarch Hill disposal facility, Broward county and jurisdictions served by the Monarch Hill to increase waste diversion rates and reduce landfill/incineration emissions.

3.3.1 Baseline Recommendations

Based on results of the Quantitative Baseline, RS&H has provided a series of recommendations aimed at improving data management, conserving energy and resources, managing materials and fleets, improving equity and funding sustainability initiatives. These are preliminary recommendations; many could potentially be developed into sustainability initiatives with further study and evaluation. They are designed to support the focus area goals and take advantage of the high level opportunities presented in

Section 3.3. Note that additional and complementary sustainability recommendations are included in the City's Sustainability Strategy (Appendix A).

- **General Recommendations:**
  - Definitively associate utility billing accounts with operationally meaningful categories, such as processes, buildings, facilities, utilities, departments, etc. All utility accounts should be linked to a common facility ID. Utilities should be required to report data to the City in an electronic format that facilitates importing the data into the City's data management systems.
  - Consider purchasing or developing an integrated database solution to automate sustainability data collection, normalize metrics, and regularly report on progress. Such a system will allow managers to evaluate past and on-going efforts and plan new initiatives necessary to reach City goals.
- **Climate & Resilience:**
  - Establish a schedule for regular updates of the GHG Inventory. Most communities update their inventories every two to five years.
  - Establish a framework for reporting on LGO emissions in an operationally meaningful manner (e.g., by department, service, etc.)
  - Track fugitive emissions from stationary and mobile HVAC systems, including establishing a database of system specifications and maintenance records.
  - Complete an employee commuting survey to improve the quality of estimates of emissions from employee commuting and gather information that could be used to influence travel choices.
- **Resource Conservation:**
  - Install submeters at locations with multiple electricity end uses.
  - Submeter major process-related energy end uses, such as data centers or water utilities.
  - Track natural gas use in City facilities such as Fire Stations.
  - Develop an inventory of stationary power generators and track associated fuel use.
  - Consider performing energy audits at top energy-consuming facilities. Such audits systematically investigate an existing facility's energy end-uses, developing cost-benefit analyses for retrofits that save energy.
  - Consider recommissioning larger, more complex buildings with interactive systems and sophisticated controls. Commissioning corrects facility problems that develop over time as equipment ages and usage patterns change. Often it resolves problems that have persisted since design or construction. Examples include equipment or lighting that is on when it may not need to be; systems that do not adequately dehumidify, cool too much or simultaneously heat and cool when they should not; setpoints, sensors and thermostats that are out of calibration; air balancing systems that are not optimal; controls sequences that are functioning incorrectly, etc. Many operations and control improvements cost little or nothing to implement, making commissioning particularly cost effective.
  - Continue expanding the Reuse water system

- Conduct water audits at selected facilities to verify meter attribution, determine the source of rising costs, and investigate high water use intensity values

» **Materials Management:**
- Track municipal solid waste and recycling by volume or mass.
- Obtain annual waste and recycling totals from the City's waste disposal contractor (WM).
- Conduct waste audits at one or more City facilities to better understand recyclable commodities present in the waste stream and uncover opportunities to increase recycling and reduce disposal costs.
- Conduct a waste audit of the community waste stream to better understand its composition and discover recycling opportunities that could increase the community diversion rate.
- Develop a protocol for comprehensive sustainable procurement, including design and construction standards, and track performance of qualifying purchases and services.
- Track the quantity of hazardous waste collected and cost savings to the City from participating in the regional hazardous waste cooperative agreement.

» **Land Use & Transportation:**
- Maintain an annual (i.e., 12 month period) record of fleet usage.
- Configure or obtain fleet management software that can generate fuel usage reports for individual vehicles.
- Develop a sustainability strategy to replace older, less efficient vehicles with electric, hybrid and/or more efficient models.
- Develop a fleet optimization initiative that would identify and eliminate under-used vehicles and optimize the fleet to fit the needs of each department.
- Conduct a comprehensive inventory of fleet vehicles and operations at the Airpark and consider joining the Airport Carbon Accreditation program.
- Consider developing a multimodal transportation plan and/or a bicycle and pedestrian plan and adopting level of service (LOS) standards for bicycle and pedestrian access.

» **Equity & Outreach:**
- Collect data on data on homelessness within the City's jurisdiction
- Investigate the potential to reduce City staff health insurance costs through participation in employee wellness programs. Track data relating to City employee wellness programs and premium reductions, and community wellness information such as rates of substance abuse and obesity, and mental health metrics.
- Consider requiring sustainability training for all City employees as part of the onboarding process with updates at recurring intervals, and track workforce development data.
- Establish and track data related to public outreach related to sustainability.
- Conduct a formal stakeholder mapping exercise to identify stakeholder groups who should be engaged when planning sustainability and resilience initiatives.
- Evaluate potential benefits of third-party certification programs for sustainability and consider incorporating metrics used by such programs.

- **Policy & Economics:**
  - Implement Phase 3 of the City's Sustainability Work Plan, which will involve developing sustainability initiatives consistent with the recommendations in this section that will save the City money by increasing efficiency and reducing waste in City operations.
  - Consider establishing a Sustainability Revolving Fund to support the implementation of green initiatives and recapture/redistribute their benefits

4. QUANTITATIVE BASELINE

The Quantitative Baseline is a continuation of previous sustainability planning work at the City of Pompano Beach. The City of Pompano Beach Sustainability Strategy (Appendix A) establishes a qualitative baseline for the City which reviewed sustainability performance relative to the six focus areas shown in Table 3 below. It also establishes a workplan to further develop the City's sustainability program over a five year period.

The Quantitative Baseline summarizes key sustainability metrics for both the City's operations and the community. It includes numerical data evaluating the City's sustainability performance in the City's focus areas. It establishes 2019 as a baseline year for the City's resource conservation, materials management, land use and transportation, equity and outreach, and policy and economics metrics. It also looks backwards in time to 2016, where data was available, to establish trends that indicate the direction and magnitude of the City's progress. Where possible, data are normalized to facilitate comparisons between and within operational boundaries. This information will give the City's Sustainability Coordinator a reference point against which to measure progress, and will be useful for illuminating opportunities and planning future sustainability initiatives.

The Quantitative Baseline should be viewed as a complement to the Sustainability Strategy as it focuses on numerical data relative to the City's six sustainability focus areas. For that reason, not all the elements of each focus area shown in Table 3 are addressed. Those that are more qualitative in nature are discussed in the Sustainability Strategy document, provided as Appendix A.

TABLE 3: CITY OF POMPANO BEACH SUSTAINABILITY FOCUS AREAS

Focus Area	Quantitative Elements	
Climate and Resilience	» GHG Inventory	
Resource Conservation	» City Facilities and Infrastructure » Electricity Use » Stationary Fuels » Electronics and Equipment	» Water Use » Irrigation & Reuse Water » Wastewater » Renewable Energy
Materials Management	» Waste Generation & Pickup Services » Recycling » Composting	» Disposal » Universal & Hazardous Wastes
Land Use and Transportation	» City Fleet » Airpark » Transit	» Parking » Community-wide Transportation
Equity and Outreach	» Health Insurance » Health and Wellness	» Sustainability Training » Workforce Development
Policy and Economics	» City Budget » Revenues » Sustainability Incentives	» Sustainability Funding Sources » IT assets

4.1 CLIMATE AND RESILIENCE

The Climate and Resilience focus area includes elements related to quantifying and mitigating GHG emissions that contribute to climate change, as well as those related to adapting to its impacts (i.e., resilience). To quantify the City's contribution to climate change, RS&H completed a GHG Inventory that quantifies emissions for the 2019 baseline year. Refer to Section 5, "Greenhouse Gas Inventory" in this document for the full results and methodology of the GHG Inventory. The Inventory addresses both community-wide emissions and those related to local government operations (LGO).

In 2019, LGO GHG emissions in Pompano Beach amounted to 6,423 metric tons of carbon dioxide equivalents. Community-wide emissions amounted to 1,376,874 mtCO2e. Per capita emissions are below the U.S. average and compare favorably to selected local governments in the region, at 12.3 mtCO2e per person.

4.2 RESOURCE CONSERVATION

The Resource Conservation focus area includes elements related to energy use, electronics and equipment, renewable energy and water use.

4.2.1 Energy

4.2.1.1 Electricity

4.2.1.1.1 Local Government Operations

In 2019 Pompano Beach facilities consumed 2,648,253 kWh of electricity at a cost of $414,446. However, the top five facilities accounted for over 70% of this total. Table 4 shows the top twenty locations by electricity usage for 2019 and the percentage each contributed to total electricity use for all facilities. Together, these locations contributed 85% of facility electricity usage out of a total of 51 accounts with billing records.

TABLE 4: TOP 12 FACILITIES BY ELECTRICITY CONSUMPTION, 2019

FPL Account No.	Address	Location	kWh	% of Total
6471692324	50 W Atlantic Blvd	Library/Cultural Center	758,040	28.62%
3979077488	190 N Ocean Blvd	Lift Station	494,580	18.68%
8524551036	100 W Atlantic Blvd	City Hall Offices	334,740	12.64%
9111951274	275 Sea Breeze Way	Pompano Beach Pier	167,640	6.33%
8449956427	703 N Federal Hwy	Tennis Clubhouse	110,544	4.17%
2189890482	3066 N Course Dr	Palm Air Golf	76,742	2.90%
1125422145	1401 N Federal Hwy	Pompano Beach Golf Course	71,584	2.70%
5005724033	3250 NE 2nd St	Beach Library	67,538	2.55%
3157281522	2901 NE 14th St	Alsdorf Park Boat Ramp	46,930	1.77%
7419148379	18 N Pompano Beach Blvd	Aquatics Beach Lifeguard Bldg	45,838	1.73%
9815935284	1190 NE 3rd Ave	Water Treatment Plant and Public Works	34,017	1.28%
966341273	3440 NE 3rd St	Parking Garage	31,541	1.19%
All Facilities			**2,648,253**	**100%**

The data shows that the Library/Cultural Center, a Lift Station located at 190 N Ocean Boulevard and City Hall Offices made up approximately 29%, 19% and 13% of the City's total electricity consumption in 2019. Other significant electricity users include the Pompano Beach Pier and the Tennis Clubhouse.

Figure 2 shows 2019 energy use and cost for the various types of facilities in the City. Expenditures generally are proportional to energy use for most facilities types, with exceptions for Parks, Golf, Streetlights, and Right of Way (ROW). For these facility types, expenditures seem to be higher than expected for energy use. This could indicate billing at a different rate, which is common for lighting. Other potential explanations could be higher base service fees due to a large number of accounts with little usage (possible for parks), or billing errors. The discrepancy may indicate opportunities to reduce costs for these account types.

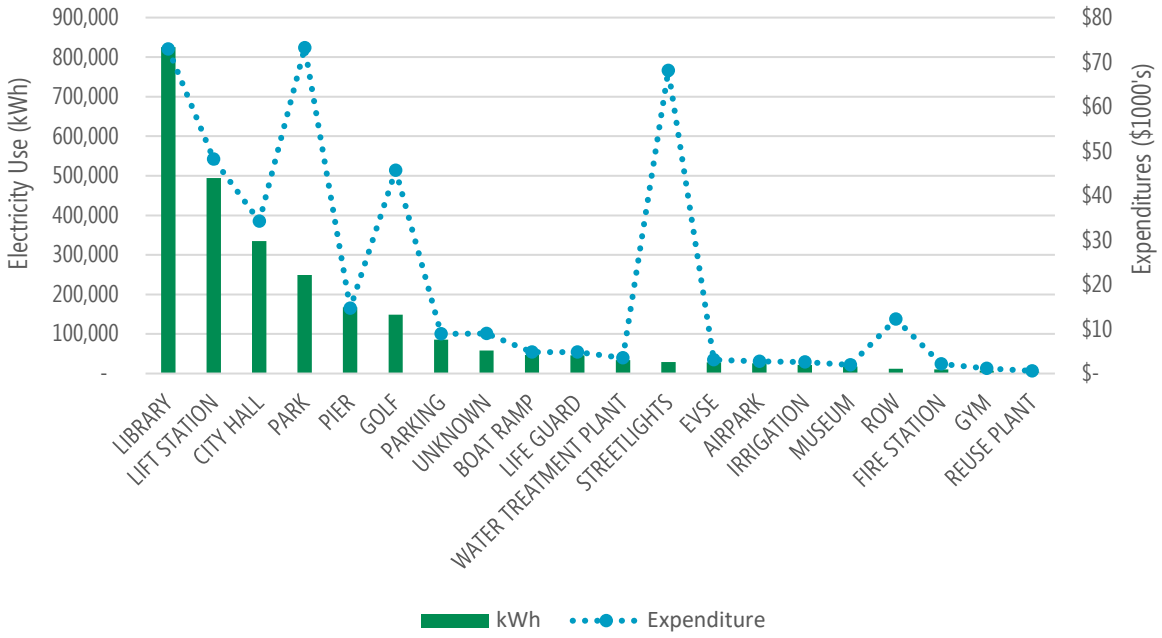

FIGURE 2: 2019 ENERGY USE & EXPENDITURES FOR FACILITIES BY TYPE

The City obtained a full calendar year data on electricity consumption for 2019 and partial year consumption for 2020 from its account representative with FPL. FPL provided utility billing records in PDF format which required conversion to a spreadsheet format for analysis.

The FPL billing data contains addresses and FPL account numbers, but does not have a common ID field linking accounts to the City's internal facility list. RS&H attempted to match FPL accounts to the City's facility list by address matching and by using Geographical Information Systems (GIS) to map FPL account addresses and determine if they are in proximity to City facilities. This is a challenging process since in some cases a single account or meter may serve multiple facilities. In addition, some addresses are erroneous in either the FPL or City database or both. For this reason, attribution of electricity consumption to City facilities should be regarded as an approximation which could contain errors. A detailed survey

linking utility accounts to City facilities through site visits and conducting an inventory of meters would be necessary to attribute energy use to City facilities with a high degree of confidence.

4.2.1.1.2 Energy Use Intensity

Energy Use Intensity (EUI) is a commonly used metric to compare energy use between buildings with similar use types. It is typically expressed as million BTUs of energy used per square foot of heated building area. EUI should include all forms of energy use including thermal fuels (e.g., natural gas) and electricity. RS&H attempted to calculate EUI for City buildings, however results were highly variable and not within expected ranges. This is another indication that there are likely data quality issues related to the matching of FPL accounts to City facilities.

4.2.1.1.3 Community Electricity Use

The City's Sustainability Coordinator provided community-wide electricity data sourced from the City's FPL account representative. It indicates the community consumed 1,500,808 MWh of electricity in 2019, as shown in Table 5.

TABLE 5: COMMUNITY-WIDE ELECTRICTY CONSUMPTION, 2019

Account Type	2019 Electricity Consumption (MWh)	2019 Electricity Consumption (MMBtu)
Commercial	716,208	2,443,703
Commercial Public Authority	85,135	290,479
Industrial	4,444	15,163
Industrial Public Authority	70,248	239,687
Other Public Authority	91	311
Public Streets	7,116	24,279
Residential	617,340	2,106,363
Residential Public Authority	227	774
TOTAL	**1,500,808**	**5,120,759**

4.2.1.1.4 Streetlights and Traffic Lights

The City did not provide an inventory of streetlights. FPL data provided by the City includes several accounts with "Lights" or "Streetlights" in the account description. These include accounts at 2859 Hammondville Road, 316 NE 1st Street, 414 NE 1st Avenue and 601 NW 19th Avenue (Hunter's Park Manor). Together these accounts amount to 1.6% of the City's electricity consumption in 2019. However, on a cost basis, the City spent $75,616 for lighting accounts, which is over 18% of total costs for all facilities. The discrepancy between cost and usage suggests the City is billed at a higher rate for lighting accounts, possibly indicating they are maintained by the utility. The City provided a list of 115 traffic signals located in Pompano Beach. The list includes 92 signalized intersection, eight pedestrian, 11 post beacons, one proposed signalized intersection, and one ITS signal. It does not include information about the lighting fixtures, lamp types or power consumption. It was not possible to link Traffic Signals to FPL account data provided by the City as the Traffic Signal data includes only partial address information.

Many local governments have reduced energy consumption and associated costs and avoided greenhouse gas emissions by improving the efficiency of streetlighting and traffic lighting. Although streetlighting does not make up a large portion of the City's electricity consumption it is significant in

terms of cost. A detailed inventory including lamp and fixture types, as well as details of the City's arrangement with FPL for streetlights and signals should be investigated to uncover opportunities.

4.2.1.2 Stationary Fuel Combustion

Stationary fuels include natural gas and propane which are delivered through utility pipelines or by truck and burned in facilities for heating.

4.2.1.2.1 Local Government Operations (LGO)

Information on natural gas usage in City facilities was not available. The City indicated that some of its fire stations may use natural gas for water heating, but did not provide billing records. RS&H recommends the City verify whether natural gas is used in its facilities and if so, track usage and expenditures. Natural gas usage should be considered along with electricity usage when calculating Energy Use Intensity (EUI) for City facilities.

4.2.1.2.2 Community

RS&H estimated community-wide natural gas and propane usage for the City by using EIA estimates of per household usage in the southeast region hot/humid climate, and applying it to the estimated number of households using these fuels in Pompano Beach. This method could not be applied to the commercial and industrial sectors due to the variability of end uses. Results indicate an estimated 822 households used 29,663 MMBtu of natural gas in 2019, and 123 households used 1,664 MMBtu of propane. Compared to the energy used for community-wide electricity, this is only 0.58% and 0.03% of that amount, respectively. Combustion of stationary fuels in Pompano Beach is relatively insignificant in comparison to electricity consumption. The City should obtain natural gas data from People Gas in the future for baseline and GHG inventory updates.

4.2.1.3 Electronics and Equipment

RS&H requested but did not receive an inventory of the City's information technology (IT) and electronic assets, including those that are ENERGY STAR certified or have an equivalent certification for energy efficiency. The quantitative baseline established in the Sustainability Strategy (Appendix A) found the IT department has enacted some energy savings measures but has not quantified their benefits. There is currently no strategy for requiring equipment to be certified to third party standards for energy efficiency and sustainability.

4.2.1.4 Renewable Energy

The City does not have any renewable energy generating facilities/installations at this time.

4.2.2 Water and Wastewater

The City operates a water utility which serves the community as well as some surrounding communities. Water treatment infrastructure in the City includes the Water Treatment Plant (WTP), located at 1190 NE 3RD Avenue and the Oasis Reuse Plant, located at 901 NE 18th Street. The City's WTP supplies treated water to portions of unincorporated Broward county, Lauderdale-by-the-sea, Lighthouse Point and Margate as well as to Pompano Beach. The City only provides water to Margate, Broward County and Ft. Lauderdale in times of emergency. Pompano Beach usage accounted for 92.6% of the total treated by the WTP in 2019.

Significant water end uses include potable use and irrigation. The City has been expanding the use of reuse (e.g., "purple pipe") water for irrigation. The reclaimed water utility avoids 2.6 – 3 million gallons per day (MGD) of potable water use.

The City's water utility promotes water conservation to all of its ratepayers, and has expanded reuse projects (see "Water Utility Policy and initiatives".). The City has restricted watering days, advanced irrigation controls, and an AMI system that can show utility customer's water use hour by hour.

4.2.2.1 Water Usage (Potable, Irrigation, and Reuse)

The City provided account data for water usage at City facilities. In 2019 there were 222 potable water accounts, 94 irrigation accounts and 9 reuse accounts. City facilities used approximately 135.14 million gallons (MG) of potable water, 95.67 MG of irrigation water and 10.75 MG of Reuse water. The total expenditure for water supplied to City facilities was $2.56 million.

Figure 3 shows potable, irrigation and reuse water usage and total cost for all City facilities from 2016-2019. Potable use has decreased from 157.33 MG in 2016 to 135.14 MG in 2019. Irrigation usage and Reuse water usage both decreased by about 10 MG over the same period. Costs increased by about $195,000 in 2019 compared to 2016. Costs were lowest in 2017 although total usage was comparable to other years. This cost anomaly should be investigated. It could be related to billing errors, a change in pricing structure, or some other reason.

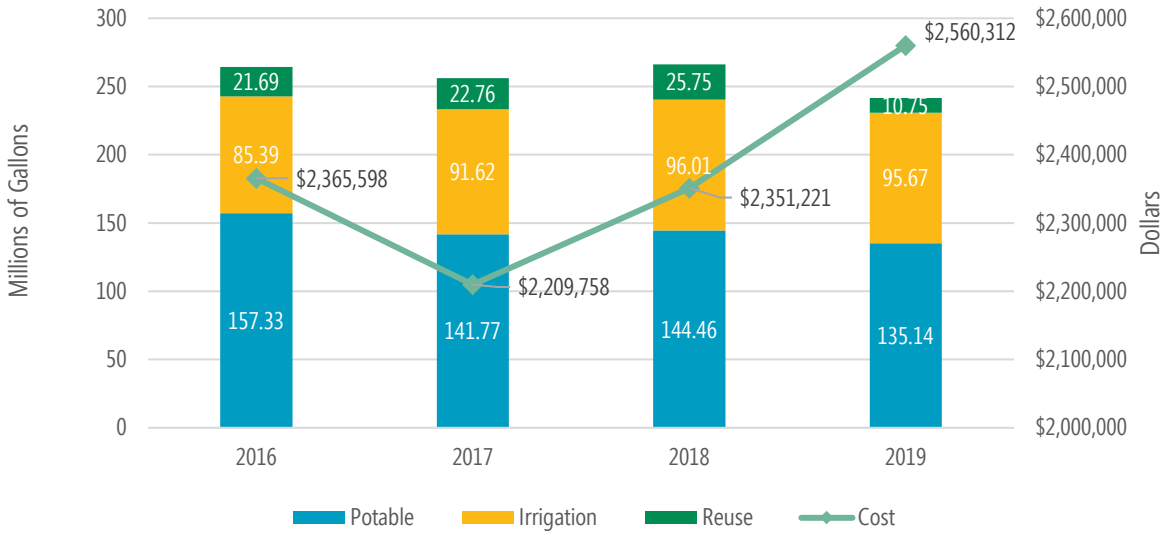

FIGURE 3: POTABLE AND IRRIGATION WATER USE AND COST - ALL ACCOUNTS 2016-2019

RS&H identified the 20 accounts that used the most potable water in 2019 for further analysis. These 20 accounts together used 66.59 MG of potable water in 2019, or 49% of the 2019 total for all 222 accounts. Figure 4 shows the top 20 accounts from greatest to least usage. Accounts are shown by address or name (if known) with the water utility account number in parentheses.

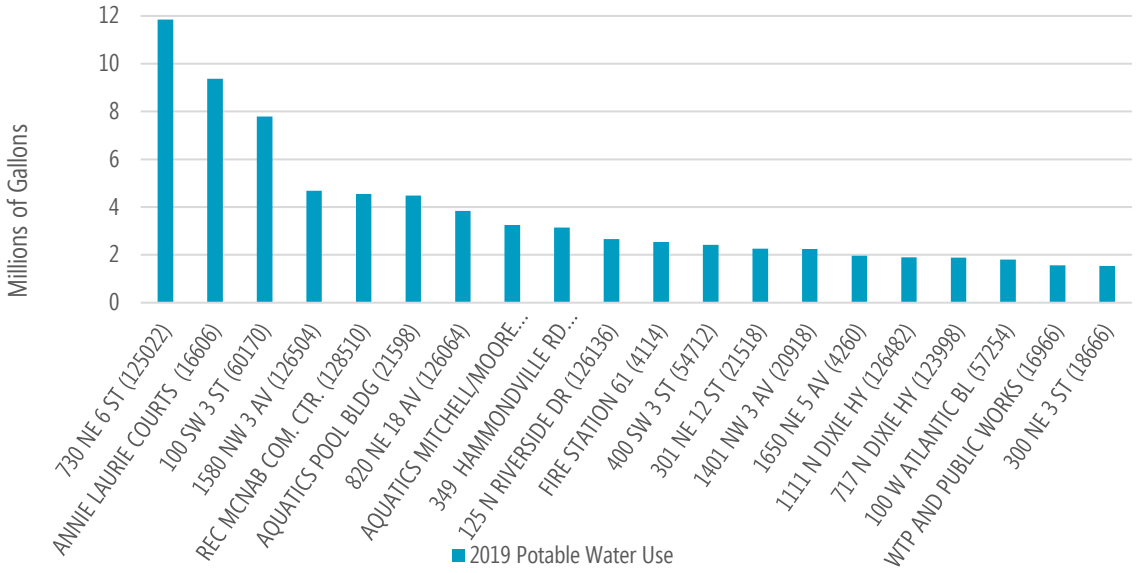

FIGURE 4: POTABLE WATER USE IN 2019, TOP 20 SELECTED ACCOUNTS

Water use intensity (WUI), expressed in gallons of water consumed per square foot, is a common metric to compare water use between buildings. Figure 5 shows potable WUI and cost intensity from 2016 – 2019 for the 20 facilities with the highest WUI in 2019. The data shows increasing water usage and cost in City facilities on a square foot basis over the four year period. This suggests that sustainability opportunities exist to reduce water usage and associated costs in City facilities. WUI appears to be considerably higher than expected in City buildings; for comparison, the Energy Information Agency's 2012 Commercial Buildings Energy Consumption Survey found that large commercial building used only 20 gallons per square foot annually on average. This may indicate a data quality problem or abnormally high water usage. Water audits should be conducted at targeted facilities to verify these results. Note that cost intensity shown in this chart includes all water usage types and sewer charges. Since sewer (wastewater) is not metered, it is billed based on potable water usage (up to 10,000 gallons).

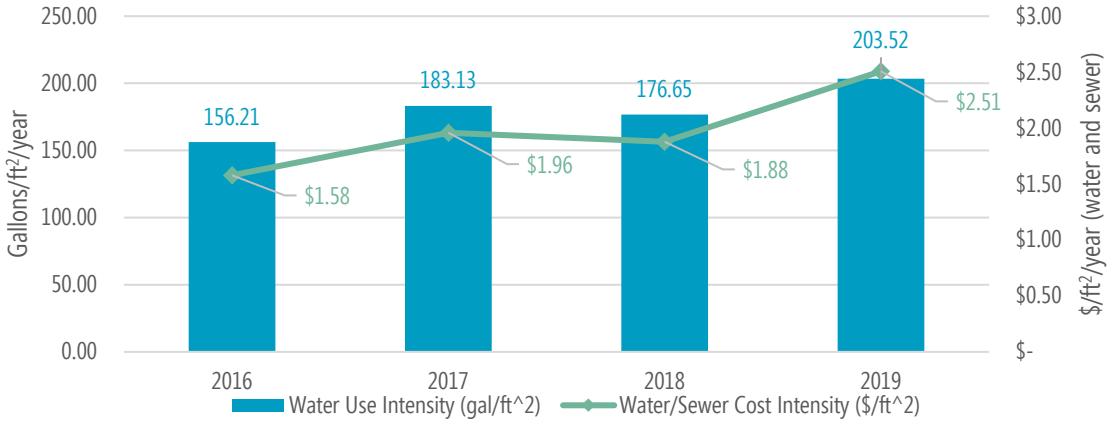

FIGURE 5: POTABLE WATER USE & COST INTENSITY, SELECTED FACILITIES

4.2.2.2 Wastewater

The City's wastewater is treated at the North Regional Wastewater Treatment Plant (NRWWTP), which has provided contract wholesale wastewater services to Large Users plus the County since 1974. The facility is located within the City of Pompano Beach's jurisdiction but is owned and operated by Broward County. In addition to the City of Pompano Beach, the current Large Users served by the facility include the Cities of Coconut Creek, Coral Springs, Deerfield Beach, Lauderhill, North Lauderdale, Oakland Park, Tamarac; and North Springs Improvement District (NSID), Parkland Utilities, and Royal Utilities. Service is also provided to WWS Districts 1 and 2 retail wastewater systems.

Wastewater is not metered separately, but is billed based on potable water usage at subject properties. Annual wastewater totals for City facilities are equal to the potable water totals shown in Figure 3 above. Wastewater is included in the total cost billed for City facilities; data provided does not allow wastewater charges to be disaggregated.

4.3 MATERIALS MANAGEMENT

The City's operations generate a variety of waste streams. These include garbage, which is also known as municipal solid waste (MSW) and may include some recyclable commodities. Additionally, the City's operations generate universal wastes, such as electronic devices, batteries, and fluorescent lamps. Waste is generated through most aspects of day-to-day operations, including office work, vehicle operation and maintenance, operation of facilities, construction, and services provided to residents. The U.S. Environmental Protection Agency (EPA) recommends managing non-hazardous solid waste according to a waste management hierarchy that prioritizes source reduction & beneficial reuse, followed by recycling & composting, energy recovery, and lastly disposal.

4.3.1 Waste Generation, Collection, and Disposal

Detailed waste generation data for City facilities was not available. RS&H estimated waste generation at 53 City owned facilities based on dumpster volumes in cubic yards (CY) and pickup frequency. Based on an interview with the City's recycling coordinator, dumpsters were assumed to be 87.5% full at the time of pickup. This is the median of the range of the 75-100% range suggested by the recycling coordinator.

In 2019, 35 City facilities generated an estimated 1,102 tons of MSW. A facility located on 100 SW 3rd Street, generated 15% of the total estimated tons of MSW, which is three-times higher than the next highest facility. Figure 6 shows the top 20 facilities by estimated MSW waste generation for 2019.

Waste from City facilities is picked up by a combination of City staff and Waste Management (WM), the City's waste contractor. City staff pick up public containers such as garbage cans from the beach and on sidewalks, as well as trash from parks and from events. Larger containers such as dumpsters are picked up by WM.

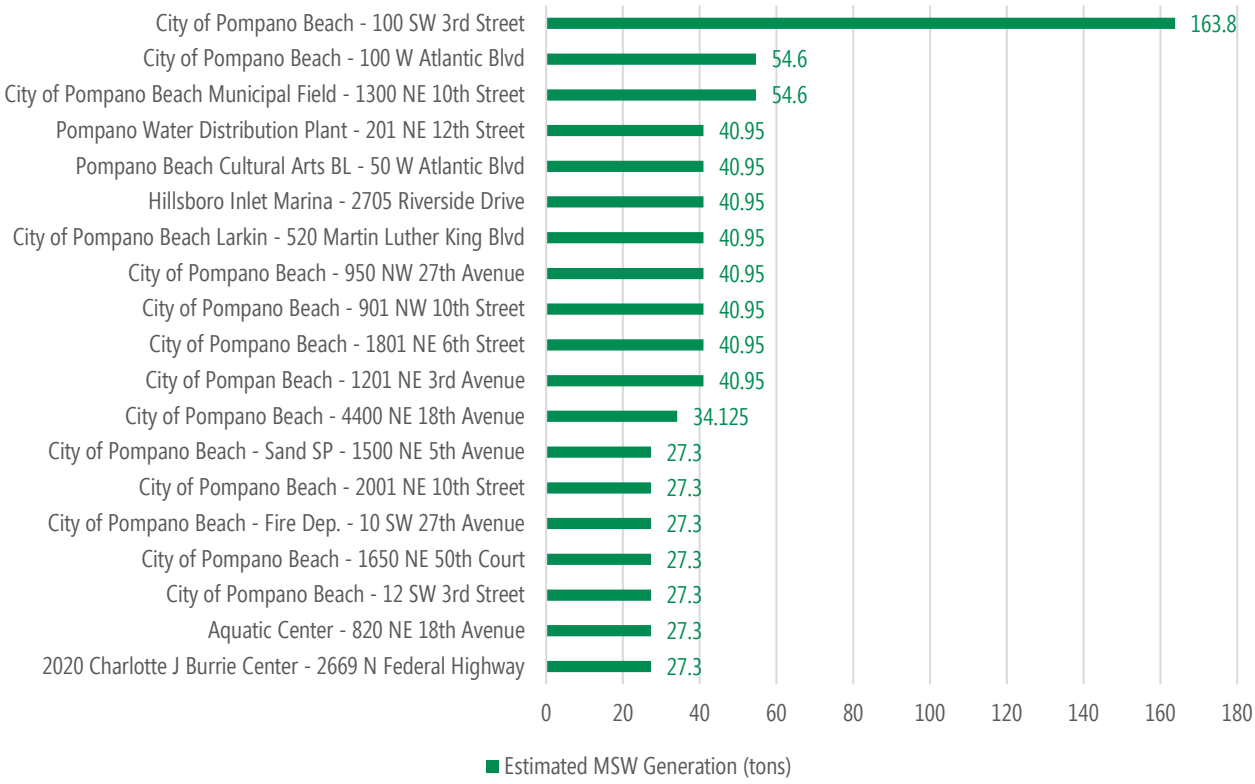

FIGURE 6: 2019 ESTIMATED MSW GENERATION BY FACILITY

The numbers provided in the figure above are best available approximations and may not fully reflect the actual amount of MSW generated by each facility. RS&H recommends that the City conduct a detailed waste audit or waste characterization study. Such a study can help the City determine its actual waste footprint for facilities with significant generation and identify opportunities to divert recyclable wastes that may be present in waste streams. Additionally, a municipal waste audit would improve the quality of future GHG emissions estimates for government operations waste generation.

The City has a contract with Waste Management to collect solid waste, program recyclables, and bulk waste from residential customers. The Monarch Hill Landfill receives waste from the community of Pompano Beach and is landfilled on site. The Monarch Hill Landfill has incineration capabilities, but currently incineration is not tracked. There is no way to disaggregate quantities of Pompano Beach incinerated versus landfilled at the facility.

Waste Management provided RS&H with monthly waste mass totals from Pompano Beach entering the Monarch Hill Landfill for the years 2006 through 2019. Figure 7 summarizes the waste generation for the community in 2019.

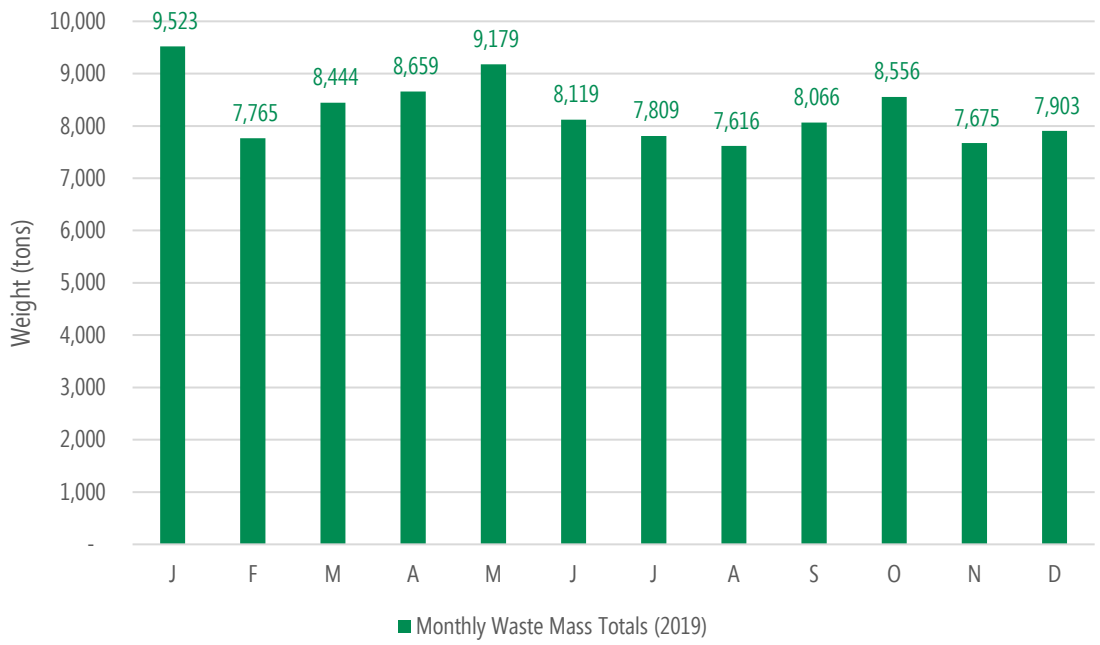

FIGURE 7: MONTHLY COMMUNITY WASTE GENERATION, 2019

Annually, community waste generation shows variability. Beginning with 105,791 tons in 2016, waste generation for the community increased 11% to 116,159 tons in 2017. It then fell to 109,325 in 2018 and fell again to 99,314 in 2019, 19% less than the 2016 value. Although waste generation is variable due to factors such as economic activity, hurricanes and other events, the recent trend has been declining.

The data provided did not include a characterization of waste type within the waste stream. This information can be obtained from a comprehensive waste audit for the community. RS&H recommends that the City consider completing an audit or assessment of this scale to determine the effectiveness of waste operations and set targets and benchmarks for waste diversion.

4.3.2 Recycling

Detailed recycling data for City facilities for 2019 was not available. Similar to waste generation, recycled waste in 2019 was estimated based on container capacity in CY and pickup frequency.

In 2019, 28 City facilities recycled an estimated 167.31 tons of waste. The City Hall facility, located at 100 W Atlantic Boulevard, comprised 25% of the total estimated recycled waste. Figure 8 shows the estimated recycling quantities for the top 20 City facilities in 2019.

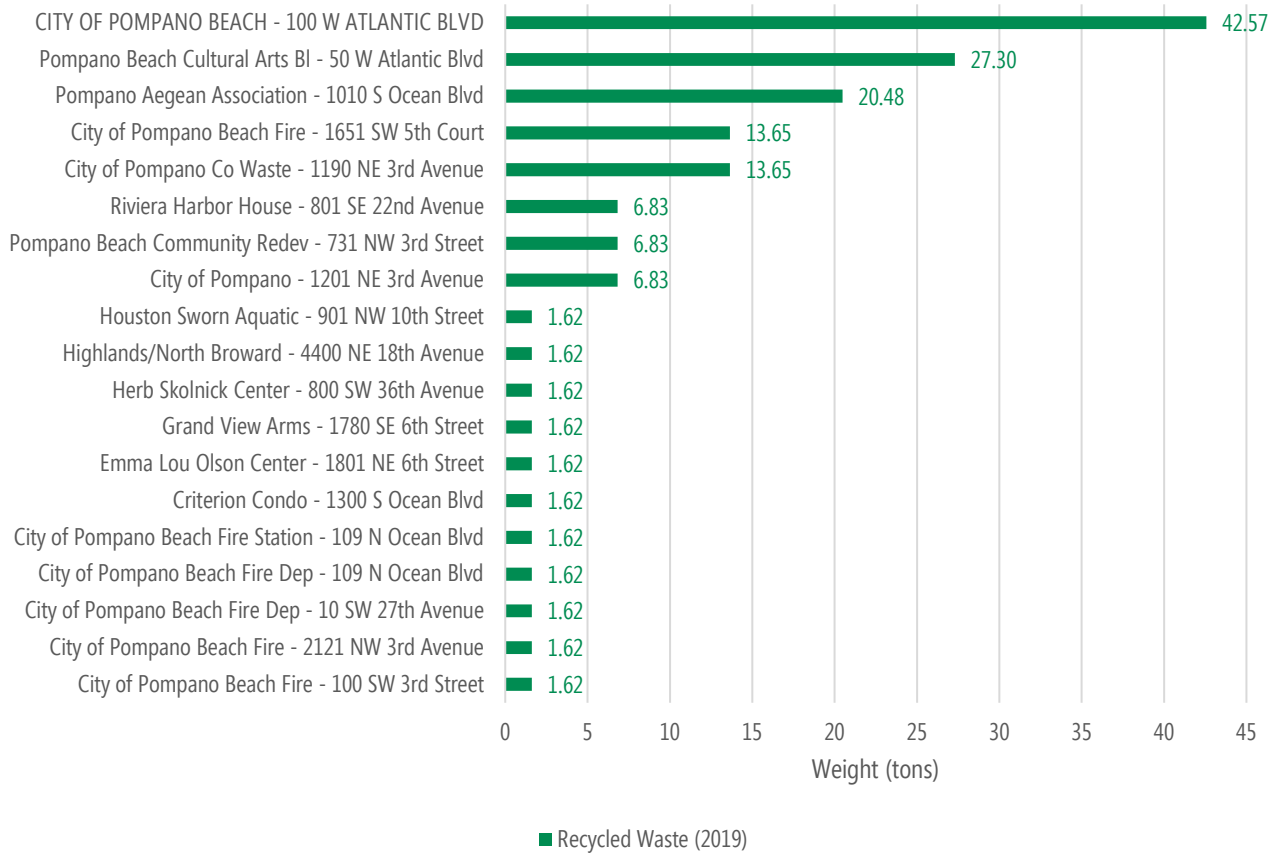

FIGURE 8: ESTIMATED RECYCLING QUANTITIES FOR TOP 20 FACILITIES IN 2019

The numbers provided in the figure above are best available approximations and may not fully reflect the actual recycling quantities picked up at each of these facilities in 2019. As discussed in earlier sections, RS&H recommends that the City conduct a detailed waste audit or waste characterization study.

Using both the estimated MSW waste generation and the estimated recycling quantities for 2019, the City of Pompano Beach currently has an estimated diversion rate of 15.2%. This diversion rate is an approximation based on the estimating methods for both MSW waste generation and recycling quantities. A detailed waste audit or characterization study could help confirm the accuracy of this diversion rate.

Annual community-wide recycling amounts by commodity were requested but could not be provided. Based on conversations with the City's Recycling Coordinator, there are no recycling-related revenues generated from the community's recycling efforts. Additionally, recycling expenditures are built into the City's existing contract with Waste Management.

4.3.3 Composting

Information relating to composting for local operations and the community was not available. The City indicated that there are currently no incentive programs for residential composting programs, but the City's Recycling Coordinator provides education for composting options.

4.3.4 Universal Wastes

The City recycles universal waste at its facilities. The City provided invoices relating to universal e-waste recycling for November 2019 and August 2020 and indicated that each invoice corresponded to approximately six months' worth of collected materials. Based on the City's direction, RS&H estimated that the November 2019 invoice covered the months of May through November. Figure 9 shows the recycled e-waste by weight during the six-month period between May and November.

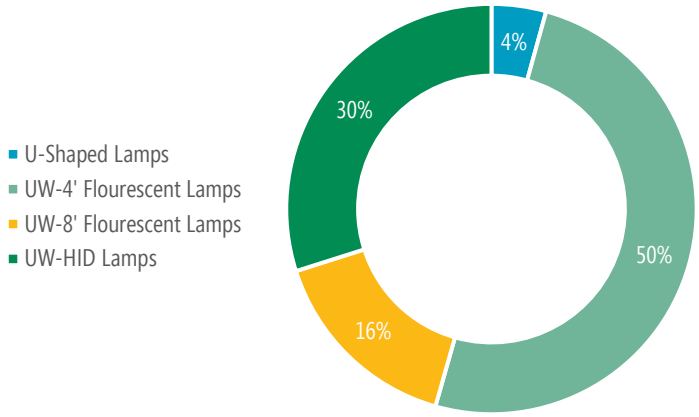

FIGURE 9: RECYCLED UNIVERSAL WASTE, MAY – NOVEMBER 2019

4.3.5 Hazardous Wastes

The City has partnered with several other Broward County cities to provide the collection and disposal of household hazardous waste and electronic scrap recycling. The collection of materials takes place 15 times per year at various collection locations in the County. With proof of residency, City residents can go to other participating cities for their collection events at no cost. The program tracks the quantity of hazardous waste dropped off by participants, but there is currently no way to determine how much of the waste comes from Pompano Beach.

4.4 LAND USE AND TRANSPORTATION

4.4.1 City Fleet

The City provided fleet data for each department for five months from September 6, 2018 to January 16, 2019. Estimates of annual performance were extrapolated from this limited data set. The data contained the make, model, year, serial number, purchase date and odometer readings for each vehicle. The data did not include the vehicle type (on-road or off-road), fuel type (gasoline or diesel), vehicle class, annual fuel consumption or vehicle miles traveled (VMT) for 2019.

4.4.1.1 Methodology

RS&H was able to determine the vehicle type, fuel type, and estimated fuel economy via independent research for each vehicle. RS&H assigned each vehicle four classes, as described in Table 6.

TABLE 6: VEHICLE CLASS ASSIGNMENTS

Vehicle Class	Description	Weight
1	Passenger Cars	<6,000 lbs.
2	SUV's / Light Duty Trucks	6,001 – 10,000 lbs.
3	Medium Duty Trucks / Vans	10,001 – 16,000 lbs.
4	Heavy Duty Trucks	16,000 + lbs.

Because VMT was not available from the data set provided, RS&H took the odometer readings from the January 2019 data and found the difference from the September 2018 data to provide approximately four months' worth of mileage for each vehicle. These values were then multiplied by 2.77 to determine an estimated annual VMT.

The City provided annual fuel consumption and expenditures by department, but this data was not broken out by individual vehicle. Therefore, RS&H estimated the annual fuel consumption for each vehicle. Using an estimate of fuel economy and the estimated annual VMT for each vehicle, RS&H was able to estimate an annual fuel consumption for each vehicle. This methodology produced the best available annual fuel consumption estimate for the City's fleet, however, it may not fully reflect the actual fuel usage for the year 2019. RS&H recommends that the City keeps detailed fleet information, including annual fuel consumption and mileage for each of its fleet vehicles.

4.4.1.2 Fleet Composition

The data provided for January 2019 indicated that the City has 316 on road vehicles in their fleet. An analysis of the 2018 data showed that there were numerous off-road vehicles present (e.g., lawn mowers, generators, boats, etc.), however, all but two of these vehicles were omitted from the January 2019 data set. It is recommended that the City evaluate this omission and include off road vehicles in future fleet evaluations.

The City's fleet is comprised of 200 gasoline vehicles and 116 diesel vehicles that are distributed throughout 32 City departments. The distribution of vehicles by department is shown in Figure 10. A majority (24%) of the City's fleet is comprised of Class 3, medium duty vehicles, mostly belonging to the Grounds (26 Class 3 Vehicles) and Building Maintenance (18 Class 3 Vehicles) departments.

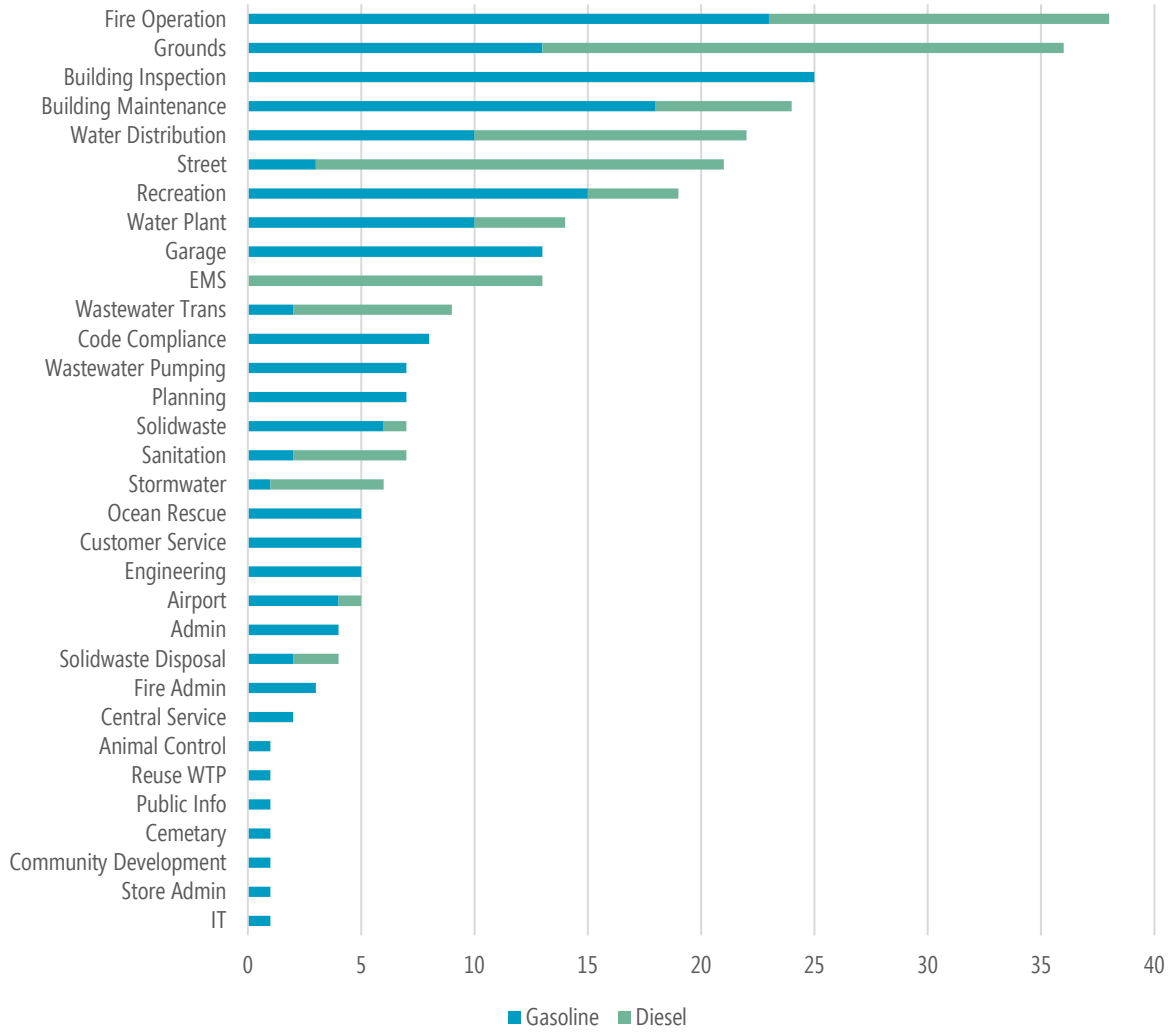

FIGURE 10: CITY FLEET VEHICLES BY DEPARTMENT

4.4.1.3 Expenditures

The City spent approximately $1.75 million in maintenance and fuel costs for its fleet in 2019. The majority of its expenditures was spent on maintenance ($1 million) and the remainder ($750,000) spent on fuel. This amounts to an average of approximately $5,539 spent on maintenance and fuel for each vehicle in 2019.

The Grounds department had the highest maintenance and fuel costs in 2019 at approximately $346,000. Following the grounds department is Fire Operations ($242,000) and EMS ($196,418).

4.4.1.4 Estimated VMT

Average estimated VMT by vehicle is presented in Figure 11. According to the Bureau of Transportation Statistics, the Average Annual VMT per vehicle is approximately 11,000 miles. Of the City's existing fleet, 84% of them were estimated to have VMTs less than 11,000. 47% of the City's fleet had an estimated

annual VMT less than 5,000. A majority of these vehicles (60%) that were estimated to have traveled less than 5,000 miles in 2019 are approaching ten years of age.

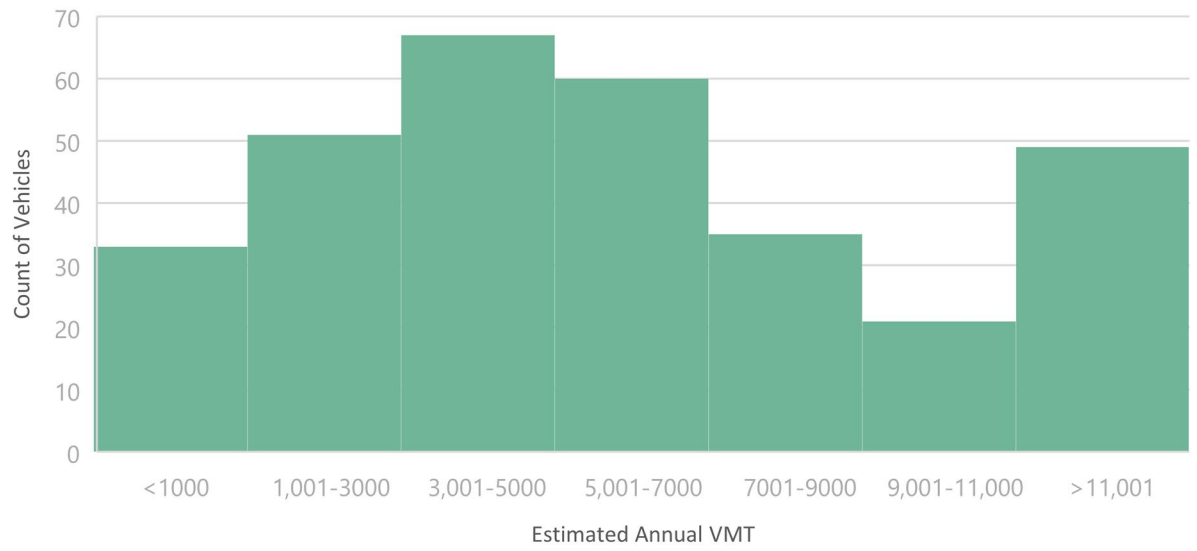

FIGURE 11: AVERAGE ANNUAL ESTIMATED VMT BY VEHICLE

The estimated VMT for all 316 City fleet vehicles combined was 2,687,238 miles in 2019. Based on estimates of annual VMT and vehicle classes, Class 4 Diesel vehicles traveled the most distance in 2019 (24% of the total miles traveled). These vehicles are mostly utilized in the Fire Operations, Emergency Management Services (EMS), and Street departments at the City. A summary of the estimated distribution of VMT by class and fuel type is provided in Figure 12.

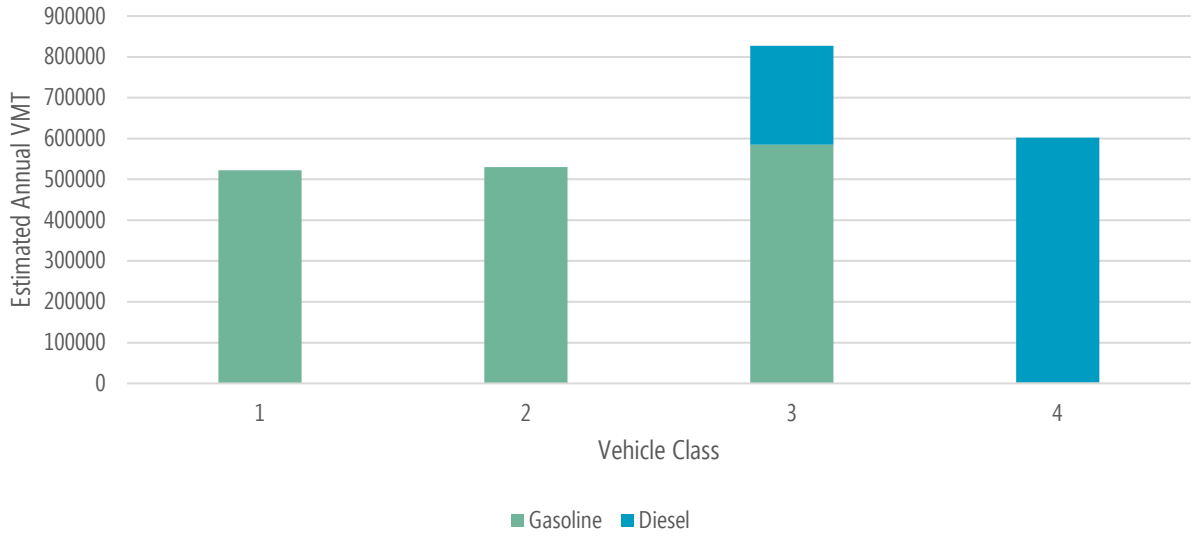

FIGURE 12: ESTIMATED ANNUAL VMT BY VEHICLE CLASS

The average age of the fleet is approaching 10 years old, with an average fleet vehicle vintage of 2012. Gasoline vehicles tended to be newer and diesel vehicles older.

Staff expressed interest in using fleet right-sizing principles to limit the number of vehicles in the fleet and require use of the most fuel-efficient models. There are currently no polices establishing standards for fleet performance (e.g.. fuel economy, vehicles miles travelled, idling, greenhouse gas management, etc.) The City's current agreement with Enterprise Leasing may limit options for using alternative fuel and/or fuel-efficient vehicles as well as their potential benefits.

4.4.2 Airpark

The Pompano Beach Airpark fleet contains a small number of vehicles and equipment running on gasoline and diesel fuels, shown in Table 7.

TABLE 7: AIRPARK EQUIPMENT AND VEHICLES

Vehicle	Quantity
Ford-F250	2
Ford Explorer	1
Zero Turn Mower	3
John Deere Diesel 444 Front End Loader	1
Bat Wing Diesel Mowers	2
Miscellaneous Weed Trimmers and Equipment	Not Specified

Data for fuel usage for City-owned vehicles and equipment at the Airpark was available on a departmental basis, but not broken down for specific vehicles/equipment.

The City does not own any aviation ground equipment such as tugs or fuel trucks. Also, they do not dispense any fuel to any aircraft on the airfield. This is handled by the Airport's fixed base operators.

For both baseline purposes and greenhouse gas inventory purposes, the City should develop a comprehensive inventory of fleet vehicles and operations at the Airpark. While not all of these emissions are directly under the City's operational control, doing so can help the City understand its footprint from airport operations. If this is completed, the Airpark can apply for the Airport Carbon Accreditation program, which is an institutionally endorsed carbon management certification program for Airports. Numerous airports of all sizes have adopted the ACA program as a framework for carbon management, using airport specific management and reduction strategies. Several general aviation airports have utilized the ACA program for carbon management, such as Peter O' Knight Airport (FL), Tampa Executive Airport (FL), Hillsboro Airport (OR), and Teterboro Airport (NY).

4.4.3 Transit

The City and Broward County Transit provides a community shuttle service with four shuttle stops to residents of the City. The service is designed to work in conjunction with connections to several Broward County Transit (BCT) Routes. Table 8 summarizes the number of stops associated with the City's shuttle service.

TABLE 8: CITY OF POMPANO BEACH SHUTTLE ROUTES AND STOPS

Route	Number of Stops
Red	10
Orange	8
Green	10
Blue	7

The City does not charge fares for using community shuttle services within its jurisdiction; however, riders are expected to pay when making connections to BCT routes. The City is required by BCT to maintain a minimum performance of 7.1 Passengers Per Revenue Service Hour per route to remain in the program.

The BCT publishes a ridership report at the end of each month detailing the ridership for each shuttle route. The 2019 ridership for each shuttle route is shown in Figure 13.

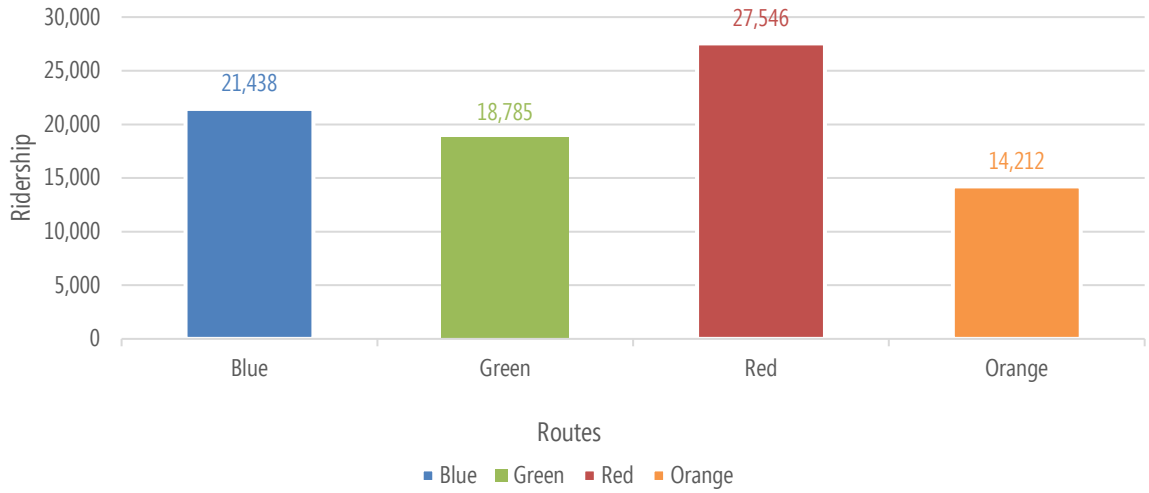

FIGURE 13: CITY OF POMPANO BEACH SHUTTLE SERVICE RIDERSHIP, 2019

In previous assessments of the City's sustainability efforts, staff and commissioners revealed strong interest in developing additional transit options for the City. The yearly ridership for these shuttle routes indicate that transit is a utilized resource for the community.

4.4.4 Parking

The City has 1,375 total parking spaces; 663 of them are located in the in the Pompano Pier Garage and 772 are located throughout the City. The City provided an aggregate parking revenue report from January 1st, 2016 through December 31st, 2019. This report combined all parking revenue for the reporting years into one single report. Table 9 summarizes the aggregated parking revenue from 2016 to 2019.

TABLE 9: AGGREGATED PARKING REVENUES, 2016-2019

Revenue Type	Pompano Pier Garage	Other City-Owned Spaces
Ticket Revenue	$943,284.40	$35,363.00
Non-Ticket Revenue	$127,130.02	$8,824,971.58
Total	**$1,070,414.42**	**$8,860,334.58**

RS&H estimated that the City generates approximately $29,733 in annual revenue from the Pompano Pier Garage and $246,120 from other City spaces. This was determined by taking the total aggregated parking revenue for both facilities and dividing by the number of months in the aggregate period (36). The estimated average annual revenue generated per space was $44.85 for the Pompano Pier Garage and $345.67 for other City-owned spaces.

Offering free parking may be counterproductive to the sustainability goals of encouraging multi-modal transportation and reducing transportation-related GHG emissions. Charging for parking should be seen as a disincentive to single-occupant driving as well as a way to raise revenue. Providing EV parking with charging facilities could be a way to incentivize transition to more sustainable vehicles in the community.

4.4.5 Community-wide Transportation

Vehicles in the community travelled 1.37 billion miles on roads within Pompano Beach's jurisdiction in 2019. Of that total, 44% were on urban arterials, 28% on urban interstate, 22% on urban freeway, and 4% on minor arterials and collector roads.

4.4.6 Green Buildings

The City's Strategic Plan, Goal 4 includes an objective to encourage new buildings meet United State Green Building Council (USGBC) Leadership in Energy and Environmental Design (LEED) standards or other sustainability building standards. According to USGBC's database there are currently 24 LEED certified projects in the City (Figure 14). There are 14 additional projects with certification in process, but only two with registration dates after 2018. Five City facilities have received LEED certification.

FIGURE 14: LEED CERTIFIED FACILITIES IN POMPANO BEACH

The City provides incentives for developers to participate in its Green Building Program. Incentives include expedited permitting, reduced permitting fees, rebates and marketing incentives. Interviews with staff indicated that the program is not widely used by developers. The City should consider engaging in public outreach to potential users of the program to encourage greater participation.

4.5 EQUITY AND OUTREACH

The Equity and Outreach focus area addresses social equity and the need to engage and listen to City employees, residents and other stakeholders, including low income, minority, elderly and other disadvantaged populations. This focus area includes categories such as affordable housing, health and wellness, food security, workforce development, public outreach, employee engagement, stakeholder engagement and third-party verification. Information related these categories is also included in Appendix A: Sustainability Strategy. Currently the City tracks limited quantitative data related to these categories.

4.5.1 Affordable Housing

Affordable housing is a complex issue and one the City has worked on for many years. A full analysis of affordable housing is outside the scope of this study. The City quantified housing availability and needs in its 2015-2020 Consolidated Plan and in the 2017 Pompano Beach Affordable Housing study. The latter states that in 2012 there were approximately 2,600 affordable housing units in Pompano Beach under three rental housing programs: Low-income Housing Tax Credit (LIHTC), traditionally funded public housing, and Section 8 housing.

Homelessness is a social equity concern related to affordable housing as well as to economic, mental health and social services issues. The 2015-2020 Consolidated Plan states that data on homelessness in the City of Pompano Beach is not available, so the City relies on Broward County data. In the future, the City should consider collecting data on homelessness within the City's jurisdiction as part of the sustainability program.

4.5.2 Health and Wellness

The City provides insurance coverage for City Employees. According to the City, average annual costs to the City for Employee Health Coverage amount to $17,000,000. The City did not provide information related to employee participation in health and wellness programs. Going forward, the City could seek to enroll employees in such programs and track their participation. This could lead to benefits such as insurance discounts and reductions in employee sick days.

For the community, the City should consider tracking health and wellness data such as rates of substance abuse, mental health metrics, and rates of obesity. County-level data on life expectancy, alcohol use, obesity, physical activity, and diabetes is available from http://www.healthdata.org/us-health/data-download.

4.5.3 Food Security

This City does not currently track data related to food security, but City Commissioners identified it as an important issue in interviews conducted for the City's Sustainability Strategy (Appendix A). The U.S. Department of Agriculture (USDA) Food Access Research Atlas[2] shows that three census tracts in the City, (12011030801, 12011030903 and 12011030903) meet criteria for low income and low food access, meaning a significant number of residents live more than one mile from the nearest supermarket. The City

[2] The USDA Food Access Research Atlas can be accessed at https://www.ers.usda.gov/data-products/food-access-research-atlas/go-to-the-atlas/

should consider establishing metrics to measure food security and food deserts in the community and incorporate local data into its sustainability program.

4.5.4 Workforce Development

The City develops its own workforce through training programs that provide opportunities for employees to learn and advance their skills and careers. The City also has the opportunity to support workforce development in the community by providing training opportunities, and through its procurement process. The City did not provide quantitative data related to employee training or its Revolving Loan Fund (RLF) Program. Pompano Beach should consider tracking workforce development data to better manage and take credit for its accomplishments in this area.

4.5.5 Public Outreach

Education and outreach are key components of any sustainability program. Moving towards sustainability requires effective engagement of stakeholders to accomplish behavior changes and a shift in organizational culture. Education and outreach to employees, residents, visitors, businesses and other stakeholders is key to accomplishing change and driving the sustainability program forward by communicating its benefits. Although the City conducts outreach on issues related to sustainability, it does not track these efforts in a systematic way. Establishing and tracking metrics for outreach would help the City manage these activities going forward.

4.5.6 Employee and Stakeholder Engagement

Understanding the influence of stakeholders and how the sustainability program will affect their interests allows communications to be tailored to meet their needs, helping to avoid roadblocks and misunderstandings. The City should consider conducting a formal stakeholder mapping exercise for its sustainability program. The four phases of stakeholder mapping include: identifying relevant organizations and groups, analyzing their interests and influence, visually mapping their relationship to the project and other stakeholders, and prioritizing strategies to effectively manage stakeholder engagement.

4.5.7 Third-Party Verification.

The City has not yet pursued third-party verification for its sustainability program under a certification program such as LEED for Cities and Communities. If the City pursues such a certification in the future, data collected as part of this baseline will be useful for documenting achievements and achieving credit. The City may wish to evaluate the potential benefits of such programs, and if it decides to pursue one, incorporate metrics relevant to the certification into its internal data tracking.

4.6 POLICY AND ECONOMICS

The City's budgeting process is an annual process that runs from November to October of each year. The City's annual budget for fiscal years 2016 through 2019 are shown in Figure 15. The City encourages residents and local businesses to serve in approximately 28 different advisory boards listed on the City's website. Several of the boards relate to some aspect of sustainability (e.g., Community Development Advisory Committee, Employee Health Insurance Committee, Marine Advisory Board, Recycling and Solid Waste Committee, etc.).

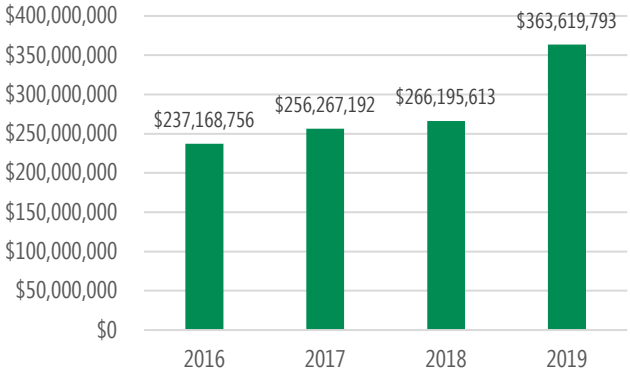

FIGURE 15: CITY OF POMPANO BEACH OPERATING BUDGET, 2016-2019

Between 2016 and 2019, the City's annual operating budget increased by approximately 53%. Sustainability initiatives often result in return-on-investments that could help the City save money over a certain time period. For example, LED lights produce significant energy and maintenance cost savings that could save the City money in its annual budget.

The City's sustainability and adaptation projects to date appear to have been funded primarily through the City's operating budget or G.O bond. However, the City has been awarded several grants for sustainability related projects from the South Florida Water Management District (SFWMD), the Florida Departments of Health and Economic Opportunity, State Appropriations, and Broward County, shown in Table 10.

TABLE 10: SUSTAINABILITY GRANTS AWARDED TO POMPANO BEACH

Grant Name	Requested	Awarded	Source
City of Pompano Beach Sustainability Baseline and Goals	$35,000	$35,000	Florida Department of Economic Opportunity
City of Pompano Beach Reuse Expansion	$600,000	$500,000	SFWMD
Fluoride System Replacement	$107,000	$107,000	Florida Department of Health, Dental Program
Broward County IWRP Reuse Grant	$700,000	$200,000	Broward County
Water Interconnects Rehabilitation	$287,500	$287,500	State Appropriations
Reuse in NE and LHP	$500,000	$400,000	SFWMD
Avondale Stormwater	$2,694,067	$300,000	FDEP 319 Grant
Reuse NE Expansion Grant	$1,350,000	$300,000	Florida State

The City is also pursuing grant funding from the Florida Department of Environmental Protection to complete a comprehensive vulnerability assessment for City facilities.

Although the City has found ways to fund sustainability projects, it is recommended that a Sustainability Revolving Fund or other means of returning resource efficiency cost savings to the sustainability program

be established for future funding. Other sources of funding may include special fees, public private partnerships, and grants.

Data relating to City sources of revenue, inventory of IT assets and electronics currently in use, and sustainability incentives currently provided by the City was requested but could not be provided. RS&H is aware that the City has some sustainability incentives, including the Green Building Program. The City's water utility also has conservation incentives, including increasing block rates for water usage designed to incentivize customers to use less. These are discussed in the City's Sustainability Strategy (Appendix A). RS&H recommends that sources of revenue, incentives and IT assets be tracked in the future, potentially utilizing technology and data management systems.

5. GREENHOUSE GAS INVENTORY

RS&H has prepared the first Greenhouse Gas (GHG) emissions inventory and forecast for the City of Pompano Beach. The inventory includes emissions from local government operations (LGO) and the community as a whole ("the Community"). Since government operations are among the sources and activities that make up community emissions, the LGO inventory is a subset of the community inventory. It is provided to give the government a detailed picture of emissions it directly controls.

This inventory establishes 2019 as the baseline for emissions. It also includes a business-as-usual (BAU) emissions forecast for the Community and LGO from the present to 2040. There is great uncertainty in projecting future emissions. This forecast should be viewed as a tool for planning GHG reduction activities.

Together, the Community and LGO inventories and forecast facilitate understanding of present and future emissions trends. They also provide information needed by staff, policy-makers and stakeholders as they design and implement strategic measures to reduce GHG emissions.

Local government operations (i.e., facilities, vehicles, and infrastructure directly owned and/or controlled by the city) were responsible for emitting 6,423 mtCO2e, with the city's Vehicle Fleet operation contributing 47%. Employee Commuting and Buildings & Facilities also contributed significantly to the total LGO emissions, at 18% and 12%, respectively.

In 2019, the Community's total estimated emissions were 1,376,874 metric tons of Carbon Dioxide equivalent (mtCO2e), the standard measure of GHG emissions. The transportation sector contributed the largest single source (46%). Commercial energy use and waste disposal emissions also contributed significantly — 18% and 17%, respectively.

If no actions are taken, Local government operations emissions could decrease by 6% to 6,496 mtCO2e by 2040. Community-wide emissions could decrease slightly by 0.49% to 1,365,213 mtCO2e by 2040. This "Business-as-Usual" (BAU) forecast is based on growth factors for energy use, transportation fuel consumption, population growth, and water supply. The decrease is due to projected transition of vehicles in the Southeast to electric and other lower-emitting models. The result is consistent with the Energy Information Agency's (EIA) national "Energy-related carbon dioxide emissions by end-use" forecast, which also shows declining emissions through 2040. However, projected declines are not enough to meet global climate targets to keep warming under 1.5 degrees Celsius. The City will still need to take aggressive action to reduce its emissions. See discussion in Section 3.1: Climate Action Goals.

5.1 INTRODUCTION

Pompano Beach endorsed the Mayor's Climate Action Pledge and joined the Southeast Florida Regional Climate Change Compact (SEFLCC) in 2013 with Resolution 2013-134. These commitments require the City to understand its greenhouse gas emissions, set emissions reduction targets, and implement climate

actions. This greenhouse gas (GHG) inventory establishes a baseline for the City's GHG emissions that will enable the City to accomplish these objectives.

The first step toward achieving GHG emission reductions requires identifying baseline levels and sources of emissions in the community. The next step is to monitor emissions over time. A standardized approach is necessary to achieve these objectives. The LGO portion of this inventory was completed under ICLEI Local Government Operations Protocol, Version 1.1, published May 2010. The Community portion of the inventory was completed using Local Government for Sustainability (ICLEI) U.S. Community Protocol for Accounting and Reporting of Greenhouse Gas Emissions, Version 1.1, published July 2013.

LGO GHG emissions fall into one of three categories, or "scopes". Scope 1 emissions are those from sources directly owned or controlled by an organization and typically located within its geographical jurisdiction. They include emissions associated with fuel combustion; HVAC, fire suppression and electrical equipment; and landfills, incinerators and wastewater treatment facilities located in-boundary. Scope 2 emissions come from purchased energy such as electricity generated outside the jurisdiction and include energy transmission and distribution (T&D) losses. Scope 3 includes sources not directly under the organization's control such as employee commuting. Although the organization may not directly own the vehicles generating Scope 3 emissions, it still can influence the quantity of emissions released through policy changes, for example b incentivizing the use of public transportation.

For Community inventories, ICLEI does not use scopes because they do not "translate to the community scale in a manner that is clear and consistently applicable as an accounting framework." Instead, ICLEI categorizes Community emissions in terms of "Sources" and "Activities". Sources are "any physical process inside the jurisdictional boundary that releases GHG emissions into the atmosphere (e.g., combustion of gasoline in transportation; combustion of natural gas in electricity generation; methane emissions from a landfill). Activities are "the use of energy, materials, and/or services by members of the community that result in the creation of GHG emissions either directly (e.g., use of household furnaces and vehicles with internal combustion engines) or indirectly (e.g., use of electricity created through combustion of fossil fuels at a power plant, consumption of goods and services whose production, transport and/or disposal resulted in GHG emissions)".

This report presents estimates of GHG emissions in Pompano Beach for the calendar year 2019 for each emissions-producing source or activity that takes place within the city limits. In Pompano Beach, as in most places, GHG emissions are not measured at the source. Instead, they are calculated based on activity data and emission factors. The basic equation used is: *Activity Data X Emission Factor = Emissions*. Activity data collected and provided by the City measure energy use, fuel consumption or other indicators of processes that generate emissions. Emissions factors that compare GHG emissions to units of activity data (e.g., metric tons CO2e per kWh of electricity) are used to convert activity data into emissions quantities. Calculations involve several assumptions that are limited by the quality and availability of related data. Accordingly, emission estimates are indicators, rather than exact values.

Emissions estimates in this inventory are presented in units of metric tons of carbon dioxide equivalent (mtCO2e). Because various greenhouse gases have differing global warming potentials, they are

standardized to equivalent units of CO2 to allow comparison of their global warming effects. Global warming potential (GWP) values from the Intergovernmental Panel on Climate Change (IPCC) Fifth Assessment were used to convert various greenhouse gases to carbon dioxide equivalents.

RS&H prepared separate forecasts for community-wide and local government emissions over a 21-year time horizon from 2019 through 2040. These "Business as Usual" forecasts assume no further actions taken to control emissions. Growth factors drawn from federal, state and local government sources were used to develop the forecasts. The BAU forecasts are useful for comparing planned emissions reductions to a base case and measuring progress over time.

5.2 LOCAL GOVERNMENT OPERATIONS

The local government operations inventory allows the City to effectively plan to reduce emissions over which it has significant influence or direct control. It represents the total amount of greenhouse gas (GHG) emissions associated with local government operations for calendar year 2019.

5.2.1 LGO Inventory Overview

In 2019, LGO emissions from Pompano Beach totaled **6,423** mtCO2e. Table 11 shows local government sectors, activities, emissions scope and estimated GHG emissions included in this total. Figure 16 shows the percentage of the total contributed by each sector. Items marked "Included Elsewhere" (IE) are not added to the inventory total because they are already included in another source or activity; they are shown for informational purposes. Items marked "Not Estimated" (NE) were not included due to a lack of supporting data, but would typically be part of an LGO inventory. If possible, they should be included in future LGO GHG Inventory updates.

TABLE 11: LOCAL GOVERNMENT OPERATION GHG EMISSIONS BY SECTOR, 2019

Sector	Source	Scope	Emissions ($mtCO_2e$)
Vehicle Fleet	Fleet emissions for on and off-road vehicles and equipment	1	3,022
Employee Commute	Emissions associated with City employee commuting	3	1,126
Buildings / Facilities	Electricity consumption & transmission and distribution (T&D) losses	2	797
Process & Fugitive Emissions	Fugitive emissions related to HVAC systems	1	748
Solid Waste	Waste generation at city facilities	3	711
Airpark (IE)	IE - included elsewhere (Vehicle Fleet)	1	*IE (46)*
Water Treatment	Energy use for Water Treatment	1	11
Streetlights	Streetlight electricity consumption & T&D losses	2	9
Generators (NE)	*NE - not estimated, no information available*	1	*NE*
Stationary Fuels (NE)	*NE - not estimated, no information available*	1	*NE*
Total			***6,423***

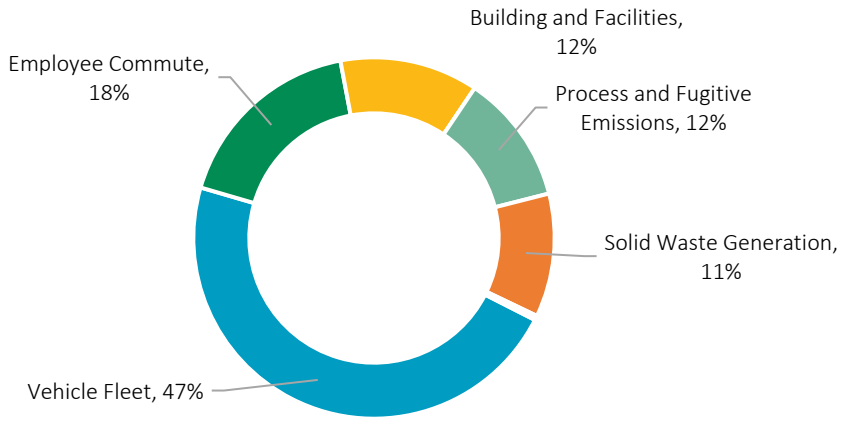

FIGURE 16: 2019 LOCAL GOVERNMENT OPERATION GHG EMISSIONS

5.2.2 LGO Inventory Data Sources and Methods

This section details data sources, methods and calculations used to complete the emissions estimates for each sector.

5.2.2.1 Vehicle Fleet

The City operates fleets of on-road vehicles. It also operates a fleet of off-road vehicles and equipment. These vehicles and equipment contribute to Scope 1 GHG emissions through combustion of gasoline or diesel fuel.

The City provided fleet fuel use information in several different Excel Spreadsheets. "Monthly Fuel Cost" worksheets, provided for fiscal years 2016 - 2019, show fuel usage quantities and expenditures by department. The City also provided a "Fuel Comparison" worksheet which contains fiscal year fuel purchase quantities and expenditures from 2011 - 2020. This worksheet is citywide and not broken down by department. For each year, it contains unleaded gasoline and diesel purchases and an additional category of "hurricane fuel" gasoline and diesel purchases. The hurricane fuel is pre-purchased in advance of hurricane season and then later incorporated back into the regular fuel supply if not used for emergency purposes.

There is a greater than 10% difference in fuel purchase quantities and expenditures between the data from the "Monthly Fuel Cost" and "Fuel Comparison" worksheets, whether or not the hurricane fuel is included. For the purposes of the inventory, the data from the "Fuel Comparison" worksheets was used, converted to calendar year 2019 and with the hurricane fuel included. This represents the highest annual total for fuel usage and avoids undercounting GHG emissions associated with operation of the City's fleet. Because the City does not track on-road versus off-road fuel usage, all of the 2019 usage was assigned to the on-road category. 2019 fuel consumption in gallons for unleaded gasoline and diesel were multiplied by the appropriate emissions factor for each fuel to calculate GHG emissions in CO_2 equivalents.

5.2.2.2 Employee Commute

Employee commuting emissions represent 18% of the City's LGO total. These are considered Scope 3 emissions for the City since it does not directly produce them, but still has substantial control over them.

Emissions from this source could be reduced through strategies such as telework and incentives for carpooling, transit use, bicycling, electric vehicles, etc.

The GHG emissions produced by employee commuting were calculated in three steps. First, annual miles traveled by full time and part time employees were estimated. Second, annual gasoline use by full time and part time employees was estimated. Finally, GHG emissions were calculated based on fuel use.

Anonymized 2019 employee home addresses and work locations provided by the City were used to calculate commuting distances. This method required some assumptions. Addresses were converted to latitude/longitude coordinates using a batch geocoding application. Some addresses had to be manually corrected in cases where errors prevented geocoding. A few addresses were unable to be resolved, for instance if a PO box were entered instead of a physical address. The average commuting distance was assigned to the addresses that could not be resolved. The coordinate data was converted to an ESRI shapefile using ArcMap. The ArcGIS Online "Connect Origins to Destinations" Tool was used to calculate shortest-route distances in miles over the roadway network from home to work location for each employee. Because the exact work locations of each employee were not available, City Hall was used as a proxy location for all employees.

The City of Pompano Beach supplied the number of City holidays in 2019 (12). Holidays and weekend days (104) were deducted from the number of days in a year. Then the product of the average number of vacation days for state and local government workers (12) and percentage of local government workers with access to paid time off (61%) was deducted, leaving 242 working days for the year. RS&H assumed 2 trips per employee per day (to and from work). Part-time employees, who made up 29% of the work force, were assumed to work 2 days per week, after holidays and vacation were deducted, or 99 days per year.

The average age of a passenger vehicle in the U.S. in 2019 was 11.8 years, making the average vehicle a 2007 model. The average combined fuel economy of 2007 short-wheelbase passenger vehicles (cars, light trucks and SUVs) was 22.9 mpg. This fuel economy number was used to estimate the gallons of gasoline consumed to travel the total estimated commuting mileage. For the purposes of the analysis, all vehicles were assumed to be gasoline fueled.

5.2.2.3 Building and Facilities

Buildings and Facilities generate Scope 2 GHG emissions through electricity consumption and Scope 1 emissions through stationary combustion of fuels for heating and water heating.

5.2.2.3.1 Electricity Consumption

Emissions estimates for purchased electricity were calculated based on the City's utility billing records, obtained from Pompano Beach's Florida Power and Light (FPL) account manager by the City's Sustainability Coordinator. RS&H attempted to match FPL accounts to the City's facility list through a variety of means, but attribution of accounts to facilities should be regarded as an approximation. See Section 3.2.1.1 for more information.

Once the matching process was complete, RS&H aggregated facility energy use data into common categories. Table 12 shows the categories of City facilities with the 2019 emissions for each in mtCO2e.

TABLE 12: GHG EMISSIONS BY FACILITY TYPE, 2019

Facility	2019 GHG Emissions in mtCO2e
Airpark	7.71
Boat Ramp	13.80
City Hall	98.42
EVSE	8.23
Fire Station	3.03
Golf	43.68
Gym	2.20
Irrigation	6.34
Library	242.73
Lifeguard	13.48
Lift Station	145.41
Museum	5.12
Park	73.25
Parking	25.17
Pier	49.29
Reuse Plant	1.34
Right of Way	3.65
Unknown	17.22
Streetlights	8.53
Water Treatment Plant	10.00

The estimate also includes grid loss emissions related to energy lost in transmission, calculated using ICLEI Equation BE 4.1.1. Total grid loss emissions amounted to 38 mtCO2e.

5.2.2.3.2 Stationary Combustion

Information on natural gas usage in City facilities was not available. The City indicated that some of its fire stations use natural gas for water heating, but billing records for natural gas were not available. RS&H recommends that the City track natural gas usage going forward and include this emissions source in future GHG Inventory updates. While indications are that use of natural gas in City facilities is minimal, it is still part of the City's energy use and represents a potential area for GHG emissions reduction (e.g., by installing solar water heating systems).

5.2.2.4 Process & Fugitive Emissions

Pressurized chemicals, such as the refrigerants used in heating, ventilation and air conditioning (HVAC) systems, leak or are released via maintenance activities. These substances are very potent greenhouse gases, so small releases have a significant climate impact. Emissions can be reduced by replacing the strongest greenhouse gases with less potent alternatives, as well as enhanced maintenance processes. No direct data on HVAC system capacity, leakage or recharge was available. Note that under Section 608 of the Clean Air Act (40 CFR Part 82, Subpart F), owners and operators of refrigeration and HVAC equipment are required to document dates, refrigerant charge amounts, and information related to service of this equipment. Fugitive emissions were estimated by RS&H using the World Resources Institute (WRI) screening method. The City supplied lists of facilities that either included or were matched to square footages that were used to develop the estimate. In the future, tracking HVAC system specifications, maintenance and refrigerant usage would result in a more accurate estimate and ensure compliance with Federal regulations.

5.2.2.5 Solid Waste Generation

Waste generation at City-owned facilities was estimated based on dumpster volumes in cubic yards (CY) and pickup frequency. Based on an interview with City recycling coordinator, dumpsters were assumed to be 87.5% full at pickup. The mass of mixed municipal solid waste (MSW) was estimated at 150 pounds per cubic yard following EPA guidance.

Pompano Beach waste is transported to the Monarch Hill landfill/waste to energy facility for disposal. This landfill is not owned/operated by the City. Because it is located within Pompano Beach's boundaries, its emissions count as Scope 1 for waste generated in the course of City operations.

Waste and recycling services are provided by Waste Management (WM) under contract to the City. For City facilities, a combination of City staff and WM pick up waste and recycling. City staff are responsible for picking up all public containers such as garbage cans around city on sidewalks, recycling/garbage cans at the beach, and waste from City parks and events. Waste picked up by City staff is taken to a local transfer station where it is then picked up by WM. Per the contract, WM disposes of all waste at the Monarch Hill Landfill located at 3000 Wiles Road, Pompano Beach, FL. Monarch Hill Landfill is a regional facility serving Broward County and surrounding counties and cities, and is equipped with a landfill gas control system. WM takes recycling to its Recycle America facility at 20701 Pembroke Road, Pembroke Pines, Florida. A municipal waste audit would improve the quality of the estimated Scope 3 emissions related to LGO waste generation..

Note that the Monarch Hill landfill site also includes a waste-to-energy incineration facility. The City stated there is currently no way to determine the percentage of the City's waste that is incinerated rather than landfilled. For the purposes of this inventory, it is assumed that 100% is landfilled. This results in a higher emissions estimate than if waste were assumed to be incinerated. Transportation emissions were not calculated since the disposal facility is located within the community.

5.2.2.6 Airpark

Airpark emissions related to electricity use in buildings are included elsewhere (IE) in the Buildings and Facilities section of the LGO inventory; see Table 2 above. Airpark buildings were responsible for 7.71 mtCO2-e in 2019.

Airpark LGO fuel usage emissions included elsewhere (IE) in the Vehicle Fleet category. City-owned vehicles and equipment at the Airpark were responsible for 46.15 mtCO2e in 2019.

The City does not own/operate any ground support equipment (GSE) and does not dispense aviation fuel to aircraft. The Pompano Beach Airpark fleet contains a small number of vehicles and equipment running on gasoline and diesel fuels. The combustion of fossil fuels in mobile sources emits CO2, CH4 and N2O. Data for fuel usage for City-owned vehicles and equipment at the Airpark was available on a departmental basis, but not broken down for specific vehicles/equipment. As a result, all fuel usage was assigned to the "on-road" category.

5.2.2.7 Water Treatment

Water treatment emissions are included elsewhere (IE) in the Buildings and Facilities section of the LGO inventory; see Table 12 above. In 2019, the Reuse plant and Water Treatment Plant (WTP) were responsible for 1.34 and 10.04 mtCO2e, respectively.

Data for this record was obtained from FPL along with the rest of the City's electricity utility bills. The City of Pompano Beach's water is treated at the City's Water Treatment Plant (WTP) located at 1190 NE 3rd Avenue and at the Oasis Reuse Plant located at 901 NE 18th street. These facilities do not report emissions to EPA's Facility Level Information on GreenHouse Gases Tool (FLIGHT). Water treatment emissions are estimated based on electricity use at the facilities and are considered Scope 2. The City did not provide any data related to natural gas consumption for City facilities, and indicated there was little or no natural gas consumption. The City confirmed there is no natural gas use at the WTP.

Note that the City's WTP supplies treated water to portions of unincorporated Broward county, Lauderdale-by-the-sea, Lighthouse Point and Margate as well as to Pompano Beach. Water is only provided to Margate, Broward County and Ft. Lauderdale during emergencies. Pompano Beach usage accounted for 92.6% of the total treated by the WTP in 2019. Because the Reuse and WTP facilities are located in-boundary and owned/operated by the City, 100% of their emissions belong to Pompano Beach even though they serve other communities as well.

5.2.2.8 Streetlights

Streetlight electricity usage produces Scope 2 emissions. Data for this record was obtained from FPL along with the rest of the City's electricity utility bills. Streetlights are broken out as a separate emissions source because there are often opportunities to reduce streetlight energy consumption/emissions by upgrading them to more efficient fixtures or lamps.

5.2.2.9 Generators

An inventory of stationary generators owned by the City and associated fuel usage records was not available. As a result, this record is marked "NE" or not estimated. Since generators only use fuel during emergencies and infrequent testing, this emissions source is likely *de minimus* in the context of the overall LGO total. However, the City should track generator fuel usage going forward and add this source to future GHG inventory updates.

5.3 COMMUNITY

The community-scale inventory represents the total amount of greenhouse gas (GHG) emissions within Pompano Beach's jurisdictional boundary. This total includes emissions from municipal government operations and activities. As result, the LGO inventory is a subset of the community inventory.

5.3.1 Community Inventory Overview

In 2019, community-wide emissions from Pompano Beach totaled 1,376,874 mtCO2e. Table 13 shows community sectors, activities, scope and estimated emissions included in this total. Figure 17 shows the percentage of the total contributed by each sector. Items marked "Not Estimated" (NE) were not included due to a lack of supporting data, but would typically be part of a community inventory. If possible, they should be included in future community GHG Inventory updates.

TABLE 13: COMMUNITY GHG EMISSIONS BY SECTOR, 2019

Sector	Activities	Category	Emissions ($mtCO_2e$)
Transportation	Community-wide Transportation Emissions	Source	638,930
Commercial Energy	Electricity used in commercial establishments (coded Commercial and Commercial Public Authority)	Activity	247,099
Waste Disposal	Monarch Hill Landfill / Waste to Energy Facility	Source	231,530
Residential Energy	Electricity (coded Residential and Residential PA), Distributed Fuels used in Residences	Activity, Source	192,106
Wastewater	Utility Wastewater Treatment, Septic Systems	Activity, Source	41,955
Industrial Energy	Electricity used in Industrial Sector (coded Industrial, Industrial Public Authority, Public Authority, Public Streets)	Activity	25,245
Community Waste Generation (IE)	Waste generation from the community – included elsewhere (in Waste Disposal total)	Activity	*IE (13,740)*
Water (IE)	Water treatment and reuse plant emissions (Included Elsewhere, not added to inventory total)	Source	*IE (17)*
Total			***1,376,805***

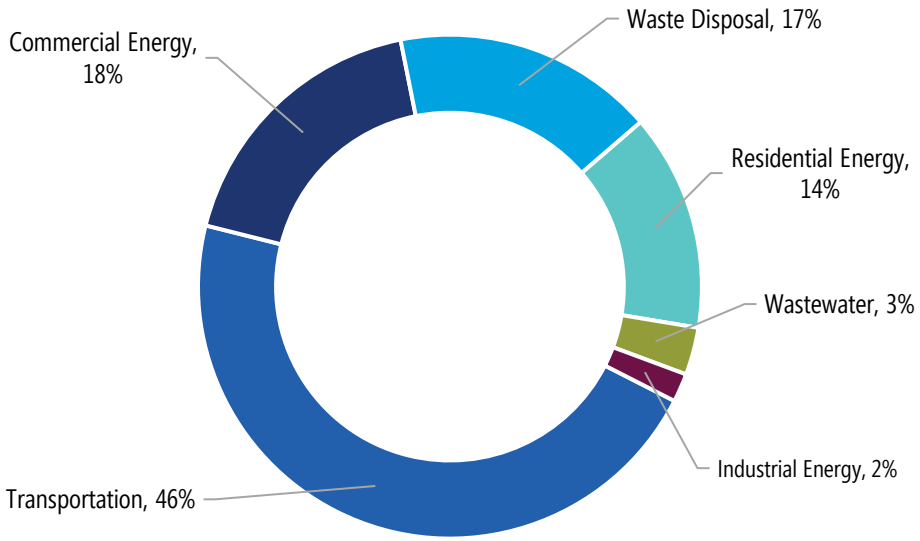

FIGURE 17: 2019 COMMUNITY GHG EMISSIONS

5.3.2 Community Inventory Data Sources and Methods

This section details data sources and methods used to complete the emissions estimates for each sector. Unless otherwise noted, data was collected and provided by the City of Pompano Beach.

5.3.2.1 Transportation

RS&H estimated community on-road transportation emissions using Vehicle Miles Traveled (VMT) data from FDOT's regional transportation planning model and emission rates from the Motor Vehicle Emissions Simulator (MOVES) developed and maintained by the US Environmental Protection Agency. The regional

transportation planning model was run for an annual average weekday condition in 2019. Greenhouse gases emitted by motor vehicles include carbon dioxide (CO2), Methane (CH4) and Nitrous Oxide (N2O).

The MOVES model output estimates by road functional class (Table 14.). Daily emissions were converted from grams to metric tons of CO2 equivalents. To arrive at annual emissions, they were multiplied by 365.25.

TABLE 14: 2019 SUMMARY OF DAILY COMMUNITY TRANSPORTATION GHG EMISSIONS FOR POMPANO BEACH

Road Functional Classes (HPMS)	VMT (Miles)	mtCO2e
Urban Interstate	1,057,050	506.57
Urban Freeway	809,288	390.12
Urban Arterial	1,718,675	776.01
Urban Minor Arterial and Collector	163,950	76.60
Total	*3,748,963*	*1,749*

Note that the transportation sector emissions estimate does not include aviation at the Airpark. Data was not available to calculate GHG emissions related to air traffic from the airpark, however, this could represent a significant Scope 3 emissions source for the City. Although the City does not directly own or control the aircraft producing these emissions, the Airport can work with its tenants to identify and encourage opportunities to reduce emissions in their facilities such as energy efficiency projects, implementation of infrastructure to support electrification of GSE, or providing support in favor of alternative aviation fuels. RS&H recommends the City conduct a separate GHG emissions study for the Airpark facility and enroll the Airpark in the Airport Carbon Accreditation (ACA) program. ACA is an institutionally endorsed carbon management certification program for airports.

5.3.2.2 Commercial Energy

Annual community-wide 2019 electricity consumption data was obtained from the City's account representative at FPL by May Wemyss, COPB's Sustainability Coordinator.

ICLEI U.S. Community Protocol equation BE 2.2 was used to calculate emissions from purchased electricity. Equation BE 4.1.1 was used to calculate electric transmission system grid losses from the same dataset.

FPL categorized community-wide electricity usage into eight categories: Commercial, Commercial Public Authority, Industrial, Industrial Public Authority, Other Public Authority, Public Streets, Residential and Residential Public Authority. RS&H summarized these into Residential, Commercial and Industrial uses.

For the purposes of this inventory, "Commercial" and "Commercial Public Authority" were considered commercial use types.

5.3.2.3 Waste Disposal

The Monarch Hill Landfill receives waste generated in the community as well as from surrounding communities. The City of Pompano Beach's Community Inventory includes the total GHG emissions of this facility, which are reported to the EPA on an annual basis. This data was retrieved from the EPA's FLIGHT tool. Because Monarch Hill is located within Pompano Beach's boundaries, its total annual emissions

count as Scope 1 for the City. The 500-acre facility which opened in 1965 is owned and operated by Waste Management (WM) and serves communities in Broward County.

In addition, the portion of the Monarch Hill Facility's GHG emissions attributable to the waste generated within the City (13,740 mtCO2e) was calculated using a ratio approach (i.e., City's percentage of waste disposed compared to total emissions for the facility). This is provided as an information only item since this portion is included elsewhere (in the total emissions for the facility). Following ICLEI Community Protocol guidance, waste transportation emissions were not calculated since the disposal facility is located within the community. Figure 18: GHG emissions from Community Waste Disposal, 2019 shows the total 2019 GHG emissions from the Monarch Hill facility with the portion attributable to waste generated in the City of Pompano Beach.

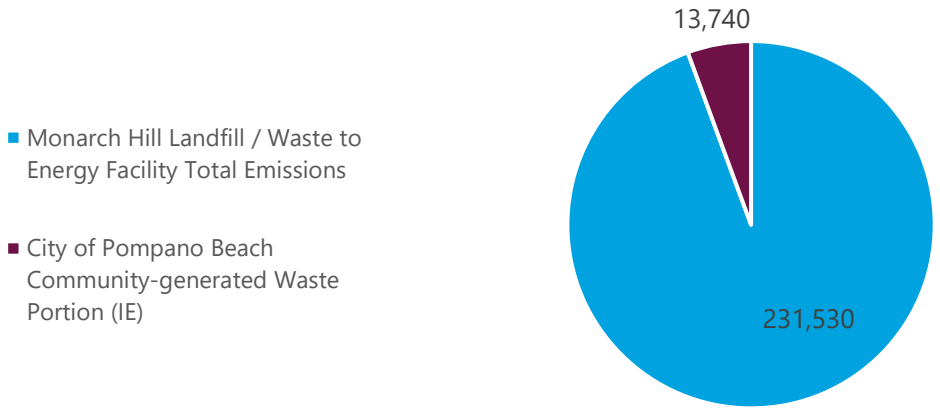

FIGURE 18: GHG EMISSIONS FROM COMMUNITY WASTE DISPOSAL, 2019

5.3.2.4 Residential Energy

The residential energy GHG emissions estimate includes purchased electricity and stationary fuel combustion (natural gas and propane).

5.3.2.4.1 Residential Electricity Consumption

See section 5.5.2 for electricity consumption data sources and calculation methods.

For the purposes of this inventory, "Residential" and "Residential Public Authority" were considered residential use types.

5.3.2.4.2 Stationary Fuel Combustion

Residential Natural Gas and Propane consumption totals for the City were not available, so GHG emissions from these activities were estimated using state and county level data.

Statewide natural gas consumption data from the Energy Information Agency (EIA) and household data from the American Community Survey (ACS) were used to estimate community-wide natural gas consumption for 2019. ACS data on home heating fuel use for the City of Pompano Beach was not available, so data for Broward County was used. According to ACS data, in 2019 2.0% of households in

Broward used Natural Gas, and 0.3% used Propane. These percentages were applied to the Florida statewide average energy use per household for natural gas and propane to estimate energy use for these fuels in Pompano Beach. Figure 19 shows GHG emissions totals for these sources in 2019.

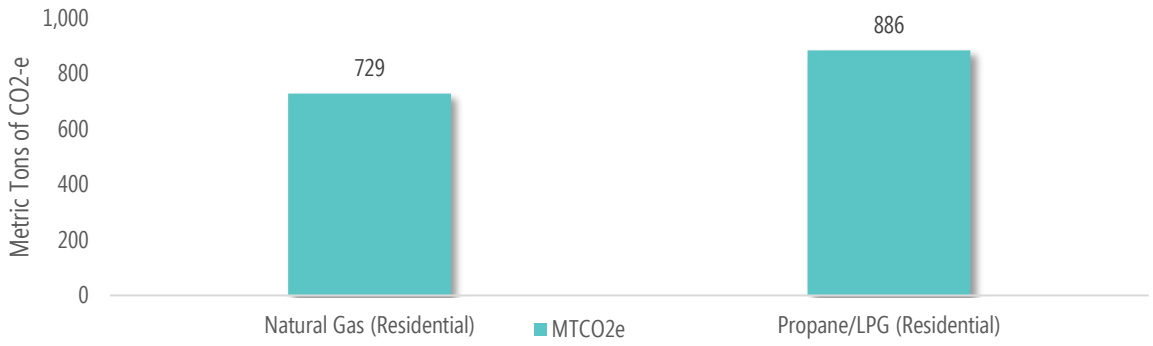

FIGURE 19: COMMUNITY EMISSIONS FROM STATIONARY FUEL COMBUSTION, 2019

Data was not available to estimate commercial and industrial natural gas consumption for the community. In contrast to residences, different types of commercial and industrial properties can have very different natural gas and propane usage. Downscaling statewide data is not likely to result in accurate estimates for these sectors. Because they are omitted, total community-wide natural gas and propane consumption are likely underestimated, however in Florida these fuels are only a small percentage of total energy use. The City should track community-wide stationary fuel consumption from utilities and add data-driven estimates for residential, commercial and industrial use to future community GHG inventory updates.

5.3.2.5 Wastewater

There are two forms of wastewater treatment in the City. The overwhelming majority of residences and other buildings are connected to utility sewage systems, while a small number of households have individual septic systems. Table 15 shows the estimated GHG emissions and population served by utility wastewater treatment and septic systems.

TABLE 15: WASTEWATER TREATMENT IN POMPANO BEACH (ESTIMATED)

Treatment Type	Population Served	MTCO2e
Utility Wastewater	111,726	41,908
Community Septic Systems	392	48
TOTAL	**112,118**	**41,955**

5.3.2.5.1 Utility Wastewater Treatment

Broward County Water and Wastewater Services (WWS) owns and operates the North Regional Wastewater Treatment Plant (NRWWTP), which has provided contract wholesale wastewater services to Large Users and the County since 1974. The facility is located within the City of Pompano Beach's jurisdiction but is owned and operated by Broward County. In addition to the City of Pompano Beach, the current Large Users served by the facility include the Cities of Coconut Creek, Coral Springs, Deerfield Beach, Lauderhill, North Lauderdale, Oakland Park, Tamarac; and North Springs Improvement District (NSID), Parkland Utilities, and Royal Utilities. Service is also provided to WWS Districts 1 and 2 retail

wastewater systems. The NRWWTP utilizes an activated sludge treatment process for liquid treatment and an anaerobic digestion system for handling the biosolids produced from the liquid treatment process. After digestion, the sludge is dewatered and disposed of by landfilling and land spreading.

Because the NRWWTP is owned and operated by Broward county, Pompano Beach is only responsible for the portion of its GHG emissions related to wastewater generated within the community. ICLEI's population-based calculations were used to estimate the process CH4 emissions from wastewater treatment and N2O process emissions from wastewater treatment lagoons. Emissions related to wastewater generated in the City are considered an activity. The population estimated to use septic systems was deducted from the total City population to arrive at the populations using centralized wastewater services.

5.3.2.5.2 Septic Systems

The number of septic systems in Pompano Beach in 2019 was estimated using data from the Florida Water Management Inventory (FLWMI), which provides an up-to-date centralized geographic data map linking each built property in the state with a drinking water source (public water or private domestic well) and wastewater treatment method (central sewer or onsite septic). Geographic parcel data for Broward County was downloaded from the FLWMI and parcels located in Pompano Beach were extracted to determine the number of parcels known to use septic systems or likely to use septic systems. This amounts to only a small number of parcels in the City, about 0.35% of the total. This percentage was applied to the City's 2019 population to estimate the number using septic systems. ICLEI equation WW.11(alt) "Alternative Method for Methane Emissions from Septic Systems if Only the Population is Known" was used to develop the GHG emissions estimate.

5.3.2.6 Industrial Energy

See section **5.5.2.** for electricity consumption data sources and calculation methods.

For the purposes of this inventory, “Industrial”, “Industrial Public Authority”, “Other Public Authority” and “Public Streets” were considered industrial use types.

5.3.2.7 Water

This record is marked included elsewhere (IE) to avoid double counting, since the WTP's electricity emissions are already included in the Industrial sector community electricity emissions total.

The City of Pompano Beach's Water is treated at the City's Water Treatment Plant (WTP) located at 1190 NE 3rd avenue, the Membrane plant at 1205 NE 5th avenue and at the Oasis Reuse Plant located at 901 NE 18th street. These facilities do not report emissions to EPA's FLIGHT tool. Emissions are estimated based on electricity use at the facilities. Note that the City's WTP supplies treated water to portions of unincorporated Broward county, Lauderdale-by-the-sea, Lighthouse Point and Margate as well as to Pompano Beach. Water is only provided to Margate, Broward County and Ft. Lauderdale during emergencies. Pompano Beach usage accounted for 92.6% of the total treated by the WTP in 2019. Because the facilities are located in-boundary and owned/operated by the City, 100% of their emissions are included in the community inventory.

The City did not provide any data related to natural gas consumption for City facilities, and indicated there was little or no natural gas consumption. Calculation assumes no natural gas use at the WTP.

5.4 GHG EMISSIONS COMPARISON WITH PEER LOCAL GOVERNMENTS

Pompano Beach's GHG emissions can be compared to those of other communities. However, every community is different, with varying infrastructure, services, housing stock, transportation networks, waste disposal and commerce. These differences translate into varying rates of GHG emissions, even when values are presented on a per capita basis. For example, Pompano Beach operates a water utility that serves surrounding communities, but the utilities emissions are part of the City's GHG Inventory. Similarly, the total emissions of the Monarch Hill Landfill and Waste to Energy facility are included in Pompano Beach's community inventory because it is located in the City's jurisdiction, even though it serves many other cities. In addition, communities complete inventories on varying schedules and at varying intervals. Comparisons between different inventory years are less valid than those between the same year, and validity decreases as the time difference increases. Inventory methodologies may vary between communities as well. Comparisons of community GHG emissions should be used with caution.

Table 16 Pompano Beach and selected other Southeast Florida communities' communitywide and per capita GHG emissions and the percentage of the total attributable to electricity and stationary energy consumption, transportation sources, and other sources. Pompano Beach's per capita emissions are below the median (13.7) for the cities listed. The "Other' category includes sources such as fugitive emissions, waste disposal and wastewater treatment. This category is higher in Pompano Beach than other communities listed because of GHG emissions from the Monarch Hill waste disposal facility.

TABLE 16: PER CAPITA GHG EMISSIONS, SOUTHEAST FLORIDA COMMUNITIES

Base Year	Local Government	Community Emissions (mtCO2e)	Per Capita Emissions (mtCO2e)	Electricity & Stationary Energy (%)	Transportation (%)	Other (%)
2019	Pompano Beach*	1,376,805	12.3	34%	46%	20%
2014	Village of Pinecrest*	220,309	11.6	47%	52%	1%
2016	Hallandale Beach*	460,733	11.7	49%	49%	2%
2006	Miami^	4,800,000	12.5	58%	39%	3%
2005	Miami-Dade County^	30,700,000	12.8	53%	43%	4%
2014	Miami Beach^	1,223,848	13.3	76%	18%	6%
2016	Sunrise*	1,318,300	14.1	36%	59%	5%
2017	Delray Beach*	998,446	14.5	39%	60%	1%
2005	Key West^	399,593	16.8	66%	28%	6%
2010	Fort Lauderdale^	2,827,747	17.1	NA	NA	NA
2017	Coral Gables*	914,473	17.9	49%	48%	3%
2008	West Palm Beach^	5,513,890	30.1	33%	27%	40%

* Inventory completed by RS&H, Inc.

^ Data from City of Miami Beach presentation "Greenhouse Gas inventory: 2015 Community Wide and Government Operations"
NA: Information Not Available

5.5 GHG EMISSIONS FORECAST

5.5.1 Methodology

While establishing an emissions baseline lays the groundwork for measuring and reporting emissions, it is also useful to forecast how emissions might change in the absence of actions to reduce them (i.e., a business-as-usual (BAU) scenario). RS&H prepared BAU forecasts for both local government operations and the community over a 21-year time horizon from 2019 through 2040.

Due to the high number of variables and unforeseen events that could affect future emissions, the forecast is best viewed as a planning tool. Elaborate forecast methods are not likely more accurate predictions of future emissions than methods based on trends in energy and population growth.

Publicly available information from government sources that can be referenced for future updates is used as the basis of the forecast. These include three sources for growth rate indicators. Population growth projections from the Broward County Population Forecast and Allocation Model (PFAM) were used to estimate population growth through 2040.

For categories related to energy use (e.g., transportation and facilities energy consumption) the U.S. Energy Information Agency (EIA) Annual Energy Outlook 2020 total energy projection for the southeast region was used. For water and wastewater demand, the 2018 South Florida Water Management District (SFWMD) Lower East Coast Water Supply Plan projection for increase in water demand was used.

5.5.2 Local Government Inventory Forecast Results

The local government GHG Emissions forecast indicates GHG emissions will begin to decrease slightly each year beginning in 2021, reaching 6,083 mtCO2e in 2040, as shown in Figure 20. This decline is driven by the EIA's projected transition of the transportation sector from fossil fuels to electricity and cleaner fuels, driving 16% emissions declines in gasoline emissions sources and 11% declines in diesel sources. This results in decreasing Vehicle Fleet and Employee Commuting emissions and causes the LGO forecast total to drop 5.3% by 2040. To realize this projected decline, the City would need to transition its fleet to cleaner vehicles.

Other categories continue to show increasing emissions by 2040, including Building and Facility energy use (9%), Streetlights (21%), Process and Fugitive Emissions (11%), Solid Waste Generation (11%) and Water Treatment (12%).

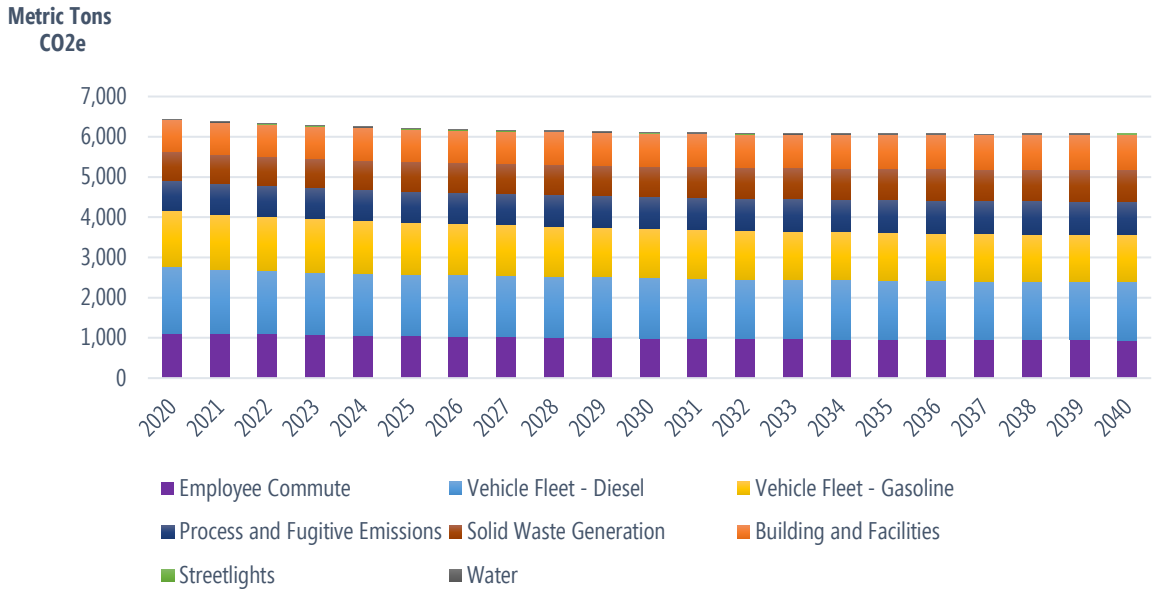

FIGURE 20: LGO GHG EMISSIONS FORECAST, 2020-2040

5.5.3 Community Inventory Forecast Results

The community GHG Emissions forecast indicates that after 2021, total community GHG emissions will begin to decrease slightly each year, reaching 1,365,213 mtCO2e in 2040, as shown in Figure 21. This decline is driven by the EIA's projected transition of the transportation sector from fossil fuels to electricity and cleaner fuels, driving 16% emissions declines in gasoline emissions sources and 11% declines in diesel sources. This results in decreasing communitywide transportation emissions and causes the community forecast total to drop 0.5% by 2040. Other categories continue to show increasing emissions by 2040, including Industrial Energy (24%), Commercial Energy (16%), Water (11%), Wastewater (11%), Solid Waste Generation (11%) and Residential Energy (9%).

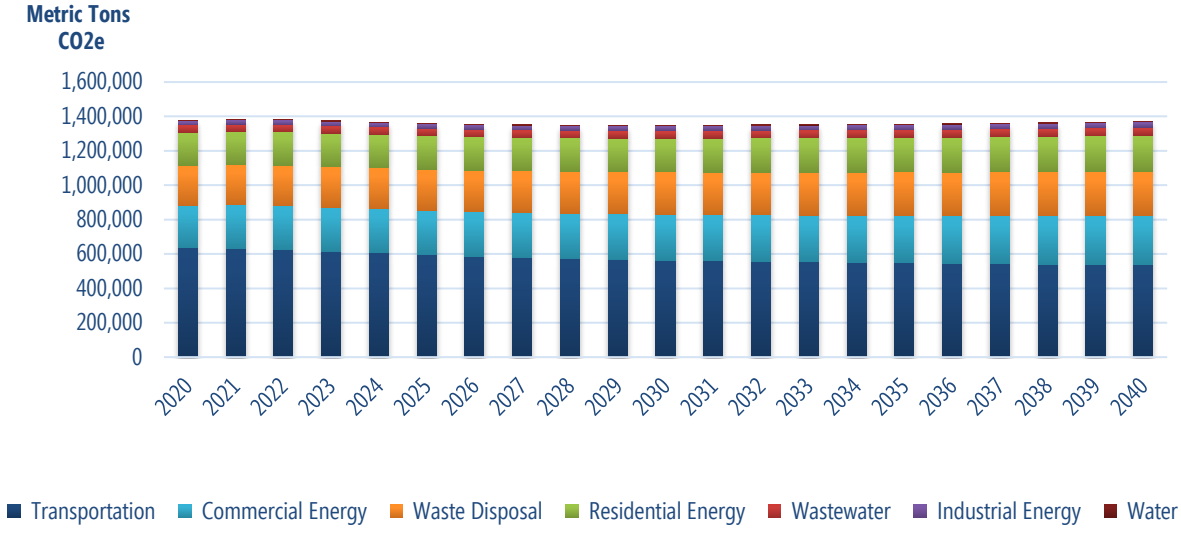

FIGURE 21: COMMUNITY GHG EMISSIONS FORECAST, 2020-2040

APPENDIX A: SUSTAINABILITY STRATEGY

CITY OF POMPANO BEACH
SUSTAINABILITY STRATEGY

RS&H

CITY OF POMPANO BEACH SUSTAINABILITY STRATEGY

February 7, 2020
RS&H No.: 301-0059-000

Prepared by RS&H, Inc. at the direction
of the City of Pompano Beach

RS&H

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1. SUMMARY

Sustainability involves striking a balance between the economy, the environment and society in a way that meets today's needs as well as those of future generations. Sustainability also encompasses the concept of resilience, the capacity of a community to endure and even thrive in the face of climate change.[1]

The City of Pompano Beach has established a strong foundation for advancing sustainability within its own operations and the community it serves. This is due to the commitment of its leadership and staff, as well exemplary performance of specific projects and certain departments, such as Utilities.

Pompano Beach's biggest strategic sustainability opportunity is to develop a formal program with a priority on realizing cost savings, productivity gains, risk reduction and adaptive capacity. The Workplan included in this document recommends eight phased initiatives which would advance the City's objectives, build a strong capacity to manage sustainability, and provide social, environmental, economic and resilience benefits in excess of estimated costs. Completing this work plan would establish the City as a nationally recognized leader.

This document includes strategic recommendations for establishing such a program, including communicating a City-wide sustainability vision, selecting focus areas that define the scope of its efforts, calculating a quantitative baseline against which future effort may be measured, establishing goals, designing initiatives to meet those goals, and acting to implement the resulting program.

The City's current sustainability performance was benchmarked with initiatives at the cities of Coral Gables, Fort Lauderdale and Miami Beach. These cities were selected for their similarities to Pompano Beach, as well as their record of sustainability achievement. This process affirms the City's strong sustainability foundation, while identifying opportunities to make rapid progress.

Benchmarking was based on a qualitative (rather than a quantitative) evaluation of the City's present sustainability performance. Establishing a qualitative baseline involved interviews with all City Commissioners, the City Manager and thirteen senior staff representing most City Departments. In addition, RS&H reviewed extensive information documenting the City's past and present efforts, including policies, plans and regulations.

The result of this preliminary sustainability strategy was presented to a selection of City staff at a workshop on August 14th, 2019. In addition to calibrating the qualitative baseline and benchmarking findings, the workshop began the process of establishing a sustainability vision for the City, establishing focus areas for the City's sustainability efforts and developing a portfolio of projects. The workshop represents the first step towards enhancing the City's sustainability performance as presented in this Sustainability Strategy.

[1] Sustainability is used in this document to refer to both concepts.

2. WORKPLAN

Pompano Beach has made significant progress towards sustainability, with Triple Bottom Line (Economic, Social and Environmental) performance improvements in several areas (See Baseline). Benchmarking shows the City has met more than 50% of criteria evaluated but has room for improvement compared to regional leaders. Based on a Workshop with City Staff and Strategic Analysis, RS&H has developed a work plan for a leading sustainability program. It consists of nine conceptual initiatives phased over a five-year period at a modest cost relative to potential social, economic and environmental benefits, including mitigation of and adaptation to climate change (Figure 2). The work plan is summarized below, with each phase described in detail on the following pages. The phases could be implemented by City staff, a consultant overseen by the City, or a combination of both.

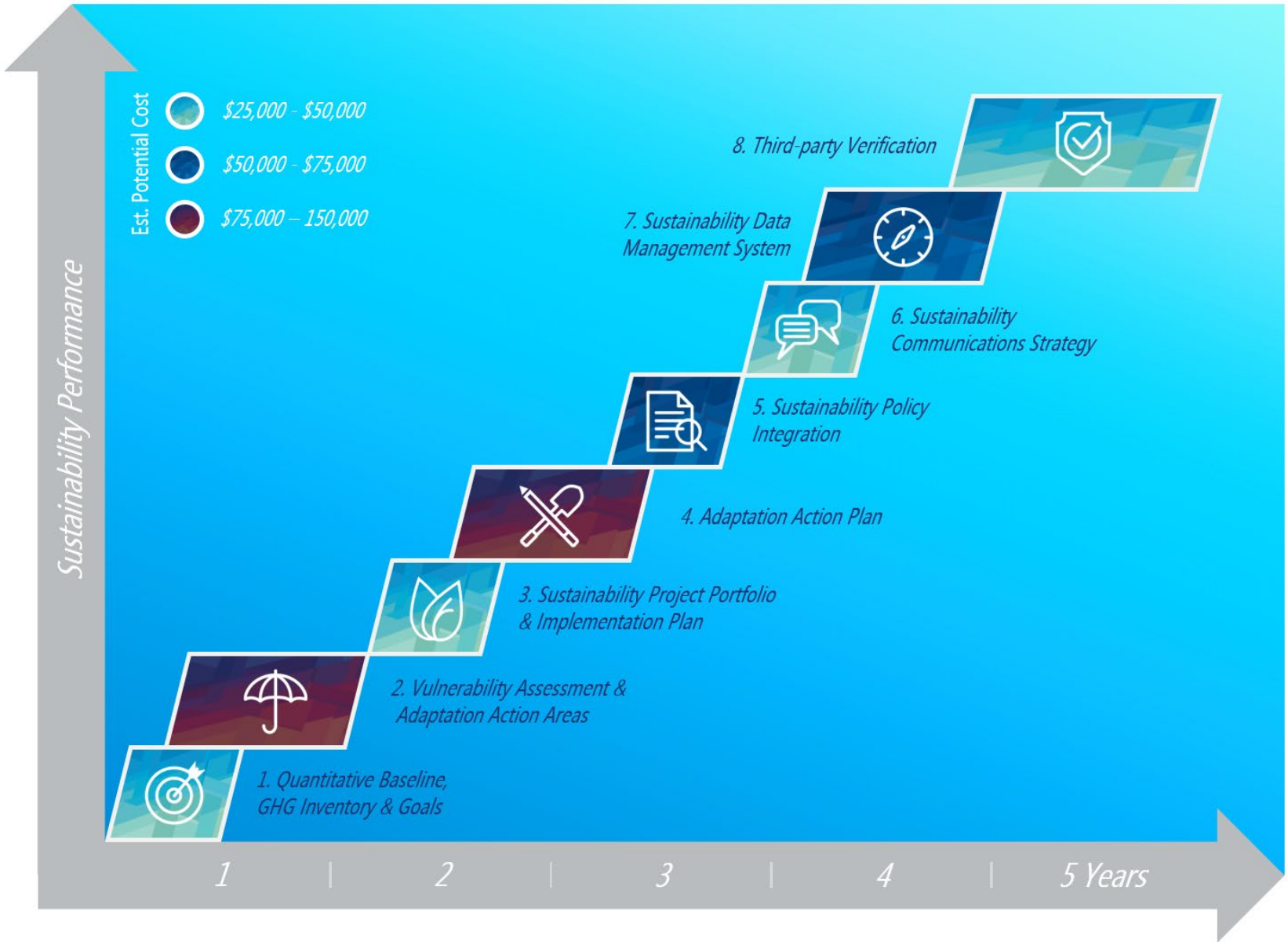
FIGURE 1: SUSTAINABILITY FOCUS AREAS

The first step (Workplan Phase 1) would establish a quantitative baseline for evaluating the City's present sustainability performance in six focus areas proposed for organizing the City's efforts (Figure 1). Including a Greenhouse Gas (GHG) Inventory, this activity supplements the qualitative baseline developed as part of this strategy. A comprehensive baseline is essential for establishing goals to achieve the City's emerging Sustainability Vision. Similarly, completing a comprehensive climate change Vulnerability Assessment would allow the City to designate Adaptation Action Areas (AAAs) to lay the groundwork for adaptation planning (Workplan Phase 2).

Although the City has already implemented some projects with sustainability benefits, they have been championed by individual departments rather as a part of a strategic portfolio designed to meet sustainability goals. This strategy includes several project recommendations (See Sustainability Program Development) derived from benchmarking and collaboration with City staff that could be developed and implemented as part of a portfolio of sustainability projects (Workplan Phase 3). An Adaptation Action Plan would supplement the sustainability project portfolio by identifying and prioritizing adaptation actions to address critical vulnerabilities (Workplan Phase 4).

New policies may be required to enable projects. Updating existing municipal policies to align with the City's vision and goals is also necessary (Workplan Phase 5). As project are underway, a communications strategy (Workplan Phase 6) would help inform internal and external stakeholders about the City's sustainability and resilience initiatives and accomplishments, building support for the program. A Data Management System (Workplan Phase 7) would improve the ability of the City staff to effectively manage projects by automating the process of tracking and reporting key performance indicators. As the sustainability program matures, the City can consider third-party verification (Workplan Phase 8) of its program via a recognized standard to validate its achievements and leadership.

FIGURE 2: CITY OF POMPANO BEACH SUSTAINABILITY WORKPLAN



2.1 QUANTITATIVE BASELINE, GHG INVENTORY, & GOALS (PHASE 1)

Establish a quantitative baseline for key sustainability metrics for both the City's operations and the community. This would include a comprehensive GHG Inventory and forecast for a baseline year. It would also establish a base year inventory of the City's energy, water, and materials use, fleet characteristics and fuel use, mechanical equipment inventory, et cetera. For the community, energy, water and waste information would be collected and summarized. Together with the qualitative baseline already established, this information is prerequisite for establishing Specific, Measurable, Achievable, Relevant, and Timely (S.M.A.R.T.) goals consistent with the City's sustainability vision. The baseline effort would improve sustainability data management, offering the City's sustainability department the ability to effectively manage the program, quantify benefits of initiatives, and track progress over time.

2.2 VULNERABILITY ASSESSMENT AND ADAPTATION ACTION AREAS (PHASE 2)

Building off of elements of the existing Stormwater Management Plan, develop a comprehensive Vulnerability Assessment that provides detailed insight into the exposure of City facilities, critical infrastructure, roadways, and neighborhoods to various climate impacts, including sea level rise, extreme precipitation events, increased storm frequency/intensity, drought, and extreme heat. Incorporate socioeconomic metrics, such as low-income, senior and minority populations to ensure social equity is considered in adaptation planning decisions. The Vulnerability Assessment would provide information needed to recommend Adaptation Action Area (AAAs) designations in the City's Comprehensive Plan and associated adaptation projects and funding strategies.

2.3 SUSTAINABILITY PROJECT PORTFOLIO AND IMPLEMENTATION PLAN (PHASE 3)

Assemble a portfolio of projects designed to meet the goals established in Phase 1. The project development process should engage City staff to leverage their expertise, engage them in the sustainability program, and build their capacity to develop and manage sustainability projects. The projects should maximize financial, social and environmental benefits, including GHG emissions reductions and resiliency. Several initial project opportunities have been identified collaboratively as part of this strategy that could be further developed during this phase. Once designed, project "report cards" can be developed to summarize the project objective, management roles and responsibilities, contribution to goals, performance metrics, costs and benefits, budget requirements, funding sources, and schedule. Develop an implementation plan that prioritizes projects to meet the goals, establishes an implementation timeline, and includes funding sources and strategies. In addition, key performance indicators (KPIs) should be established for all projects to monitor their performance.

2.4 ADAPTATION ACTION PLAN (PHASE 4)

Establish an Adaptation Action Plan that draws on the Vulnerability Assessment (Phase 3) to develop and prioritize adaptation actions that improve resilience through addressing the identified vulnerabilities. Adaptation measures should be identified and screened via criteria including feasibility and cost, as well as social and environmental factors. Identification of suitable adaptation strategies should be founded on an objective framework that incorporates qualitative and quantitative measures of project benefits, acceptance, and obstacles. The plan should include an implementation schedule and funding analysis for the prioritized actions, so the recommended actions are ready for procurement and implementation.

2.5 SUSTAINABILITY POLICY INTEGRATION (PHASE 5)

Update and modernize the City's policy documents to reflect sustainability and resilience objectives. Examples of policies that could be revised include the City's Sustainable Development Standards, Green Building Policy, Seawall Policy, and Sustainable Procurement Policy. Enabling policies may be required for the City to move forward with larger policy objectives, such as Adaptation Action Areas, development of the Innovation District and improving mobility choices within the City, among others.

2.6 SUSTAINABILITY COMMUNICATIONS STRATEGY (PHASE 6)

Develop a Sustainability Communication Plan that establishes a brand for the City's efforts. A web presence for the sustainability program functions as a tool to communicate successes and solicitate public input. The communication plan would identify target audiences, appropriate media, and best practices for internal and external engagement. It would help build momentum for continued commitment to sustainability in the City and inform and build trust with the City's stakeholders. It should leverage traditional media outlets, public meetings and events, web and social media (i.e., Facebook, Twitter, LinkedIn, QR codes, etc.) to promote the City's sustainability and resilience messages and accomplishments. The plan should also lay the groundwork for internal and external reporting on a regular basis.

2.7 SUSTAINABILITY DATA MANAGEMENT SYSTEM AND REPORTING (PHASE 7)

Systematically tracking, trending and reporting on sustainability key performance indicators via a software solution or database verifies results and justifies investment. Managing data in this manner has its own benefits as well, typically resulting in cost savings of 1-10% from identifying erroneous billings, spotting anomalies before they become costly, prioritizing investment and evaluating progress. Options range from utilizing free tools, to purchasing "off the shelf" software or developing a custom solution. The software tool should include the ability to audit bills, track usage and costs, benchmark performance, evaluate the results of projects, analyze trends and report on improvement. Beyond identifying billing or usage anomalies and prioritizing interventions, such a system enables much more creative control of the City's resources. For example, it would enable departments to be assigned a "budget" for resource use and to be "charged" for utilities. Performance goals could be established, which could be evaluated annually. It also supports the accounting systems required to implement a revolving fund that support long-term investment and re-investment in sustainability projects at the department level.

2.8 THIRD-PARTY VERIFICATION (PHASE 8)

Achieve a recognized third-party sustainability certification through an organization such as LEED for Cities, ISO-14001, Global Resources Institute (GRI), et cetera. Such a certification would allow the City to demonstrate regional leadership and receive public recognition for the City's sustainability programs and initiatives. Third-party certification demonstrates that the selected certification's performance standard has been met, providing quality assurance for the City's sustainability program.

3. STRATEGIC ANALYSIS

3.1 SWOT ANALYSIS

RS&H qualitatively evaluated the City's present position (see Baseline) and compared it with peer cities (Benchmarking) as the basis of a strategic assessment of its sustainability performance. RS&H's evaluation was reviewed and calibrated via a Collaborative Workshop with City staff. Results are summarized in a Strengths, Weaknesses, Opportunities and Threats (SWOT) Analysis shown in Table 1. SWOT is a planning technique for identifying strategic objectives.

TABLE 1: PRELIMINARY STRENGTHS, WEAKNESSES, OPPORTUNITIES AND THREATS ANALYSIS

Strengths

The City exhibits key strengths with respect to alignment of City political and management leadership with staff. They share a high degree of awareness and a willingness to incorporate sustainability into the City's business. Integration of sustainability principles into the City's Strategic Plan and its development regulations indicate that cultural alignment is beginning to manifest in policy and programming. The City's Utilities Department provides a model of leadership, with a track record of implementing a suite of initiatives that promote sustainability and resilience in its operations and in the community.

Weaknesses

The strengths noted above are prerequisites for a sustainable organization. They provide a solid foundation for addressing several weaknesses, which relate to lack of a formal framework for managing sustainability on a day-to-day basis. Weaknesses include lack of a quantitative basis for understanding the City's performance, particularly a greenhouse gas (GHG) inventory, which is the nearest universal metric for measuring progress towards sustainability. Benchmark cities also have a well-articulated planning framework for understanding performance, setting goals, identifying projects to meet those goals, integrating priorities into the operations, and communicating progress over time. Therefore, these sustainability "programs" have attracted significant allocation of human and financial resources from both internal and external sources. Pompano Beach currently lacks most of these features.

Opportunities

Accordingly, Pompano Beach's biggest opportunity is to develop a formal sustainability program, with a priority towards seizing the associated benefits, including cost savings, productivity gains, risk reduction and adaptive capacity. Several near-term opportunities can develop aspects of this program, including the on-going update to the Comprehensive Plan and anticipated revision of seawall regulations. A focus on seizing opportunities within the City's operational control may facilitate capitalizing on external opportunities related to development, transit and "green technology" innovation (e.g. renewable energy, automated vehicles, etc.)

Threats

Climate change is an existential threat to South Florida. This threat may be mitigated and adapted to through efforts to increase sustainability and resilience. There are several additional threats that should inform design of the City's sustainability program. These generally relate to how the City is perceived, the potential negative consequences of rapid change and key stakeholders. These types of threats may affect the speed with which the City improves its sustainability performance as well as the durability of its gains.

3.2 SUSTAINABILITY PROGRAM DEVELOPMENT

Pompano Beach's biggest opportunity is to develop a formal sustainability program. Successful programs include a shared vision, focus areas, a baseline, goals, projects and an implementation framework.

Vision involves both a top-down and bottom-up approach to fully engage the City's leadership, staff, and community stakeholders. Leadership support for the program is critical and includes making appropriate resources available. It is also important to develop a shared understanding of what sustainability and resiliency mean to the City. This can be achieved through training and capacity building among City staff. The program should be considered a collaborative effort across the City's departments. While lead by the City's Sustainability Coordinator, departments including Parks and Recreation, Development Services, Engineering, Public Works, Solid Waste and Recycling, Utilities, Finance, Information Technology, General Services, Grants, among many others.

Focus Areas can then be determined based on the City's priorities and unique characteristics.

The City should develop a **quantitative baseline** that describes its current performance in its focus areas (Workplan Phase 1). This document includes a qualitative baseline, which documents the City's policies, procedures, and existing projects. A quantitative baseline should also be developed as this will establish a starting point from which to measure future performance improvements. As part of the baselining process, the City should expand its evaluation of its vulnerability to climate change (Workplan Phase 2).

Goals can then be developed using the baseline as a starting point to project the desired future targets for each area (Workplan Phase 1).

Once these are in place, **projects** can be developed through a strategic process that evaluates their alignment with the vision and contribution to the City's goals as well as their financial, social and environmental performance. This approach is significantly more powerful than developing sustainability and resiliency projects individually without the other program elements in place. It allows project performance to be measured and evaluated within the context of the overall sustainability program.(Workplan Phases 3, and 4).

Implementation of projects requires assigning responsibility for project management, developing budgets and schedules, and identifying funding sources. Projects can then integrate into the City's policy and operational framework (Workplan Phase 5), including its Comprehensive Plan, Strategic Plan, Budget, and its Capital Improvement Plan. As quick wins are achieved, a strategy to communicate success to key stakeholder ensures broad support for tackling the challenges and opportunities that lie ahead (Workplan Phase 6). Protocols must be developed to transparently measure and report on progress (Workplan Phase 7).

These elements of a sustainability program, once in place, will establish the City as a nationally recognized leader. Third-party verification programs, such as LEED for Cities, is a method for validating Pompano Beach's performance (Workplan Phase 8).

3.2.1 Vision

Vision is the embodiment of what an organization aspires to be and is a catalyst for successfully moving in the direction of stated goals. Thus, it is a fundamental aspect of sustainability in Pompano Beach and serves to clearly communicate and guide the City's direction. Like the North Star, it establishes the guidelines for the sustainability and resiliency programs and helps keep the City on the approved course.

The City of Pompano Beach has an existing Vision Statement (Figure 3) which does not directly reference sustainability or resilience, although it hints at some elements of the Triple Bottom Line such as community safety, quality of life, and economic prosperity.

FIGURE 3: CITY OF POMPANO BEACH'S EXISTING VISION STATEMENT

> *The City of Pompano Beach's vision is to create a sense of family, the distinctive architecture, the broad range of amenities, the comparative safety of the community and the opportunity for employment in many diverse economic sectors will make it a draw for many people.*

To complement this overall vision, RS&H recommends that the City develop a sustainability vision statement that more specifically establishes the direction for the City's programs in these areas. Draft vision statements were developed during workshops conducted with City staff for each element of the Triple Bottom Line. These are presented in the Collaborative Workshop Summary in the Appendix

Following the workshop, RS&H combined key elements of three vision statements into a single sustainability vision statement (Figure 4) that captures all Triple Bottom Line elements, as well as the concept of resiliency.

FIGURE 4: CITY OF POMPANO BEACH PRELIMINARY SUSTAINABILITY VISION STATEMENT

> *The City of Pompano Beach is committed to protecting and improving environmental quality, community cohesion and shared prosperity through innovative investment in climate change resilience, resource conservation and materials management, land use and transportation, and education and culture.*

RS&H recommends that the City continue to work on the sustainability vision statement until a consensus is reached that embodies the desired direction and ambition of the sustainability program.

3.2.3 Focus Areas

Focus areas identify the City's priorities and establishes the scope of its efforts. RS&H identified focus areas based on staff and commission interviews, literature review, benchmarking and RS&H's knowledge of successful sustainability and resilience planning programs. The focus areas were presented to City staff during the collaborative workshops. Table 2 shows the focus areas and the elements they include.

TABLE 2: FOCUS AREAS

Focus Area	Elements	
Climate and Resilience	» Leadership Commitment » GHG Inventory » Climate Action Plan » Carbon Mitigation / Sequestration Initiatives » Sea Level Rise » Seawalls	» Flood Risk Management » Stormwater Management » Hazard Mitigation Planning » Natural & Human Hazard Data » Hazard Area Zoning » Post Disaster / Business Continuity Plans » Saltwater Intrusion
Resource Conservation	» Green Building » City Facilities and Infrastructure » Electronics and Equipment » Renewable Energy	» Water Use » Irrigation / Reclaimed Water » Stormwater and Wastewater
Materials Management	» Waste Generation & Pickup Services » Sustainable Procurement » Materials Bans » Recycling	» Composting » Disposal » Universal & Hazardous Wastes
Land Use and Transportation	» Zoning and Land Development Regulation » Comprehensive Planning » Adaptation Action Areas » Innovation District » Urban Forestry	» Open Space » Transit » Bicycle and Pedestrian Network » City Fleet Management
Equity and Outreach	» Affordable Housing » Health and Wellness » Food Security » Workforce Development	» Public Safety » Employee Engagement » Stakeholder Engagement » Public Outreach
Policy and Economics	» Strategic Plan » Sustainable Development Standards » Capital Improvements » Smart City	» Sustainability Reporting » Data Management Systems » Financial Performance » Sustainability Funding Sources

These focus areas are used throughout this document to organize strategic assessment of sustainability / resilience at the City. RS&H recommends these focus areas as a framework for organizing the City's subsequent efforts. The elements within each focus area can be reduced or expanded as necessary to reflect the City's objectives.

3.2.4 Baseline

A baseline establishes current sustainability performance and provides a reference point for measuring future efforts. This document includes a qualitative baseline. RS&H recommends the City also develop a quantitative baseline to establish current performance in the City's applicable focus areas. These activities should take place as part of Workplan Phase 1, which occurs in the first year of a five year plan.

The baseline information is critical to inform the development of goals and projects for the sustainability program. It also brings all the City's relevant information into one place where it can be easily tracked and managed by the City's sustainability coordinator and establishes the basis for a sustainability data management system. A quantitative baseline is usually developed for a recent fiscal or calendar year. Typically, it would include an inventory of City facilities, fleets and infrastructure; energy, fuel and water use; and waste generation and diversion. It could also include data related to parks and open space; bicycle and pedestrian networks; complete streets; transit ridership; and metrics related to affordable housing, public safety, employee and community engagement, and financial performance. The risk, vulnerability and adaptative capacity of these elements relative to climate change are also important aspects of any baseline assessment (Workplan Phase 2). These should also be established in the first year of a five-year plan.

The following Best Management Practices (BMPs) derived from benchmarking and interviews are potential elements of the City's baseline (Table 3). These recommended baseline tasks could be integrated into the City's Comprehensive Plan or Strategic Plan.

TABLE 3: BASELINE RECOMMENDATIONS

Focus Area	Recommendation	Workplan
Climate & Resilience	» Complete a GHG emissions inventory and forecast.	» Phase 1
	» Conduct a comprehensive Vulnerability Assessment to identify infrastructure and areas of the City vulnerable to SLR, nuisance flooding, extreme precipitation, extreme temperatures, and other climate change impacts and quantify exposure.	» Phase 1
	» Designate Adaptation Action Areas based on the results of the comprehensive Vulnerability Assessment	» Phase 1
Resource Conservation	» Quantify or establish a protocol for quantifying the benefit of past IT initiatives that promote energy efficiency.	» Phase 1
Materials Management	» Conduct a waste audit to identify potentially recyclable commodities in the waste stream from City facilities.	» Phase 1
	» Track hazardous waste generation at City facilities.	
Land Use & Transportation	» Develop a geospatial inventory of the City's tree canopy that quantifies the triple-bottom line benefits of urban forestry. Coral Gables accomplishes this using TreeKeeper software.	» Phase 1
	» Quantitatively evaluate the feasibility of incorporating alternative fuel vehicles into the fleet.	» Phase 1
	» Evaluate the cost and benefits of procuring alternative fuel vehicles directly or via lease and determine the most beneficial procurement strategy.	» Phase 1
Policy & Economics	» Quantify the economic and GHG emissions reduction benefits of the City's sustainability initiatives to date.	» Phase 1
	» Quantify the environmental, social and economic benefits of the recently implemented four-day work week at City Hall.	» Phase 1

3.2.5 Goals

While a vision statement establishes the general direction of the program, goals provide a way to both motivate and measure progress towards the vision. Goals should relate to the City's focus areas and organizational priorities. They should be ambitious enough to motivate performance, but realistic enough to have a high probability of achievement. Ideally, goals should be Specific, Measurable, Achievable, Relevant, and Timely (S.M.A.R.T.). Goals may be quantitative or qualitative but must be clear enough that it is easy to evaluate whether the goal has been met. They should be established in relation to a qualitative and quantitative baseline that establishes current performance.

The City should develop goals related to its focus areas as part of Workplan Phase 1, which occurs in the first year of a five year plan. Often, long term goals are established and then broken down into intermediate targets. Table 4 shows examples of goals the City should consider establishing as part of its sustainability program. These goals could also be integrated into the City's Comprehensive Plan and / or Strategic Plan.

TABLE 4: GOALS RECOMMENDATIONS

Focus Area	Recommendation	Workplan
Climate & Resilience	» Establish GHG emissions reduction targets with reference to Southeast Florida Climate Compact (SEFLCC) recommendations and the City's climate protection priorities, including the Climate Mayor's commitment to limit global warming to less than two degrees Celsius[2].	» Phase 1
Resource Conservation	» Establish quantitative goals for water conservation, energy efficiency and renewable energy use in City facilities. Consider normalizing goals by operationally meaningful metrics, such as square footage, to account for future growth.	» Phase 1
Materials Management	» Establish goals for waste diversion rates for the community and for city operations.	» Phase 1
	» Consider establishing goals related to recycling participation rate and contamination of single stream recycling.	» Phase 1
	» Establish a goal for paper management in City operations to organize "paperless" initiatives across departments.	» Phase 1
Land Use & Transportation	» Establish quantitative goals related to transit, bicycle, and pedestrian mobility options.	» Phase 1
	» Establish tree canopy / urban forestry goals.	» Phase 1
	» Establish quantitative goals related to transit, bicycle, and pedestrian mobility options.	» Phase 1
	» Consider establishing goal to maintain current levels of open space considering future development.	» Phase 1
	» Establish goals for fleet fossil fuel reduction and alternative fuels use.	» Phase 1
Equity & Outreach	» Establish outreach/communications goals for the sustainability program, both internally and community wide.	» Phase 1
	» Establish goals for employee and community health and wellness (e.g. access to healthy foods, mobility choices, and services, etc.).	» Phase 1
Policy & Economics	» Establish a goal for funding the sustainability program.	» Phase 1

[2] Pompano Beach former Mayor Lamar Fisher committed the city to adopt, honor and uphold the goals of the Paris Climate Agreement, per the Climate Mayors Website. The Paris Climate Agreement requires signatories to determine, plan, and regularly report on the contribution they undertake to mitigate global warming, with the goal of holding the increase in the global average temperature to less than 2°C above pre-industrial levels and to pursue efforts to limit the temperature increase to 1.5°C above pre-industrial levels.

3.2.6 Projects

Projects are the heart of any commitment to sustainability. They reflect the insight and creativity of the organization applied to meeting goals. Accordingly, the most successful sustainability programs develop a portfolio of projects derived from an understanding of the City's baseline performance, the BMPs of peers and the needs and ideas of key staff. Multi-faceted analysis utilizes tools such as life cycle cost analysis and cost benefit analysis, including comparisons with "do nothing" scenarios. These tools leverage a thorough quantitative baseline of City performance (Workplan Phase 1). Often these tools are extended to account for social and environmental benefits not typically captured by conventional economic metrics. This facilitates evaluation of each project's contribution to the City's goals. Projects should be developed as part of a comprehensive portfolio with an implementation plan (Workplan Phase 3). Projects related to addressing vulnerabilities to climate change should be developed as part of an Adaptation Action Plan (Workplan Phase 4). These phases of effort should take place between the second and third year of a five-year plan.

RS&H has preliminarily identified several project ideas for the City to consider based on establishing a qualitative baseline, benchmarking City performance against peers and an initial screen of stakeholders' ideas (Table 5). Further effort is required to round out this preliminary list, select and evaluate good fits for the City and perform the analysis required to develop an actionable project portfolio. Once developed the City's project portfolio can be integrated into its Comprehensive Plan, Strategic Plan, Budget and Capital Improvement Plan.

TABLE 5: PROJECT RECOMMENDATIONS

Focus Area	Recommendation	Workplan
Climate & Resilience	» Develop an Adaptation Plan that identifies actionable adaptation strategies, policies and projects designed to reduce identified vulnerabilities and improve resilience community-wide with a timeline for completion.	» Phase 4
	» Identify priority sea wall areas that need to be elevated, determine costs and impacts to the community, and evaluate implementation strategies.	» Phase 4
	» Continue hardening stormwater infrastructure, installing one-way check valves, etc. to adapt stormwater systems to SLR and higher groundwater levels.	» Phase 4
	» Develop a business continuity plan to help the Pompano Beach community and private businesses achieve a quick economic recovery from the effects of a hurricane or other natural disaster	» Phase 4
Resource Conservation	» Consider a commercial / industrial building benchmarking program like the policy developed by Miami-Dade County.	» Phase 3
	» Research the feasibility of and locations for facility / infrastructure scale Solar PV projects on City-owned property. Develop cost-effective and / or strategic projects.	» Phase 3
	» Evaluate enrollment in FP&L's SolarTogether program. SolarTogether is a community solar program through which municipalities receive energy credits on their monthly bill and renewable energy credits that can be used toward meeting a renewable energy goal in exchange for a subscription fee. Broward County and Coral Springs have pre-enrolled in the program. It is currently pending approval by the Florida Public Service Commission.	» Phase 3

Focus Area	Recommendation	Workplan
Resource Conservation	» Utilize a recurring program of energy and water audits and retro-commissioning[3] to identify energy and water efficiency and indoor environmental quality projects at City facilities and incorporate them into the operations and maintenance budget. The audit conducted by Siemens as part of its performance contract is likely out of date.	» Phase 3
	» Continue expanding the water reuse system.	» Phase 3
	» Investigate opportunities for irrigation efficiency projects at City facilities (e.g. automated controls, low-flow devices, xeriscaping and non-potable water supply).	» Phase 3
	» Continue to support investment in the C-51 Reservoir project to diversify the City's water supply.	» Phase 3
	» Continue investing in lining of sewer mains to reduce inflow and infiltration.	» Phase 4
	» Consider development of a stormwater BMP manual or Low Impact Design manual. Require its use for City facilities and infrastructure. Encourage or incentivize use by developers or incorporate requirements into revised Sustainable Development Standards.	» Phase 5
	» Update the City's Green Building Program (Chapter 152.51) to include City-owned renovations, existing buildings and infrastructure. Require certification at specified levels, and /or include minimum performance requirements.	» Phase 5
	» Revise Sustainable Development Standards based upon specific goals and objectives, e.g. resource conservation, resilience, etc. Re-evaluate the point system and the feasibility / desirability of specific sustainable design options (e.g. wind power). Establish minimum performance requirements and consider an enforcement mechanism, such as the bonding requirement implemented by Miami Beach and Coral Gables.	» Phase 5
	» Establish energy efficiency and/or sustainability procurement standards for IT equipment based on third party standards (e.g. Energy Star, EPEAT).	» Phase 5
Materials Management	» Evaluate additional opportunities for paper use reduction in cooperation with the IT Department via paperless initiatives, duplex printing, digital recordkeeping and procurement, etc.	» Phase 3
	» Develop a waste minimization or waste management plan that identifies targets, goals, metrics, and measures to increase diversion and or reduce waste generation, including mandating recycling. Include a review of waste management contracts as they near renewal and evaluate opportunities for costs savings and/or recycling revenue.	» Phase 3
	» Centralize maintenance materials (e.g. lamps, ballasts, belts, filters, etc.) and standardize as feasible to sustainable products.	» Phase 3
	» Consider further advancing product ban ordinances to address single use plastic pollution, following the model of communities like Coral Gables and Miami Beach which have banned expanded polystyrene containers and plastic bags to protect the environment and marine wildlife. Pompano Beach has already banned plastic straws city-wide and has a ban on expanded polystyrene at City facilities.	» Phase 5
	» Develop and implement a Sustainable Procurement policy managed by the Purchasing Department that emphasizes source reduction, enhances the environmental performance of the City's purchases and favors local materials and services. Encourage adoption by the private sector.	» Phase 5

[3] Retro-commissioning is a highly cost-effective process to improve the efficiency of an existing building's equipment and systems. It can often resolve problems that occurred during design or construction, or address problems that have developed throughout the building's life as equipment has aged, or as building usage has changed.

Focus Area	Recommendation	Workplan
Land Use & Transportation	» Consider implementing "Eco-district" concepts into provision of infrastructure for the Innovation District, e.g. LID / "green infrastructure", complete streets, dockless mobility, urban agriculture, transit, district scale renewable energy, LED streetlights, etc.	» Phase 3
	» Identify opportunities to attract multimodal transportation service to the City (e.g. developing a transit station at the Isle Casino and/or along the FEC corridor, coordinating with the WAVE project, expanding Fort Lauderdale's Sun Trolley system, attracting Freebee's service to the City, attracting Water Taxi service, enabling car-sharing, dockless mobility, etc.).	» Phase 3
	» Develop a multimodal transportation plan or a bicycle and pedestrian plan. Implement improvements City-wide.	» Phase 3
	» Develop standard "Complete Street" sections and develop a plan for funding upgrade existing thorough fares based on this standard.	» Phase 3
	» Add pedestrian amenities to the Airpark walking trail, e.g. shade, exercise equipment, etc.	» Phase 3
	» Provide incentives for fire sprinklers in new residential developments.	» Phase 3
	» Consider incorporating design elements into the proposed new fleet maintenance facility that would allow it to service vehicles using gaseous fuels such as CNG or propane (e.g. ventilation, sensors, alarms and associated controls).	» Phase 3
	» Develop additional electric vehicles support infrastructure (EVSE) at City parking facilities. Developing Level 3 EVSE within 5 miles of the I-95 corridor would contribute towards its designation as an Alternative Fuel Corridor by the Federal Highway Administration.	» Phase 3
	» Establish a program for right-sizing the City's fleet, accompanied by policies that establish minimum performance standards for fuel economy.	» Phase 3
	» Establish a fleet pool that would allow staff to share fleet vehicles.	» Phase 3
	» Identify and develop projects for designated Adaptation Action Areas and incorporate them into the City's Capital Improvements Plan.	» Phase 4
	» Update City Green Building Program (Chapter 152.51) to include City-owned renovations, and existing buildings and infrastructure. Require certification at specified levels. Include minimum performance requirements. Harmonize provisions related to the private sector with the City's Sustainable Development Standards.	» Phase 5
	» Revise Sustainable Development Standards based upon specific goals and objectives. Re-evaluate the point system and the feasibility / desirability of specific options (e.g. wind power). Establish minimum performance requirements and consider an enforcement mechanism, such as the bonding requirement implemented by Miami Beach and Coral Gables.	» Phase 5
	» Establish special requirements in the Zoning Code and land development regulations for designated Adaptation Action Areas.	» Phase 5
	» Carefully consider enabling dockless mobility in the City, following BMPs derived from the City of Fort Lauderdale's experience.	» Phase 5
	» Consider formally adopting or incorporating BMPs from the City of Fort Lauderdale's Vision Zero plan for bicycle and pedestrian safety into policy, regulations and plans.	» Phase 5
	» Establish requirements for use of alternative fuels in the City fleet.	» Phase 5
Equity & Outreach	» Evaluate potential benefits of pursuing a third-party sustainability certification such as LEED for Cities, which benchmarks the City's performance in several social sustainability categories.	» Phase 3
	» Expand the City's health and wellness programs for both employees and community members. For example, Fort Lauderdale operates a health and wellness center that provides employees with primary, preventative and acute care.	» Phase 3

Focus Area	Recommendation	Workplan
Equity & Outreach	» Identify food deserts and take actions to promote food security and local food options, such as community gardens, farmer's markets, or incentives for groceries to operate in underserved neighborhoods. Identify the City's sustainability and resilience stakeholders and engage them in planning efforts. Coral Gables has established a Sustainability Steering Committee for this purpose.	» Phase 3
	» Provide need-based funding for energy, water and resilience home improvements.	» Phase 3
Policy & Economics	» Evaluate use of a continual improvement framework for sustainability management of City operations, e.g. ISO 14001 Environmental and Sustainability Management System.	» Phase 3
	» Develop a Sustainability Plan for the City that incorporates existing/completed initiatives, includes goals related to sustainability focus areas and presents a business case for projects and policy actions that will allow the City to achieve the goals.	» Phase 3
	» Develop a Smart City Plan that establishes a roadmap for improving government efficiency and level of service through implementation of connected technology and integrates data into the sustainability program.	» Phase 3
	» Provide vocational / technical training for residents (e.g. in "green" trades).	» Phase 3
	» Institute Lean Six Sigma program for City operations and implement selected projects.	» Phase 3
	» Provide or enhance incentives / reduce fees for development that meet City standards, for businesses that employee large numbers of residents, etc.	» Phase 5

3.2.8 Implementation

Results require implementation. A sustainability program must make the case that it deserves a place of priority among the City's commitments. Building a business case, with estimated costs, returns on investment, assignment of responsibilities and schedules helps make the value proposition clear. It also enhances the City's competitiveness for grants and eases integration into the City Budget, Capital Improvement Program and other key processes that determine day-to-day activity. Even with resources in hand, there are many barriers to sustainability. Often, changes to policy, procedure and regulation are required (Workplan Phase 5). Integrating sustainability into the City's policy framework should occur in the third year of a five year plan.

Meeting ambitious sustainability goals requires a broad base. The City must effectively communicate its sustainability successes to garner support from a diversity of internal and external stakeholders (Workplan Phase 6). Measurement and verification of project implementation is a frequently overlooked. Developing key performance indicators and establishing the infrastructure to track them is essential for proving results (Workplan Phase 7). These phases of effort should occur between the third and fourth years of a five-year plan.

With strong sustainability data, the City can demonstrate its success to the world. Third-party verification programs, such as LEED for Cities provides a standard for validating Pompano Beach's leadership (Workplan Phase 8). This phase should be possible in the final year of a five-year workplan.

RS&H has preliminarily identified several implementation ideas for the City to consider (Table 6). Further effort is required to round out this preliminary list after the City develops a sustainability project portfolio.

TABLE 6: IMPLEMENTATION RECOMMENDATIONS

Focus Area	Recommendation	Workplan
Climate & Resilience	» Encourage revision of Florida Building Chapter One by the County Board of Rules and Appeals of Broward County and Miami-Dade County to require vulnerability reduction measures for all new construction, redevelopment and infrastructure such as additional hardening, higher floor elevations or incorporation of natural infrastructure for increased resilience.	» Phase 5
	» Evaluate options to amend zoning code and approvals process to require resilient construction methods for all new development or post-disaster redevelopment in vulnerable areas to reduce future risk and economic losses associated with sea level rise and flooding.	» Phase 5
Resource Conservation	» Incorporate high performance and sustainable design policies and procedures into the Capital Improvement Process used by all relevant departments, such as Engineering and GO Bond Administration, including detailed requirements for the planning, design, construction and turn-over phases to ensure a consistent result.	» Phase 5
	» Require use of life-cycle cost analysis of sustainability features in City projects to facilitate selection of options that maximize long-term benefits, even if upfront costs are higher.	» Phase 5
	» Develop design criteria and standard specifications for desired sustainable design features in City facilities and street sections. This may include establishing minimum performance requirements for pedestrian amenities, streets, landscaping, lighting, mechanical and stormwater systems, for example. Encourage use by the development community as a tool to meet revised Sustainable Development requirements.	» Phase 5

Focus Area	»	Recommendation	Workplan
Resource Conservation	»	Develop sustainable facility operations and maintenance policies and procedures for existing City facilities, deriving BMPs from a model such as LEED for Existing Buildings.	» Phase 5
	»	Require connection to the City's water reuse system wherever it is available. Currently connection is voluntary.	» Phase 5
	»	Require connection to the City's water reuse system wherever it is available. Currently connection is voluntary.	» Phase 5
	»	Develop or procure a data management solution to track sustainability data and project performance with dashboards and reporting capability.	» Phase 7
	»	Expand the capability of Facility Dude to include its energy management capabilities or explore procurement of an equivalent software tool to comprehensively manage utility accounts, benchmark usage, identify billing errors and identify accounts for further investigation of utility conservation opportunities. Energy Star Portfolio Manager is an open-source example, which the City can use to get familiar with the benefits of utility management systems.	» Phase 7
Materials Management	»	Develop policies, ordinances or regulations to increase the community's waste diversion rate.	» Phase 5
	»	Establish policies to substitute less hazardous materials when feasible in City operations and maintenance, and ensure hazardous waste is properly managed, disposed and documented.	» Phase 5
Land Use & Transportation	»	Incorporate sustainable development requirements into the Innovation District development agreement.	» Phase 5
	»	Incorporate data and analysis related to sustainability and resilience in the City's on-going Comprehensive Plan update. Include Goals, Objectives and Policies based on the SMART framework (Specific, Measurable, Achievable, Relevant, and Timely).	» Phase 5
	»	Require or incentivize electric vehicle support infrastructure in the City's zoning and development regulations following a successful model such as Coral Gables.	» Phase 5
	»	Coordinate any municipal alternative fuel activities with the South Florida Clean Cities Coalition, including pursuit of funds via the Volkswagen Settlement – Environmental Mitigation Trust for State Beneficiaries. Support its efforts for Alternative Fuel Corridor Designation and associated signage along these corridors.	» Phase 5
	»	Establish an anti-idling policy for the City fleet that includes effective enforcement mechanisms.	» Phase 5
Equity & Outreach	»	Develop a Communications Plan for the City's sustainability program that identifies target audiences, media and messaging (this could be bundled into a Sustainability Plan).	» Phase 6
	»	Engage City employees in the sustainability program and incorporate sustainability concepts into onboarding and ongoing training. For example, Coral Gables has contracted with the CLEO Institute to provide a "Sustainability 101" course to all staff. Content will be adapted for incorporation into new employee orientation education requirements.	» Phase 6
	»	Develop sustainability content for the City's website that highlights Pompano Beach's sustainability achievements. Communicate regularly through the website and social media channels.	» Phase 6
	»	Include a regular agenda item at City Commission meetings to communicate on the City's sustainability program activities.	» Phase 6
	»	Incorporate sustainability and resiliency content into existing community special events.	» Phase 6
	»	Develop a program for engaging local schools on sustainability topics.	» Phase 6

Focus Area	Recommendation	Workplan
Equity & Outreach	» Consider outreach and/or partnerships with the Pompano Beach Chamber of Commerce through the City's Economic Development Committee (EDC) and the EDC's sustainability subcommittee. Coral Gables views such partnerships as essential to the success of pollution prevention (i.e. plastic bag bans) policies in that City.	» Phase 6
	» Utilize third-party standards to verify the City's sustainability performance and communicate validated successes to stakeholders locally and nationally. LEED for Cities can be used to validate the City's sustainability program, while standards like Envision can be utilized for individual infrastructure projects.	» Phase 8
Policy & Economics	» Develop a Sustainability Revolving Fund and/or establish other dedicated sources of funding for the sustainability program.	» Phase 5
	» Establish a consensus procedure for adding estimates of environmental and social costs and benefits to economic evaluation of City projects. Use results to develop a Triple Bottom Line methodology for decision making and prioritization.	» Phase 5
	» Carefully evaluate the most advantageous structure and position in the City's organizational chart for the sustainability program. Several options exist, each with pros and cons. Coral Gables and Fort Lauderdale's sustainability departments are housed within public works, while Miami Beach and Broward County have independent departments that report directly to the administration. While both structures can be successful, interviewees stressed the importance of having leadership support, dedicated funding, and good communication with both leadership and other departments.	» Phase 5
	» Dedicate staff to planning and implementing the sustainability program in a full-time, dedicated capacity. Annually evaluate staff and budget needs, increasing staff and providing resources as appropriate as the program expands over time	» Phase 5
	» Encourage leadership to consistently communicate support for sustainability and resilience to City staff.	» Phase 6
	» Consider progress towards sustainability goals in evaluation of staff performance enabled by a sustainability data management framework.	» Phase 7

4. BENCHMARKING

Benchmarking provides a systematic comparison of performance criteria with peer cities. The process identifies BMPs that have helped peers achieve positive results. In collaboration with Pompano Beach, three cities were selected for benchmarking: Coral Gables, Fort Lauderdale and Miami Beach. These cities were selected for their similarities to the City of Pompano Beach, as well as their record of sustainability achievement.

To benchmark Pompano Beach's performance against each peer city, RS&H reviewed publicly available information and other sources. RS&H also conducted phone interviews with representatives of each city. In addition, RS&H interviewed Jennifer Jurado, Broward County's Chief Resilience Officer. Information gained from these sources was compared to Pompano Beach's qualitative baseline.

The benchmarking process defines 68 criteria across six focus areas. For each criterion, RS&H assigned a qualitative score.

- The highest score is "Integrated sustainability strategy," meaning the criterion is clearly incorporated into the City's operations.
- The intermediate score is "progress towards sustainability," meaning that the criterion has not been fully implemented, but some progress has been made.
- The lowest score is "Pre-implementation Phase," indicating that implementation of the criterion has not begun. This score could also indicate that RS&H found no evidence supporting implementation of the criterion.
- "Not applicable" was assigned to criterion that cannot be applied to the City. For example, criteria related to water utility initiatives do not apply to Coral Gables because it does not operate a water utility.

Benchmarking results are shown in Figure 5 below. These were reviewed and calibrated during the Collaborative Workshop with City staff.

FIGURE 5: BENCHMARKING SUMMARY RESULTS

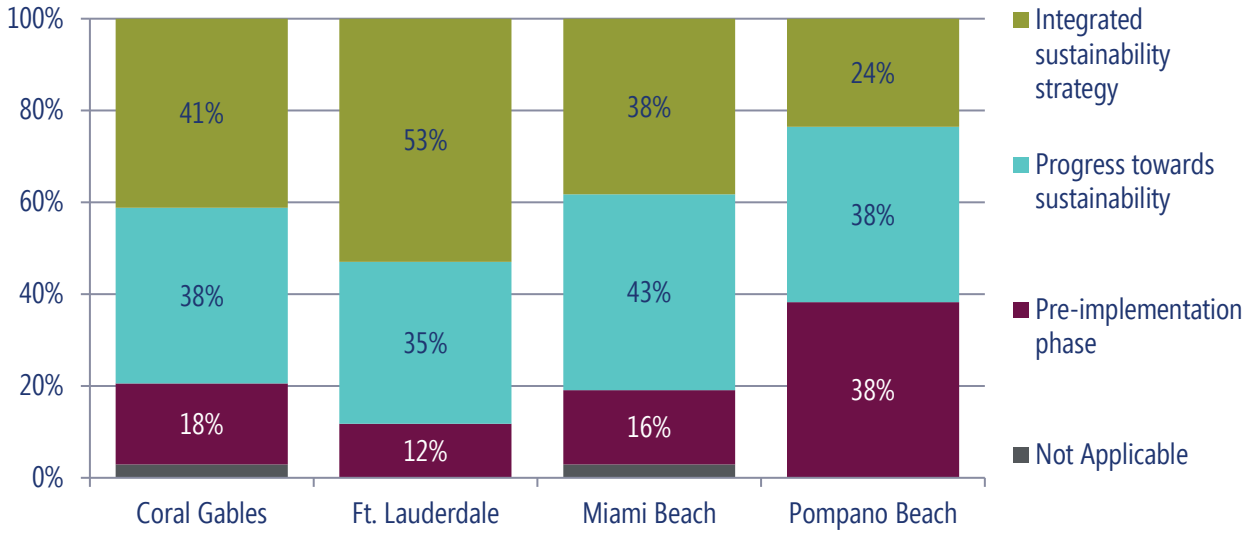


Figure 5 reflects Pompano Beach's strong sustainability foundation, having fully or partially met over half of the 68 evaluated criteria. However, it lags Fort Lauderdale, Coral Gables and Miami Beach, each of which have fully integrated more criteria and have fewer unimplemented criteria. This indicates that the City has an opportunity to make rapid progress with its sustainability and resilience efforts. Further, with over eighty percent of the criteria met or in progress, these cities are good sources of BMPs for Pompano Beach's future sustainability efforts.

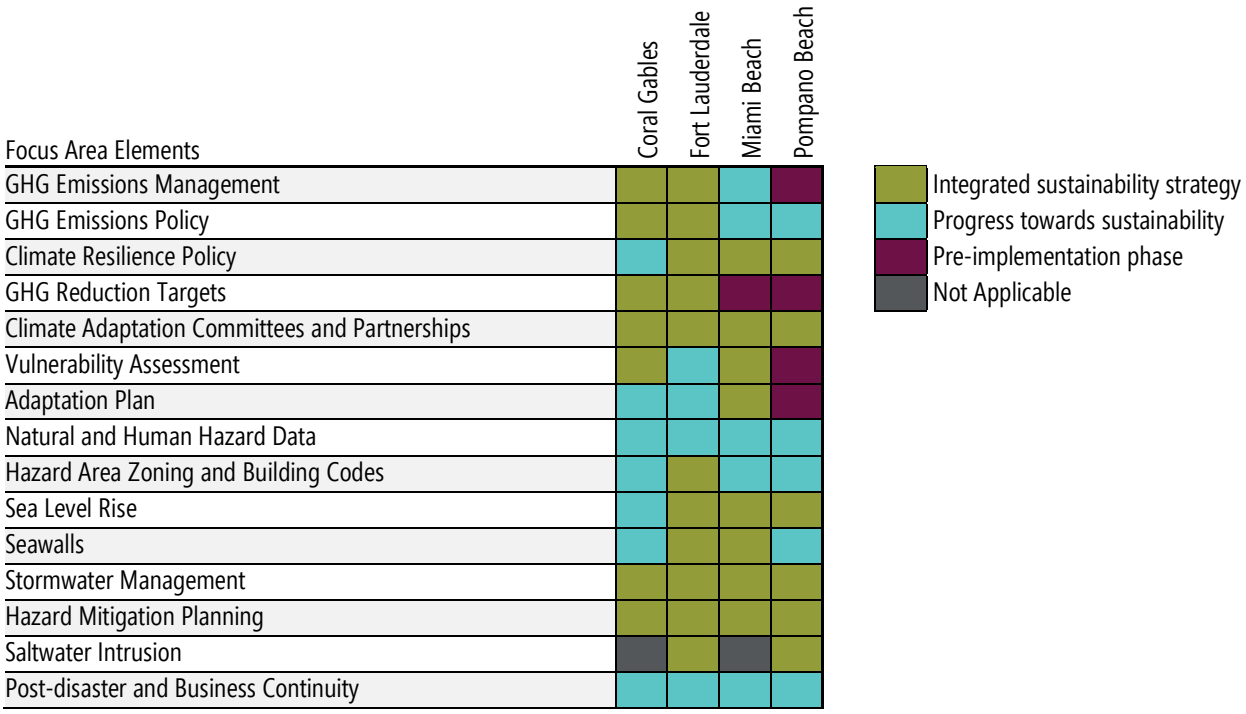
Benchmarking is inherently a qualitative exercise, involving interpretation and judgement. Cities are difficult to compare precisely, given the diversity of their unique qualities. Therefore, the purpose of benchmarking is not to rank cities "good," "better," or "best." Rather, insight is gained by comparing relative positions with respect to the focus areas, which identifies areas where Pompano Beach may focus its efforts. Comparing cities' performance relative to the specific criteria identifies BMPs that the City can consider adapting to its own situation.

Benchmarking results within each focus area by criterion are on the following pages. BMPs derived from this analysis are collected in the Strategic Analysis section.

4.2 CLIMATE AND RESILIENCE

Figure 6 below summarizes benchmarking within the Climate and Resilience focus area. This focus area encompasses both climate mitigation and adaptation to climate impacts. Both strategies are key to reducing the potential for harm as a result of increased temperatures, severe weather, sea level rise, and other consequences of global climate change.

FIGURE 6: CLIMATE AND RESILIENCE BENCHMARKING RESULTS



Pompano Beach has made a leadership commitment to reduce emissions, coordinated with the Southeast Florida Climate change Compact (SEFLCC), Broward County and other partners, amended seawall height regulations, and incorporated climate adaptation into stormwater management, among other actions. The City has also begun to reduce natural and human hazards through the Comprehensive Plan and implemented Floodplain Regulations that provide standards for development seaward of the coastal construction control line.

The City's performance in this focus area lags somewhat behind its peers with 27% of benchmarked elements in the pre-implementation phase. These elements include establishing a GHG inventory, setting reduction targets, and demonstrating emission reductions. They also include completing a comprehensive Vulnerability Assessment that includes City facilities, neighborhoods, infrastructure, vulnerable populations, and social equity. Once vulnerabilities have been identified, the next step is to develop an Adaptation Plan to address them, a step only Miami Beach has completed to date among the benchmarked cities.

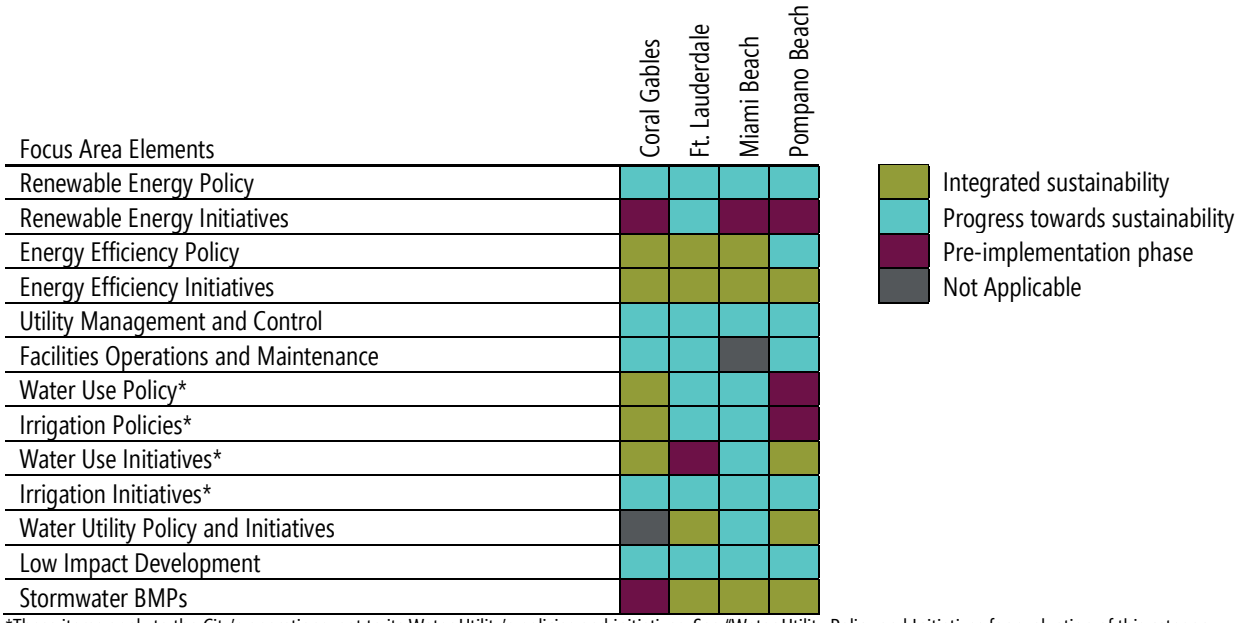
Recommendations derived from benchmarking are included in the Strategic Analysis section.

4.3 RESOURCE CONSERVATION

Figure 3 below summarizes benchmarking within the Resource Conservation focus area.

Since resource conservation projects result in cost avoidance, they typically exhibit the highest demonstratable return on investment of all sustainability and resilience projects. Accordingly, it is common for Cities to feature resource conservation projects as the cornerstone of their program.

FIGURE 7: RESOURCE CONSERVATION BENCHMARKING RESULTS



*These items apply to the City's operations, not to its Water Utility's policies and initiatives. See "Water Utility Policy and Initiatives for evaluation of this category.

The City's performance in this focus area is like its peers, with 70 to 80 percent of criteria met or in progress. Its water utility has undertaken exemplary water conservation and reuse projects (see "Water Utility Policy and initiatives" in Figure 7). The City's performance contract with Siemens has resulted in several energy and water conservation projects. As this contract nears conclusion, new opportunities should be presented. The City has restricted watering days, advanced irrigation controls, and an AMI system that can show utility customer's water use hour by hour.

All cities show difficulty meeting renewable energy criteria, in part because of state and utility policy, which do not support technologies like solar at levels of states of comparable size (e.g. California, New York, Texas). Establishing policies and goals for resource conservation would increase the City's performance relative to peers.

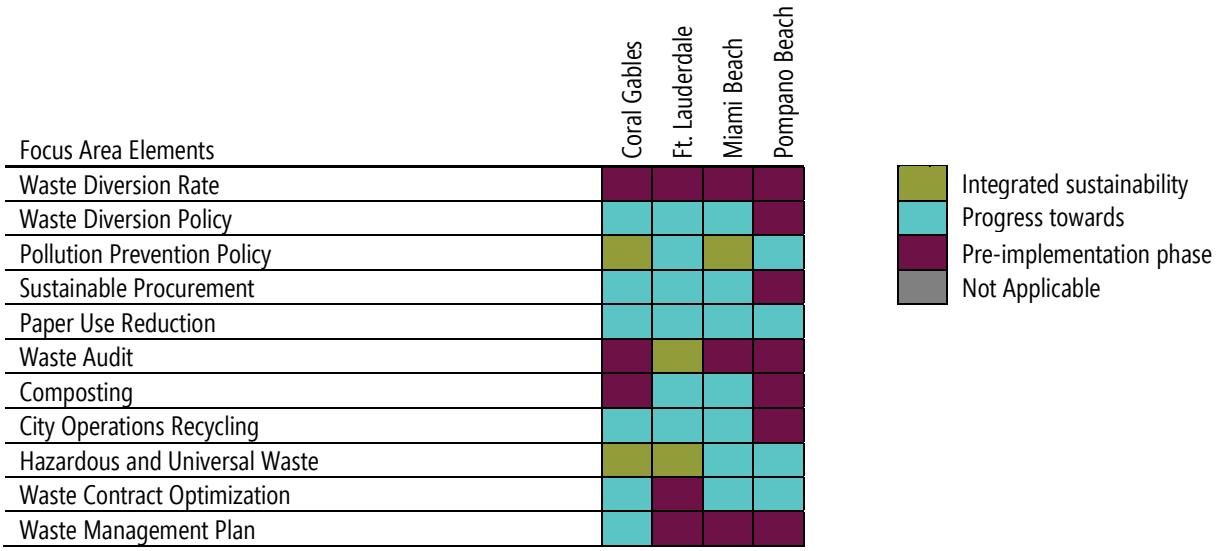
Recommendations derived from benchmarking are included in the *Strategic Analysis* section.

4.5 MATERIALS MANAGEMENT

Figure 8 below summarizes benchmarking within the Materials Management focus area.

This focus area encompasses source reduction, waste diversion, and effective waste management. Municipalities have achieved significant cost reductions through a variety of strategies aimed at increasing waste diversion and improving recycling. This can allow cost savings through reduced infrastructure and tipping fees, and in some cases allow recycling revenue to be captured. In addition, enhanced waste management benefits the environment and may improve aesthetics and quality of life for residents.

FIGURE 8: MATERIALS MANAGEMENT BENCHMARKING RESULTS



The benchmarking results show significant room for improvement in materials management in the City. All benchmarked communities had waste diversion rates lower than the national average. Except for Fort Lauderdale, none had initiated a waste audit, often seen as the first step to improving diversion. A waste management or waste minimization plan is one of the best ways to act on waste audit findings and implement improvements. None of the benchmarked cities has implemented such a plan to date, although Coral Gables is in the process of developing one.[4]

Pompano Beach's waste manager indicated the City has a good waste and recycling contract because it allows the City to maintain recycling service even when marketing conditions are not favorable. The City's contact with Waste Management (WM) also requires the company to utilize CNG. The City appears to lack a formal sustainable procurement policy although some purchases meet sustainable criteria. The City lacks a composting initiative. Staff noted multi-family residences may pose challenges for composting.

Pompano Beach Ordinance 2019-20 bans plastic straws city-wide. Ordinance 2018-22 is designed to reduce the use of expanded polystyrene by City contractors and special event permittees. However, these

[4] Due to weekly pick up of bulk items, the City has observed a "dumping" issue, whereby piles of refuse items accrue at curbside prior to collection, some of which may be contributed by non-residents.

bans are not as far-reaching as those of Coral Gables and Miami Beach. Coral Gables banned polystyrene containers, plastic straws and single-use plastic bags city-wide. Miami Beach banned plastic straws and stirrers from city properties and banned plastic bags and expanded polystyrene city-wide. It has implemented the "Plastic Free MB Business" program to help businesses comply.

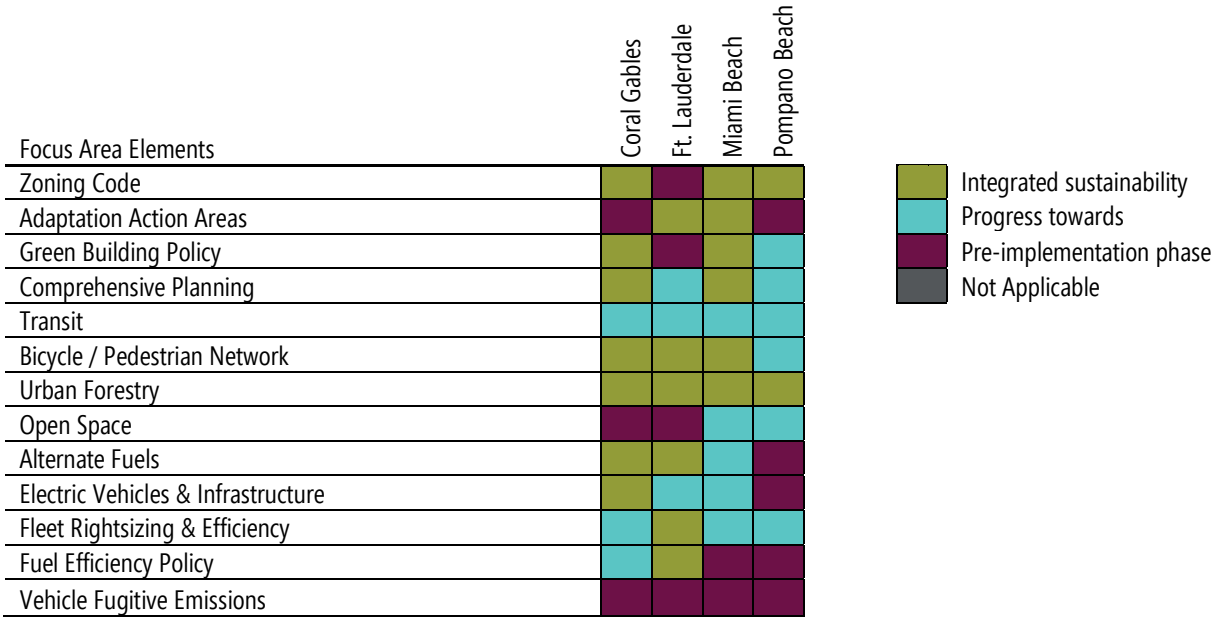
The City has initiated several paper use reduction initiatives on an *ad hoc* basis. However, the City has not yet adopted a comprehensive policy or strategy, including goals and metrics.

Recommendations derived from benchmarking are included in the Strategic Analysis section.

4.7 LAND USE AND TRANSPORTATION

Figure 9 below summarizes benchmarking within the Land Use and Transportation focus area. Land Use criteria relate to the City's policy and regulatory influence over the build environment. While difficult to quantify, initiatives in this area have a significant, long-term influence on sustainability and resilience. Transportation initiatives, particularly those related to the City's fleet, will likely have a significant return on investment.

FIGURE 9: LAND USE AND TRANSPORTATION BENCHMARKING RESULTS



The City's performance in this focus area is slightly behind its peers, with about 60 percent of criteria met or in progress, compared to 70 to 80 percent for peers.

While the City's zoning code includes several outstanding sustainability features, including sustainable development requirements, they may be due for an update to reflect current BMPs. This is reflected in the City's current project to update its Comprehensive Plan. The Comprehensive Plan update will incorporate several sustainability and resilience aspects.

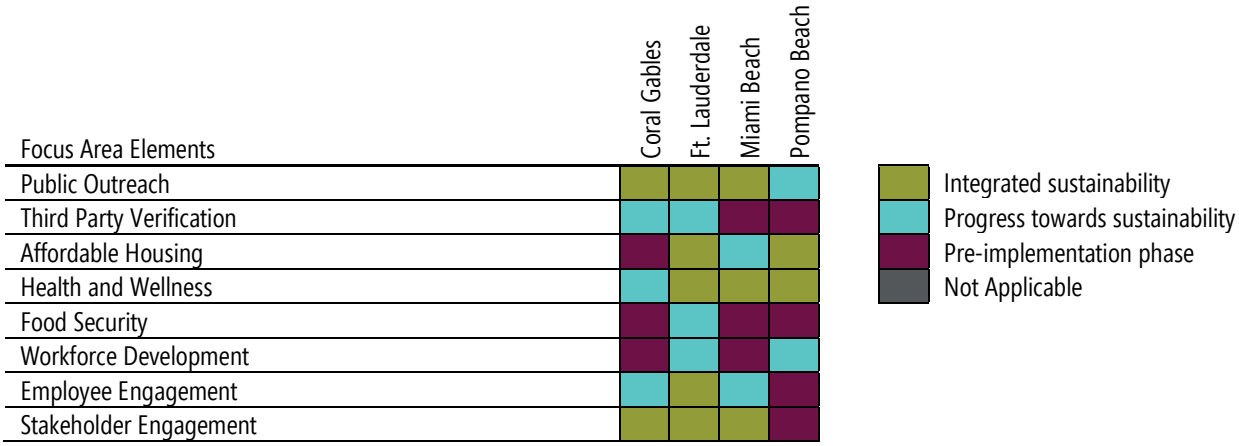
The City's vehicle fleet may present a big opportunity to demonstrate leadership. Coral Gables has been very successful in integrating electric vehicles into its fleet and is now seen as a leader in the state in this area. Opportunities to incorporate other types of alternative fueled vehicles may also exist and may lead to cost savings. Pompano Beach's fleet initiatives to date include substituting a limited number of more efficient vehicles and an informal requirement that workers limit idling in cool months. The City has GPS trackers that could be used to monitor idling. The IT department created the "Where is my inspector" application, which optimizes routing for building inspectors, leading to fuel savings.

Recommendations derived from benchmarking are included in the Strategic Analysis section.

4.8 EQUITY AND OUTREACH

This focus area encompasses social equity, health and wellness, food security, public outreach on sustainability and resilience issues, and stakeholder engagement. While sometimes overlooked, social issues are a vital component of the Triple Bottom Line. Social equity is also of critical importance when considering adaptation planning options, both in identifying climate impacts to vulnerable groups such as low income, minority or elderly populations, and in ensuring that they are not disadvantaged by proposed solutions. Public outreach and stakeholder engagement are important to provide transparency in sustainability planning processes, collect stakeholder input, and build support and consensus.

FIGURE 10: EQUITY AND OUTREACH BENCHMARKING RESULTS



Fort Lauderdale has progressed the furthest in this focus area with 63% of elements integrated into sustainability strategy and 38% having made progress. In contrast, Pompano Beach has 50% pre-implementation, 25% have made some progress, and 25% are integrated into sustainability strategy. Pompano Beach scores well for the attention it has paid to affordable housing. The City has also hosted community health and wellness events, and supported workforce development through its Revolving Loan Fund (RLF) Program. Staff indicated the City has strong health and wellness programs for employees.

Relative to Coral Gables, Fort Lauderdale and Miami Beach, the City does not have sustainability or resilience webpages that highlight its accomplishments. Coral Gables and Fort Lauderdale have made steps towards third party verification of their sustainability progress. Coral Gables completed a preliminary feasibility assessment for the STAR Community Rating System (now incorporated into LEED for Cities), and Fort Lauderdale is Florida Green Government Certified at the Gold Level.

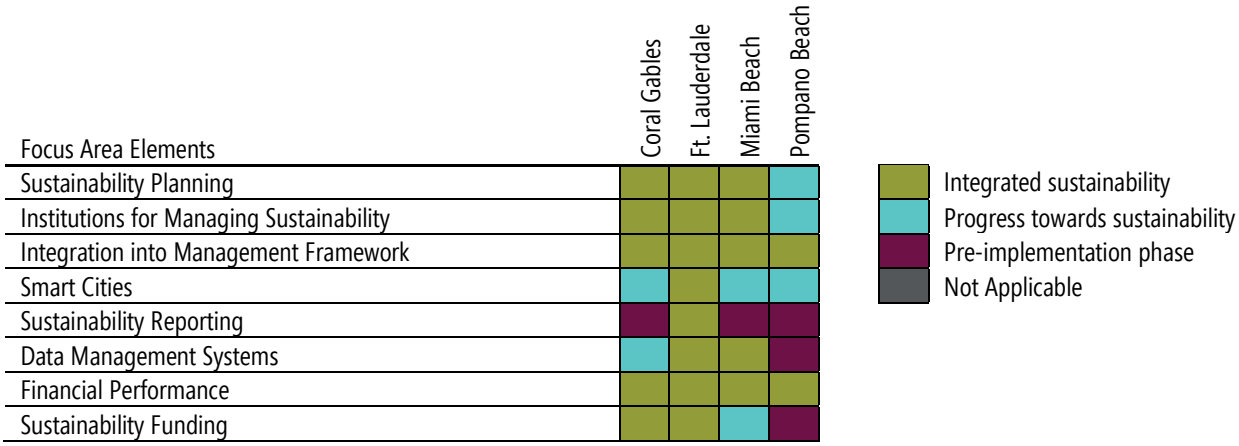
The issue of food insecurity / food deserts was raised as a concern in interviews with commissioners. Pompano Beach has a community garden as well as a weekend farmers market during the winter months which can help alleviate the food desert problem. The City has not yet formally mapped its stakeholders[5] or substantively engaged stakeholders or employees in sustainability or resilience planning.

[5] Stakeholder mapping involves identifying, analyzing and prioritizing residents, community organizations, partners, and other stakeholders who will be affected by or contribute to the success of sustainability and/or resilience planning efforts

4.9 POLICY AND ECONOMICS

Figure 11 below summarizes benchmarking within the Policy and Economics focus area. This focus area includes elements related to planning and managing the sustainability program, as well as financial performance and funding. Effective organizational and management structures, tracking of metrics and key performance indicators, and providing financial resources and returns are critical to the success of the City's sustainability and resilience initiatives.

FIGURE 11: POLICY AND ECONOMICS BENCHMARKING RESULTS



Pompano Beach had 38% of elements in the pre-implementation phase, 38% in progress and 25% fully integrated. Fort Lauderdale had successfully integrated all elements, while Coral Gables and Miami Beach each had 13% pre-implementation, 25% in progress, and 63% integrated. Pompano Beach does not yet have a formal sustainability plan that establishes a vision and goals for the sustainability program, presents a baseline for City operations and the community[6], and includes projects designed to meet Triple Bottom Line objectives. The City recently filled a Sustainability Coordinator position but does not yet have a sustainability department or other dedicated staff, as its peers do. However, some sustainability and resilience elements have been integrated into the City's Vision 2033 goals within the 2018 Strategic Plan. Of the four benchmarked Cities, only Fort Lauderdale has published a sustainability report.

IT department staff indicated Pompano Beach is considering Smart City technologies which offer an opportunity to integrate data into the sustainability program. It does not yet have a comprehensive sustainability data management system.

All four cities have strong financial performance as evidenced by an "AA" or better municipal bond rating. Pompano Beach does not yet have a sustainability revolving fund (SRF) or other dedicated funding source for sustainability initiatives, in contrast to the other cities which have established funding for their sustainability departments.

[6] A community-wide baseline would include metrics like community GHG emissions, energy and water use. While the City does not directly control these factors, it can influence them through policy and regulation.

5. BASELINE

RS&H reviewed documents from the City, Broward County, the Southeast Florida Climate Compact, and other sources to establish a qualitative baseline for the City's sustainability and resilience planning activities to date. This section summarizes relevant information by focus areas (see *Focus Areas* above) to provide a qualitative baseline of the progress that has been made.

In the future, the City should consider supplementing this effort with a quantitative baseline that defines resource use, GHG emissions, and other key indicators of the City's performance. A quantitative baseline facilitates estimation of project costs and benefits. It also facilitates tracking the results of initiatives to demonstrate they meet planned objectives.

5.1 CLIMATE AND RESILIENCE

The Climate and Resilience focus area includes elements that reduce GHG emissions or make the City more resilient to climate change impacts. In general, approaches to dealing with climate change can be divided into two categories, mitigation and adaptation. Mitigation involves addressing the root cause of climate change by reducing anthropogenic GHG emissions or increasing carbon sequestration. Adaptation requires improving resilience by reducing the vulnerability of human and natural systems to the expected impacts of climate change. Because temperatures, sea levels and other climate impacts are expected to continue to increase even if GHG emissions can be rapidly curtailed, both mitigation and adaptation actions are necessary for any successful climate strategy.

5.1.1 Mitigation

A typical framework for managing and reducing GHG emissions involves a series of steps that include: developing a GHG inventory, establishing GHG emissions reduction targets, developing a Climate Action Plan (CAP) or Sustainability Action Plan (SAP) with projects that will reduce emissions, implementing the plan, and monitoring and verifying results. As a circular process leading to continual improvement, monitoring and verification frequently leads back to future GHG inventory updates, further calibration of targets, and so on. Leadership commitment, already present in Pompano Beach as a result of the Climate Mayors' agreement, is a prerequisite for this framework.

5.1.1.1 Leadership Commitment

In 2013, the City Commission affirmed its endorsement of the Mayors' Climate Action Pledge and the City's support for the Southeast Florida Regional Climate Change Compact (SEFLCC) in Resolution 2013-134. The resolution recognized the City's vulnerability to climate change impacts and the need for action and agreed to consider integrating the SEFLCC's Regional Climate Action Plan (RCAP) into the City's future Comprehensive Plans, Climate Action Plans, and Sustainability Plans as appropriate. SEFLCC's 2016 Regional Climate Action Plan (RCAP) Municipal Implementation Survey Report details the City's progress in implementing the RCAP. In 2016, Mayor Lamar Fisher joined the U.S. Conference of Mayor's Climate Change Committee. The Mayor continues to be active on the committee.

5.1.1.2 GHG Inventory

The City has not yet developed a GHG inventory. An inventory provides accurate accounting of the heat-trapping gases that contribute to climate change and its effects, including sea level rise. It also establishes a baseline against which emissions reduction progress can be measured. As a universal metric for measuring performance, the inventory can systematically uncover high-value opportunities to better manage resources. By completing a GHG inventory, the City will gain more control over its emissions-producing activities and be better able to manage them, identify opportunities for energy conservation and cost savings, and demonstrate its commitment to addressing the root causes of climate change. Completing a GHG Inventory is an essential first step to be able to demonstrate emissions reductions.

5.1.1.3 Climate Action Plan

The City has not yet developed a CAP or SAP that includes a suite of projects strategically selected to reduce GHG emissions. The City has implemented some projects during recent years which have emissions reduction benefits, including adopting energy efficient technologies and practices. The City has also made some policy changes which have emissions reduction benefits, such as requiring LEED standards for new facilities and retrofits. Additionally, the City has conducted some public outreach on climate, such as proclaiming October 24, 2009 "International Climate Action Day" and hosting the Broward Solar Co-op outreach meeting on May 21, 2019.

However, in the absence of a CAP or SAP these initiatives and policies are being implemented on an *ad hoc* basis without a strategic analysis of environmental, social, and financial benefits, cost-benefit analysis, including tracking emissions, energy and resource savings.[7] This approach makes it difficult to measure emissions mitigation and energy / resource savings City-wide and limits the City's ability to publicize its accomplishments.

5.1.1.4 Carbon Mitigation / Sequestration Initiatives

The City has been an All-American Tree City for 25 years. In addition to aesthetic, stormwater, air quality and cooling benefits, trees sequester carbon from the atmosphere as they grow. However, the City has not yet quantified the carbon sequestration benefits of its street tree program.

In 2012, the City adopted Zoning Code Article 5, Part 8: Sustainable Development Standards (SDS). The regulations were designed to promote sustainable development practices to protect natural resources and address climate change. SDS promoting and resource and energy efficiency have carbon mitigation benefits community-wide. The SDS incentivizes renewable energy production, electric vehicle support equipment (EVSE), energy efficiency and other measures which reduce GHG emissions in the community.

Internal energy efficiency initiatives such as those implemented under the City's performance-based contract with Siemens also reduce GHG emissions, although these benefits have not been tracked or quantified. These initiatives are discussed in more detail in the Resource Conservation section.

[7] For example, Siemens reports annually on the results of the performance contract its holds for the City. However, the results of other resource efficiency efforts at the City are not tracked and quantified in a comparable manner.

5.1.2 Adaptation

Although the City has taken many steps to improve resilience, it has not yet completed a formal adaptation planning process. Adaptation planning begins with understanding the risks posed by climate change, the City's specific vulnerabilities to those risks, and its capacity to adapt and become more resilient. In order to thrive in the future, the City must understand its vulnerabilities at a deep level and carefully choose options to adapt to changing conditions. The first step is to develop a Vulnerability Assessment, followed by an Adaptation Plan.

The City has not yet completed a comprehensive Vulnerability Assessment, although Broward County prepared a brief, high-level "Vulnerability to Sea Level Rise Assessment Report" for the City, and the City's Stormwater Master Plan includes some adaptation elements. A Vulnerability Assessment would identify risks to City buildings, infrastructure, habitats and connections to vital services and resources (e.g., transportation networks, schools, hospitals, landfills, utilities, and groundwater). This would allow risks to be analyzed and prioritized based on likelihood, cost, spatial extent, and time horizon. To date, the City has focused most of its adaptation efforts on SLR. Other probable climate impacts, such as extreme precipitation events, drought, heat, and economic impacts, have received much less attention.

Once vulnerabilities are understood, an adaptation plan can be developed. This involves identifying potential adaptation and mitigation measures and prioritizing them via criteria, including feasibility and cost, as well as social equity and environmental factors. The resulting adaptation plan would ensure the City is addressing the correct risk and vulnerabilities in the most strategic, cost effective and socially responsible way.

5.1.2.1 Sea Level Rise

In 2016, the City passed Resolution 2016-134, adopting the SEFLCC's "Unified Regional Sea Level Rise Projection for Southeast Florida" (URSLRP). The URSLRP projects sea level rise (SLR) of six to ten inches by 2030 and 14 to 26 inches by 2060, above a 1992 baseline, and includes SLR projections for 2100, as well as a third, higher curve for long-term, risk-intolerant investments. In adopting the URSLRP, the City committed to use it for planning, infrastructure design and other decision-making. SLR can contribute to high-tide or nuisance flooding, salt-water intrusion and water table impacts that can affect septic tanks, wells, underground electric lines and other infrastructure.

Broward County prepared a 2013 "Vulnerability to Sea Level Rise Assessment Report" which analyzed Pompano Beach's vulnerability to SLR with a limited level of detail. The report looked the vulnerability of municipal infrastructure to SLR based on sunny day conditions, i.e. the combined effect of SLR and storm events was not considered. The report found that under three acres of the City was vulnerable to one foot of SLR, but that more than 58 acres were vulnerable to two feet, a level within the range predicted by 2060. It found that eight City parks, a section of the East District Community Redevelopment Area (CRA) and one of the City's fire stations were vulnerable to SLR.[8]

[8] These facilities are located on the barrier island, where the City is obligated to provide such services. Generally, parks can be acceptable uses in areas vulnerable to flooding, since they may feature the capacity to retain and filter excess water as it percolates through soils.

The City's Stormwater Master Plan includes a section devoted to analysis of sea level rise, including the effect of rainfall on sea level rise projections of one, two and three years. The analysis concluded that most of the City is vulnerable to flooding from significant rainfall events with higher sea levels and identified alternatives for improving the City's stormwater system to address these findings, such as stormwater pumps and backflow prevention devices.

The City has taken steps to monitor the progress of SLR. In 2016, the City installed a sea level gauge on the intracoastal at a location known for historical flooding. A second gauge was installed in 2018. The gauges provide continuous monitoring of sea levels at their locations.

The City's 2018 Strategic Plan includes preparing and planning for SLR as an objective under Goal 4, "Superior Capacity for Growth through Quality Sustainable Development". The plan requires analysis of SLR in the City and implementation of response to SLR in the City's Comprehensive Plan. Some of the projects detailed in the Strategic Plan may have benefits in adapting to SLR; for instance, the installation of stormwater check valves that prevent backflow due to high water conditions. However, the plan does not include detailed discussion of the SLR threat or strategic analysis of potential responses.

City staff are aware of the threat posed by SLR and are seeking regional collaboration to develop solutions. Development Services staff participated in the Sea Level Rise Solutions Conference held by the Greater Miami Chamber of Commerce in 2017. The City's utility, public works and engineering divisions are actively planning for SLR and have begun implementing a variety of improvements to stormwater and wastewater systems to prevent groundwater flooding and stormwater overloads. However, this has not yet been addressed as part of a City-wide strategic planning effort.

5.1.2.2 Seawalls

Seawalls are engineered structures that can provide protection against coastal flooding and erosion. Their advantages include an ability to protect against flooding up to their design height, a long-life span, and the ability to be upgraded and increased in height over time. Disadvantages include high construction and maintenance costs, and potential for failure due to scouring as a result of wave action. Seawalls can be subject to overtopping if water levels exceed their design height. They can also disrupt natural processes such as habitat migration and may encourage development in unsafe areas.

The City requires that all property owners abutting a waterway construct a seawall, except for properties on the beach. The City's code was amended in 2012 to establish a minimum seawall height. Pompano Beach staff are evaluating the current heights of sea walls in the City and will present an ordinance to raise the minimum required height of sea walls once this study is complete. Higher seawalls will help protect adjacent properties in the City from rising sea levels.

5.1.2.3 Flood Risk Management

The City's land development regulations reduce flood risk by mandating the top surface of the lowest floor of all new buildings at or above the base flood level or eighteen inches above the crown of the adjacent road (residential) or six inches above the crown of the adjacent road (non-residential).

(§152.24.C.1).[9] The city requires drainage facilities for all new development, limits paving of swales in the right-of-way and encourages homeowners to maximize green space.

The City makes public outreach information related to various kinds of flood risk available on its website. This includes maintaining digital flood zone maps in an online GIS system accessible to the public. The City also mails an 11-page, highly detailed "Flood Hazard" brochure to all property owners near the start of each hurricane season. The Tradewinds magazine, sent to residents twice a year, also contains articles on flooding and flood protection.

The City further reduces flood risk through participation in the Community Rating System (CRS). Administered by the National Flood Insurance Program (NFIP), CRS is a program for participating communities which seeks to reduce flood damages to insurable property. The program provides insurance premium discounts to communities which demonstrate they have taken certain actions to reduce flood risk. Pompano Beach has been enrolled in the CRS program since October 1993. The City's current CRS classification is 7, resulting in a 15% discount for Special Flood Hazard Area (SFHA) properties and a 5% discount for non-SFHA properties.[10]

In 2017, the City entered into a Service Agreement with CRS Max Consultants with the goals of assessing flood mitigation practices, reducing rain-related flood risk and possibly obtaining a lower classification and increase flood insurance discounts. The City subsequently adopted some regulatory changes the consultant firm identified to obtain additional CRS points. The City also created a Program for Public Information (PPI) Committee to identify additional outreach opportunities to improve its CRS rating.

5.1.2.4 Stormwater Management

The City's 2013 Stormwater Master Plan (SWMP) includes inundation maps that show the impact of SLR and storm events and identifies vulnerable stormwater facilities. The City plans to fund SWMP projects with stormwater utility fees and state revolving fund money over the next decade. The City's Drinking Water Masterplan and Reuse Water Masterplan, currently in progress, will also include SLR considerations.

5.1.2.5 Hazard Mitigation Planning

In coordination with the City of Pompano Beach and the National Weather Service, Broward County issues hurricane and tropical storm watches and warnings as well as storm surge watches and warnings (new in 2017). The City operates an Emergency Operations Center and coordinates with Broward County, utilizing the CodeRed system for emergency notification messages. The City also maintains a Vulnerable Population registry. Broward County's Enhanced Local Mitigation Strategy (ELMS) is the primary hazard mitigation planning document used by the City.

5.1.2.6 Natural and Human Hazard Data

The City has taken some steps to reduce the number of homes below code standards located in high risk areas. The Comprehensive Plan and Floodplain Regulations require substantially damaged structures to meet all current construction and flood plain regulations when rebuilt. However, there is no evidence the

[9] Pompano Beach Code of Ordinances §152.24.C.1, accessed 10/13/19 at 3:25 PM.

[10] CRS 12, April 2018, Table 3: Community Rating System Eligible Communities Effective May 1, 2018

City has not made efforts to reduce the number of residents living in high risk areas by relocation or buyout programs.

5.1.2.7 Hazard Area Zoning

Floodplain development regulations provide standards for development seaward of the coastal construction control line. The City does not allow flexible zoning on the barrier island. They are available everywhere else in the City.

5.1.2.8 Post Disaster / Business Continuity Plans

The City has adopted Broward County's post-disaster redevelopment plan via the City's Comprehensive Plan. RS&H did not find evidence that the City has a post-disaster business continuity plan designed to minimize impact to the business community.

5.1.2.9 Saltwater Intrusion

Rising sea levels can cause saline water to penetrate freshwater aquifers in coastal areas, resulting in contamination of drinking water supplies. This process, known as saltwater intrusion, has already been observed in Broward County. Pompano Beach has begun to address this threat. Since 2006, the City's utility, public works and engineering divisions have been planning changes to the infrastructure system to address SLR. Those initiatives and actions include using reuse water to abate saltwater intrusion impacts, as well as operating a second wellfield located further inland. In addition, the City's strategic plan requires implementation of saltwater intrusion abatement projects.

5.3 RESOURCE CONSERVATION

Resource conservation includes energy and water use associated with facilities and infrastructure, including industrial, commercial and residential buildings as well as City buildings and utilities. Along with transportation, resource conservation is typically the leading source of greenhouse gas emissions in City operations and in the Community. For this reason and because resource conservation projects result in cost avoidance and exhibit the highest demonstratable return on investment of all sustainability and resilience projects, it is common for Cities to make this focus area the cornerstone of their program.

5.3.1 Green Building

The City's Strategic Plan, Goal 4 includes an objective to encourage new buildings meet LEED or other sustainability building standards. Chapter 152.51 of the City's Code of Ordinances establishes a Green Building Program. The intent of the program is to "promote sustainable and environmentally-friendly practices [in] design and construction for City facilities and the community." The program is explicitly voluntary for the community. The program includes incentives, including expedited permitting, reduction of City fees and rebates. Interviews with staff indicated that the program is not widely used by developers. Further, the Building Department stated that it is not empowered to charge associated fees, therefore the program must be subsidized by the general fund.

The intent of the Green Building Program overlaps substantially with the City's Sustainable Development Standards (Chapter 155.58). These standards establish a requirement for incorporating aspects of sustainable design into private development, excepting small-scale residential projects. The standards establish a point system. Projects must incorporate sustainable design options (including LEED certification) to earn a minimum number of points. While meeting the minimum point value is required, selection of options is voluntary. Based on this program, developments that exceed the minimum point requirement may receive density (155.3708.F.I), height bonuses (155.3708.EI) or a reduction in parking or landscaping requirements. Interviews with staff indicated that the program may not be producing outcomes in line with the City's emerging vision for sustainability and resilience.

According to USGBC's database of public projects, there are 25 LEED certified buildings in Pompano Beach, including five City facilities. The Captiva Cove development, an affordable multi-family complex, has 11 certified units.

5.3.2 City Facilities and Infrastructure

The City's Strategic Plan, Goal 4 includes an objective to increase the energy efficiency and sustainable design of all City facilities.

5.3.2.1 New Construction

The City's Green Building Program applies to City-owned civic or office construction, not including expansions, remodeling or existing facilities. It does not apply to City infrastructure. Further, the program does not clearly require third-party certification or certification to a specific level. Specific performance requirements are not specified. Nevertheless, most new City facilities are LEED certified at some level. These include the Cultural Center (Gold), Library (Gold), Utility Services Complex (Certified) and Fire Stations 11 (Silver) and 103 (Gold). Other City facilities are in the process of certification. The LEED rating

system is actively used by City departments including GO Bond and Engineering for design and construction of new City facilities consistent with the Green Building Program. However, there are no specific policies and procedures guiding incorporation of high performance and sustainable design in new buildings, existing buildings or City infrastructure.

5.3.2.2 Existing Facilities and Infrastructure

The City has entered an energy savings performance contract (ESPC) with Siemens. Typically, an ESPC facilitates investment in projects that conserve facility and infrastructure resources at no upfront cost. The ESPC contractor provides capital. Interest and principal payments to the contractor are covered by guaranteed resource cost savings. In the City's case, the contract was funded by the City using American Recovery and Reinvestment Act funds. It included several energy and water efficiency projects, including lighting retrofits, HVAC upgrades, chiller plant development and building automation systems (BAS) as well as modernization of the City utility's metering system. According to Siemens, the ESPC produces about $1.1 million in annual energy / utility savings. Approximately 70% of the savings stipulated by Siemens are attributable to increased water utility billing revenues enabled by meter modernization. Most benefits are not associated with decreases in consumption of energy or water. The useful life of several of the projects included in the ESPC is nearing an end (e.g. lighting retrofits), providing opportunities for new energy and water efficiency projects. Staff expressed interest in utilizing energy audits and existing building commissioning to identify new energy and water efficiency projects. The City continues to work with Siemens on BAS system implementation at four of its recreation centers.

The City manages facility O&M through a software solution (Facility Dude). Dude Solutions offers Dude Solutions Energy Manager, which manages all utility accounts in a single dashboard that is capable of auditing bills and identify opportunities for utility savings projects. Similar solutions are available from a variety of software providers. Interviews with staff indicated an interest in a utility management solution for the City.

City streetlights are in the process of being retrofitted with LED luminaries. This is occurring at no upfront cost to the City. The City is in the process of transferring all City-owned streetlights to FPL ownership. Currently the City owns about 1,000 poles and lights, while FPL owns 5,000. The City has identified several areas where streetlighting should be improved. However, a performance specification that would result in use of the most efficient technology has not been developed.

5.3.3 Electronics and Equipment

The City's Information Technologies department serves over 750 staff with computers and other productivity technology. Presently, the department does not utilize third-party standards for energy efficiency and sustainability in electronics (e.g. ENERGY STAR, EPEAT, etc.). It has invested in virtualizing servers, paperless software solutions and security technology that requires computers / monitors to hibernate after 15 minutes. It has also reduced the inventory of equipment and time required for service. While the department has completed several initiatives that save energy and promote sustainability, it has not quantified their effects.

5.3.4 Renewable Energy

Code of ordinances 155.5803 includes renewable energy as an option for compliance with the City's Sustainable Development Standards for multifamily and nonresidential / mixed use development, including specific options for solar photovoltaics (PV) and wind energy. The City does not have data on the degree to which this program has increased renewable energy use in the Community.

The City's expedites permit applications for solar power systems. Pompano Beach is a designated SolSmart Gold community due to the City's three-day quick service program, for solar installation permits.

The City has completed several small-scale, pilot renewable energy projects, such as solar powered lights at municipal parking lots near the beach. It evaluated solar thermal water heaters in fire stations but found that it was not a cost-effective solution for stations that heat water with natural gas. It has been approached by FPL to locate small-scale photovoltaic demonstration projects in the City but has not moved forward under the terms offered by the utility. It has not completed any facility-scale renewable energy systems. Several staff members expressed interest in exploring options for large rooftop or ground mounted PV systems.

5.3.5 Water Use

The City operates a water utility. The utility has a long tradition of educating customers on ways to reduce water consumption and providing incentives for action. The City connects customers to its water reuse system at low cost, gives away low flow aerators, shower heads and spray valves. Customers are billed via an increasing block rate design, which incentivizes water conservation. The City's ESPC included water conservation measures, such as installation of low flow aerators on faucets. Siemens estimates annual savings of $30,000.

5.3.6 Irrigation / Reclaimed Water

In addition to water conservation initiatives, the City is a regional leader in provision of reclaimed water to customers. The reclaimed water utility avoids 2.6 – 3 million gallons per day of potable water use. Reuse is voluntary in the areas where it is offered, but about 75% of eligible users participate. The City has also instituted year-round irrigation restrictions, but they are only enforced during drought conditions. Staff expressed interest in enforcing it at all times.

The City's efforts to reduce irrigation water use at its facilities could not be identified. Automated controls, low-flow devices, xeriscaping and non-potable water supply (e.g. reuse water, non-potable wells) have been used by peer cities to reduce municipal irrigation.

5.3.7 Stormwater and Wastewater

The wastewater utility has a minimum performance standard for 100% compliance with sanitary sewer overflows. Per staff, the system typically meets this standard.

Like most utilities, the City experiences inflow and infiltration (I&I). The City has been lining it sewer pipes to limit I&I, which saves energy and investment in treatment. Staff expressed interest in expanding efforts to line sewer pipes.

5.4 MATERIALS MANAGEMENT

Materials management encompasses initiatives that reduce waste at the source, divert materials from the waste stream, or ensure hazardous materials are handled appropriately. The U.S. Environmental Protection Agency (EPA) recommends managing non-hazardous solid waste according to a waste management hierarchy. The hierarchy prioritizes source reduction and beneficial reuse, followed by recycling / composting, energy recovery and finally disposal. Reducing waste through these strategies can have significant environmental, GHG emissions reduction, and financial benefits.

5.4.1 Waste Generation and Pickup services

The City's website indicates Waste Management (WM) provides waste pickup and disposal services to residents and businesses. WM's contract includes residential solid waste, residential recycling, commercial solid waste, and construction waste. Residential curbside collection occurs twice weekly. RS&H did not obtain waste generation or recycling totals for the City. However, the City's 2015 Hauling Agreement with WM indicates the company has a responsibility to report this information to the City on a monthly basis. Using this data to develop a quantitative baseline for the City's waste generation and diversion can be an important step to improving sustainability performance.

RS&H did not obtain waste generation totals for City-owned facilities. The first step to improving waste diversion at City facilities is typically to conduct a Waste Audit, also known as a waste characterization study. Such a study can determine what potentially recyclable commodities are present in the waste stream and provide data needed for cost/benefit analysis of waste diversion opportunities. Staff interviews indicate that waste and recyclables collected in City facilities are comingled and disposed as waste.

The City's policy and planning documents do not include any goals that relate to materials management, source reduction or waste diversion. However, the City has implemented some sustainability improvements into the solid waste and recycling program. The City implemented automated pick up of carts in 2016 for residential solid waste and residential recycling, including multifamily. It also supplies waste and recycling carts to residents. The vehicles WM uses for pickup must be CNG fueled under the City's contract, reducing particulate emissions and oil dependence.

5.4.2 Sustainable Procurement

Sustainable Procurement involves creating procurement policies designed to reduce waste and excessive packaging, prioritize environmentally friendly products, and substitute toxic, universal or hazardous materials with less harmful alternatives. In some cases, cost savings can also be achieved. A search of the City's website did not turn up evidence of any Sustainable Procurement policies.

Many Florida municipalities have reduced paper waste by transitioning to paperless practices. The City has an electronic bidding system which reduced the need for paper in the bidding process. The City is not currently tracking the environmental or cost-savings benefits of this initiative.

5.4.3 Material Bans

Several Florida cities have taken action to protect the environment by enacting product bans on expanded polystyrene foam containers and/or single use plastics such as straws and plastic bags. For instance, the

City of Coral Gables has ordinances banning the use of polystyrene and plastic carry-out bags. RS&H found references to a Pompano Beach policy requiring city vendors and food providers at city events to avoid putting takeout food in plastic foam clamshells, and the City has a ban on plastic straws. Despite state-level legal challenges to such bans, they can be an effective way to reduce litter, improve aesthetics, and benefit water quality and wildlife.

5.4.4 Recycling

Participation in a recycling program is optional for residents and business owners, although encouraged by the City. The City provides single stream recycling for material including cardboard, magazines, office paper, paper bags, newspapers, paperboard, plastic containers, glass, aluminum cans, and tin or steel cans. Recycling is picked up weekly for residential customers. The City's current recycling diversion rate is approximately 19.5%. The City's Solid Waste Director noted that the diversion rate includes contaminated material that may not actually be recyclable. He also noted that the single stream approach may be a barrier to effective recycling because of contamination. The City's policy framework does not include any goals related to materials management, source reduction or waste diversion.

5.4.5 Composting

The City does not currently provide composting services to residents or businesses. Composting programs can be very useful for improving diversion rates by removing food and green waste from the waste stream, however the lack of a suitable private partner to manage the composting program limits the ability of many south and central Florida municipalities to offer composting services. The City's Solid Waste Director mentioned that at home composting program for food waste could be a possibility in the future. As the City becomes more urban, it will have more multi-family units that may lack available space for composting. During the most recent RFP process, the City evaluated the potential to separate yard or green waste from the waste stream, however this option was deferred due to a lack of a location to store the material and the need for a third type of vehicle to transport it.

5.4.6 Disposal

The City's waste is disposed of at the WM's landfill at Sample and Powerline. The facility captures methane and utilizes it to generate energy offsite. There is a waste-to-energy incineration plant at the facility which has been decommissioned and abandoned in place. The City generates around 100,000 tons of solid waste per year. Current tipping fees are about $81 per ton, or $55 per ton for municipal solid waste (MSW) disposal. These prices are within a normal range for the region.[11]

5.4.7 Universal and Hazardous Wastes

The City partners with other Broward County municipalities to offer monthly collection and disposal of household hazardous waste and electronic scrap recycling at no cost to residents. A list of materials accepted is available on the City's website. Details of the City's programs to manage universal and hazardous waste generated at municipal facilities are unknown.

[11] Information sourced from interview with Russ Ketchum, the City's Solid Waste Director.

5.5 LAND USE & TRANSPORTATION

5.5.1 Zoning and Land Development Regulations

Pompano Beach's zoning code includes several aspects related to sustainability and resilience. Chapter 152.51 a Green Building Program and Chapter 155.5803 establishes Sustainable Development Standards (See Green Building). The Zoning Code (Article 3) includes several districts designed to promote transit-oriented development and foster compact, walkable and mixed land use. This kind of development reduces dependence on single occupancy motor vehicles, saving fuel and reducing GHG emissions. The Code includes several Overlay Districts (e.g. Atlantic Overlay District), Downtown TOC, East TOC) aimed in part at accomplishing these goals, or other sustainability goals such as affordable housing and economic development (e.g. Community Redevelopment Area). It also includes requirements for landscaping and tree preservation, including irrigation efficiency requirements. Parking regulations (155.5102) include options for electric vehicle charging, but do not directly incentivize electric vehicle or supporting infrastructure. Floodplain development regulations (155.5502) provide standards for development in seaward of the coastal construction control line.

5.5.2 Comprehensive Planning

City is currently updating its Comprehensive Plan. A primary objective of the update is to incorporate sustainability and resilience elements throughout the document. The current plan includes discussion related to climate change and greenhouse gas management (Conservation Element), however, it is outdated and does not include Goals, Objectives or Policies. The coastal zone element includes SLR policies that were adopted in 2018.

5.5.3 Adaptation Action Areas

The City has not yet formally adopted Adaptation Action Areas (AAAs). It is considering developing AAAs as it revises its Comprehensive Plan and awaits release of Flood Insurance Rate Maps (FIRMs) that include a line designating the so-called Limit of Moderate Wave Action (LiMWA). Areas seaward of this line within Flood Zone VE will be designated the Coastal A Zone, which identifies areas that will be affected by waves with 1.5-foot wave height or greater. These are optional comprehensive plan designation for areas that experience coastal flooding and that are vulnerable to SLR. Designating AAA's allow prioritization of funding for adaptation planning and infrastructure improvements. Fort Lauderdale has designated AAA's, and Miami Beach has designated its entire city as an AAA.

5.5.4 Innovation District

Innovation districts are designed to fuel economic development and job growth through partnerships with the business community, higher education and government. Pompano Beach's Innovation District provides an opportunity for the City to build a new mixed-use downtown with an innovative system of canals that eliminate the need for traditional dry retention ponds and lakes. The innovation district is planned to be a dense, pedestrian-oriented downtown development that will include office space, retail, restaurants, residential units and two hotels. The area is located near the Broward County Transit Station and the future Florida East Coast (FEC) railway station, providing public transit access to the City.

5.5.5 Urban Forestry

The City maintains an Urban Forestry Division within the Development Services department. The division manages tree permitting and enforcement (Section 155.2411 and 155.5204) and provides education and awareness services to the community. The City has been certified as a Tree City USA for decades as a result of staffing the Division, its tree protection ordinances, allocating at least $2 per capita (more than $200,000 per year based on 2018 population) and official observance of Arbor Day. The City is also a Certified Wildlife Federation Community Wildlife Habitat.

5.5.6 Open Space

The City's comprehensive plan (Recreation Element) establishes a level of service (LOS) standard for open space and parks of five acres per 1,000 residents. The County has established a standard for of 3 acres of recreation land use per 1,000 residents, which the City exceeds according to the current Parks and Recreation Master Plan. The City's LOS performance is like or better than the Cities benchmarked as part of this project (See Benchmarking).

5.5.7 Transit

The City partners with Broward County to provide four community bus routes that supplement routes provided by Broward County Transit. The Pompano Beach Tri-Rail station is located on the northern border of the City near Sample Road and Andrews Avenue. Dockless mobility services are not currently permitted in the City.[12] The City's Complete Streets Design Manual references its intention to complete a Multimodal Transportation Plan. However, staff indicates that this manual is not currently guiding design decisions.

Interviews with staff and commissioners revealed strong interest in the City's role in developing transit options (e.g. developing a Tri-Rail station at the Isle Casino and a commuter rail station along the FEC corridor, coordinating with the County on the WAVE project, expanding or replicating Fort Lauderdale's Sun Trolley system, attracting Freebee's service to the City, attracting Water Taxi service, enabling car-sharing, dockless mobility, etc.).

The City recently received an $800,000 grant from FDOT related to developing "micro-transit" systems focused initially on linking the City's Regional Activity Center to the beach.

5.5.8 Bicycle and Pedestrian Network

The Parks and Recreation Master Plan includes a bikeway element that would connect all city parks. The Interviews with the City staff indicated an interest in developing a Bicycle and Pedestrian Plan. The City has not developed a comprehensive bicycle and pedestrian plan that outlines the current network of bicycle and pedestrian paths, identifies needs and establishes a capital improvement plan for building out the network. The City is developing a $16.9 complete streets project along State Road A1A.

[12] Dockless mobility services include bike- or scooter-sharing services that do not require storage infrastructure. Bikes and scooters are accessed and stored virtually anywhere.

5.5.9 City Fleet Management

The City's waste hauling contract with Waste Management requires use of compressed natural gas refuse trucks. The trucks are owned and operated by Waste Management. They are fueled at Waste Management's fleet yard near Powerline and Sample Road; however, the city presently has no policies related to alternative fuels use in City-operated vehicles. The City fleet does not utilize alternative fuels.

The City has evaluated use of CNG in the past but has determined that the infrastructure costs for fueling and maintenance facility upgrades are too high. The planned renovation of the fleet maintenance facilities may present an opportunity, since the current facility is not equipped or permitted to maintain vehicles that operate on gaseous fuels (e.g. CNG). The City has developed limited electric vehicles support infrastructure (EVSE) for public use, including five Level 2 stations in City parking facilities.

Staff expressed interest in using fleet right-sizing principles to limit the number of vehicles in the fleet and require use of the most fuel-efficient models. There are currently no polices establishing standards for fleet performance (e.g. fuel economy, vehicles miles travelled, idling, greenhouse gas management, etc.) The City's current agreement with Enterprise Leasing may limit options for using alternative fuel and/or fuel-efficient vehicles as well as their potential benefits.

5.7 EQUITY AND OUTREACH

Increasing sustainability and resilience in a community requires addressing community needs in an equitable way. This is because the most vulnerable members of society, such as low-income residents, minority populations, the elderly, and those with special needs are often those most exposed to climate change impacts. In addition, these populations are frequently overlooked when economic, planning and infrastructure decisions are made. For this reason, the issue of equity has been elevated by the SEFLCC and other groups working on adaptation issues. Successful sustainability and adaptation planning seek to include vulnerable stakeholder groups through inclusive outreach programs that solicit their input and hear their concerns.

5.7.1 Third Party Verification

Many cities have sought third-party verification or certification for their sustainability programs. Achieving a third-party verified certification can result in positive publicity and recognition, as well as providing transparency. In addition, there are additional benefits such as gaining greater control over sustainability data management and sourcing BMPs from the certification scheme. Some options for third party verification/certification for municipalities include: the STAR Community Rating System, LEED for Cities, the Florida Green Local Government Designation Standard of the Florida Green Building Coalition, and the Global Reporting Initiative (GRI). Pompano Beach has not yet evaluated the benefits of third-party verification but may wish to do so once its sustainability program matures.

5.7.2 Affordable Housing

Affordable housing is a significant issue in Pompano Beach. The 2018 Broward County Affordable Housing Needs Assessment by the Metropolitan Center at Florida International University found that Broward County is one of the most unaffordable places to live in the United States. Fifty-four percent of households are considered cost-burdened, meaning they spend more than 30 percent of their income on housing costs. In 2018, the median sales price of a single-family home in Pompano Beach was $256,000, well out of reach for many lower-income families, but lower than the median price county-wide ($365,000).

The City's FY2015-2020 Consolidated Plan includes a Housing Needs Assessment and market analysis and identifies housing rehabilitation as a priority need for the City. The City recently commissioned a study of the affordable housing issue which was completed in May 2017.

The City has used Community Development Block Grant (CDBG) funding to address the affordable housing issue in addition to state funding sources. The City's CDBG-funded Housing Rehabilitation program is designed to assist the housing needs of very low, low and moderate income households while preventing the spread of blight, preserving the city's existing housing stock, strengthening its tax base, abating Code Violations, and reducing lead based paint hazards.[13] The program provides deferred loan assistance to qualified very low to moderate income homeowners to address code violations or unsafe conditions. Other CDBG-funded programs addressing housing include the Emergency Repair Program,

[13] CDBG Works Report on City Progress, June 2017 accessed July 24,2019 at http://www.usmayors.org/wp-content/uploads/2017/06/17.34.USCM_.CDBG_.Works_.D5.3.pdf

Florida Hardest Hit programs, and Principal Reduction program. The HOME Investment Partnerships Program (HOME) and the State Housing Initiatives Partnership (SHIP) program are additional sources of City funds. The City also collects "in lieu of" fees that capitalize its Affordable Housing Trust.

5.7.3 Health and Wellness

The City hosts public events focused on health and wellness, for instance a free Health and Financial Wellness Fair is held every year. The Fair was last held in July 2019. The annual event features local medical providers conducting free health screenings along with financial seminars and insurance information for residents. The City has an extensive health and wellness program for employees. The program benefits the City through reduced absenteeism and increased productivity. Benefits to employees include discounts on gym memberships, weight watchers, smoking cessation and other wellness programs.

5.7.4 Food Security

Food security and food deserts are issues which can affect low income residents who may lack transportation and find it difficult to access grocery stores that sell healthy, nutritious food. Broward County land use policy 3.2.5 indicates that "local governments should consider the identification and elimination of 'food deserts' when making land use policy and decisions." The United States Department of Agriculture's (USDA) Food Access Research Atlas shows there are low-income census tracts in Pompano Beach where a significant number of residents are located more than one mile from the nearest supermarket. In addition, the food desert issue was mentioned as a concern in the interviews with City commissioners for District 4. A search of the City's website did not reveal any current or past City programs focused on alleviating food deserts or food insecurity, indicating this may be an area for future attention.

5.7.5 Workforce Development

The City of Pompano Beach administers federal Community Development Block Grant ("CDBG") funds for eligible economic development projects. The Revolving Loan Fund (RLF) Program provides loan funds to eligible businesses with the ultimate objective of creating jobs for low/moderate income people.

5.7.6 Public Safety

Public safety and the opioid epidemic were mentioned as concerns for the City in staff and commissioner interviews. The City of Pompano Beach contracts with the Broward Sheriff's Office (BSO) to provide police services. The city violent crime rate for Pompano Beach in 2016 was higher than the national violent crime rate average by 114.39% and the city property crime rate in Pompano Beach was higher than the national property crime rate average by 94.2%. Historical data shows an overall increasing trend in crime, with violent crime decreasing and property crime increasing.[14]

Opioid overdoses caused 5,725 deaths in Florida in 2016, more than fifteen per day statewide. The opioid crisis has significantly impacted Pompano Beach, both in its human toll and in costs imposed on the City. The City has considered joining litigation to attempt to recover some of these costs.

[14] City Rating Pompano Beach Crime Rate Report, accessed July 24, 2019 at https://www.cityrating.com/crime-statistics/florida/pompano-beach.html

5.7.7 Employee Engagement

The full extent to which the City has worked to engage its employees in sustainability and adaptation issues is not known. Memorandum No. 18-213 details several instances of staff engagement on these issues including participating in the Sea Level Rise Solutions Conference held by the Greater Miami Chamber of Commerce (2017), participating in the Broward County Mitigation team (2018) and attending climate change meetings & webinars. RS&H did not find evidence that the City provides sustainability or adaptation training for its employees, either in the on-boarding process or on an ongoing basis.

5.7.8 Stakeholder Engagement

Stakeholder engagement is an important component of sustainability and adaptation planning. Understanding the influence of stakeholders and how the sustainability/adaptation program will affect their interests allows communications to be tailored to meet their needs, helping to avoid roadblocks and misunderstandings. The four phases of stakeholder mapping include: identifying relevant organizations and groups, analyzing their interests and influence, visually mapping their relationship to the project and other stakeholders, and prioritizing strategies to effectively manage stakeholder engagement. RS&H did not find information indicating the City has identified and engaged stakeholders regarding its sustainability/adaptation program.

5.7.9 Public Outreach

Currently, the City's website does not appear to include pages relevant to its sustainability or adaptation program. Web pages compiling and highlighting the City's various sustainability initiatives would be a valuable way to communicate their benefits to the public. Although it is likely that the City hosts or participates in some sustainability/adaptation themed events, information provided to RS&H does not document many instances. One example is an ongoing outreach program to expand connections to reuse system and promote water conservation. Another is that the City proclaimed October 24, 2009 as "International Climate Action Day". The City also hosted the Broward Solar Co-op outreach meeting at the cultural center on May 21, 2019.

5.9 POLICY AND ECONOMICS

Successful sustainability programs require integration with other City planning processes, effective data management and tracking, and financial support. Sustainability policies should be strategically developed in line with vision and goals and then integrated into strategic plans, comprehensive plans, and capital improvement plans. Effective program management requires collecting information related to energy, water and resource use, GHG emissions, waste, and other metrics. This process can be facilitated through Smart City technology and effective data management systems, including software or online data solutions with reporting capability. Finally, financing the sustainability program may require setting up a Sustainability Revolving Fund or other means of returning resource efficiency cost savings to the sustainability program. Other funding options can include special fees, [15] public-private partnerships and grants.

5.9.1 Strategic Plan

The City's Vision 2033 includes a statement that Pompano Beach will be distinguished by its reputation for sustainable development and redevelopment. This vision is evident in the 2018 Strategic Plan, which contains many sustainability and adaptation goals and projects.

The plan's goals to make Pompano Beach a preferred place to live, do business, and visit, superior capacity for growth through quality sustainable development, quality and affordable city services and building confidence in city government reflect the Triple Bottom Line approach to sustainability through ensuring social, economic and environmental performance. Many of the objectives contained in these goals are related to the elements of sustainability focus areas identified in this report. Examples include public safety, cultural opportunities, affordable housing, parks, economic growth, public transportation, and many others.

In particular, the objectives of Goal 4, "Superior Capacity for Growth through Quality, Sustainable Development" are relevant. These include elements related to transit, bicycle and pedestrian infrastructure, water supply, energy efficiency of City facilities, green building and preparation for sea level rise.

5.9.2 Sustainable Development Standards

The City's Sustainable Development Standards (SDS) were developed to meet its priorities for stormwater management and flood protection, renewable energy and energy conservation, water conservation, certified green development, and active design. The SDS is a point-based system required for all major site plans. It is designed to assist property owners and developers in selecting and implementing the optimal sustainable design options for their projects. It offers preferred sustainable design options for various types of buildings and projects but allows developers to select those they prefer to reach the required point score. Examples of design options promoted within the SDS include LID, pervious pavements, dune restoration, green roofs, renewable energy systems, EVSE, Energy Star appliances, LEED Certification, and bicycle infrastructure.

[15] For example, Miami Beach collects a bond for new construction projects. Projects that meet 100% of the City's sustainable designs standards are refunded 100% of the bond. A portion of the funds may be retained for projects that only meet a portion of standards.

5.9.3 Capital Improvements

The City's FY19-23 Capital Improvement Plan (CIP) shows that 36 percent of the CIP budget will be spent on Parks and Recreation, 33 percent on Streets and Bridges, 14 percent on Public Safety, eight percent on Renewal and Replacement, seven percent on General Capital, and two percent on Stormwater. Although concepts such as "sustainability", "adaptation", "resilience" and "sea level rise" are not found in the CIP, it includes many projects related to sustainability and/or resilience. Some examples include:

- Rehabilitation of City-owned seawalls
- Wastewater system improvements, such as manhole rehabilitation to reduce permeability
- Expansion of the "purple pipe" reuse water system
- Wastewater lift station rehabilitation/upgrades
- Utility asset management
- Utility Hardening of Water Inter-Connections (installation of meters and backflow protection)
- Concentrate Treatment Study
- Wellfield Performance and Relocation Study
- Stormwater system upgrades including backflow valves, drainage improvements, pipe lining, etc.

5.9.4 Smart City

Many municipalities are embracing the concept of "Smart Cities". Smart Cities rely on networked sensors that continuously collect data that is used to streamline the management of City operations. Smart City systems have the potential to enhance sustainability programs by providing real-time access to information which can be used to track and monitor data such as traffic, energy and resource use, utilities, public safety and other services. The Smart City concept came up in interviews with City staff, however the City has not yet completed any plans or projects related to this concept.

5.9.5 Sustainability Data management and Reporting

The City does not have a data management system for sustainability and resilience indicators. As a result, information related to these programs is distributed across City departments where it may be difficult to access. In some cases, key information needed to track sustainability and resilience performance has not been collected. To date, the City has not published a comprehensive sustainability report.

5.9.6 Financial Performance

The City's FY19 Adopted Operating Budget indicates the City's financial position is good. The City benefits from a growing population and tax base, and a favorable economic climate leading to growth in jobs and businesses. The budget references the City's sustainable development goals and lists SLR as a challenge that will affect the City.

The City recently issued General Obligation (GO) Bonds to raise funds for municipal projects that will benefit the entire community – such as public parks, fire stations, streets, bridges and related projects. The City has an AA rating from Standard and Poor's and an Aa2 rating for its 2018 GO Bonds from Moody's. Both are close to the highest rating available, indicating very high-grade credit. Moody's states the rating "reflects the city's sizable, growing tax base that benefits from regional tourism, healthy reserve position despite draws for capital projects over the past several years, formalized fiscal policies, low debt burden, and above-average pension liabilities."

5.9.7 Sustainability Funding Sources

The City's sustainability and adaptation projects to date appear to be funded primarily through the operating budget or GO bonds. The City does not appear to have set up a Sustainability Revolving Fund (SRF) or other dedicated source of funding for sustainability initiatives.

6. APPENDIX

6.1 COLLABORATIVE WORKSHOP SUMMARY

A half-day collaborative workshop at Pompano Beach City Hall was held on August 14th, 2019. Workshop materials are collected in Section 3.1.6. The workshop was attended by leaders from across the City's functional areas (Table 2). The objectives of the workshop were to understand sustainability concepts, review and calibrate RS&H's qualitative assessment of the City's baseline performance and benchmark comparison with peer cities, confirm the City's focus areas, draft a preliminary vision statement and develop ideas for sustainability initiatives.

TABLE 7: WORKSHOP ATTENDEES

Attendee Name	Role
Jean Dolan	Principal Planner
John Sfiropoulos	City Engineer
Russell Ketchem	Solid Waste Operations Manager
Gene Zamowski	Chief Information Officer
A. Randolph Brown	Utilities Director
Allison Feurtado	Controller
Tammy Good	Capital Improvement Project Manager
Molly Thistle	Reuse Outreach and Water Conservation
James Galloway	Fire Inspector
Robert McCaughan	Public Works Director
Barbara Harrison	Assistant Chief Information Officer
Peter McGinnis	Fire Marshal
Beth Dubow	Recycling Coordinator
Carpelo Jeoboam	Building Plans Examiner
Jennifer Gomez	Assistant Development Services Director

6.1.1 Sustainability Concepts

The workshop began with a presentation of sustainability concepts. The value proposition for sustainability is compelling. Research on sustainability in the private sector indicates leaders realize superior sales and employment growth, while attracting more productive and quality-conscious employees. For municipalities, sustainability promises similar fiscal and economic benefits.

Every organization should develop a unique definition of sustainability that reflects its values and objectives. RS&H presented common definitions, including the concepts of intergenerational equity and the Triple Bottom Line. Sustainability is best understood as encompassing resilience to climate change, including both mitigation of and adaptation to its effects.

The process of sustainability planning is a system of continuous improvement, beginning with defining the organization's sustainability vision, followed by establishing a qualitative and quantitative baseline,

setting goals, benchmarking against peers, developing initiatives, implementing projects and monitoring and evaluating results. Insights from this last stage informs a new round of planning.

While sustainability is clearly beneficial to organization, several barriers prevent its adoption. Barriers include financial constraints, lack of commitment from senior management and / or staff, conflicting priorities, misperception of benefits and costs and lack of knowledge, among others. Organizations can overcome barriers by clearly defining the organization's mission and vision, enabling both top-down and bottom-up management of challenges and opportunities, understanding how to motivate action, defining and measuring key metrics, and establishing momentum though attraction of resources.

6.1.2 Baseline and Benchmarking

RS&H presented the results of the qualitative baseline and benchmarking studies.

RS&H discussed the methodology for the baseline, with included a literature review of the City's plans, policies and other documents, including the City website, municipal code, Strategic Plan, Comprehensive Plan, Stormwater Master Plan, Vulnerability to Sea Level Rise report, Sustainable Development Standards, Operating Budget, and others. RS&H also discussed the interviews that were conducted with City staff and commissioners. RS&H reviewed results with attendees.

Results of the benchmarking were also discussed, including why the City scored as it did on various focus area elements. In some cases, workshop attendees provided feedback or brought new information to light that resulted in revisions to the benchmarking scores.

6.1.3 Focus Areas

Workshop attendees were shown the focus areas and associated elements recommended by RS&H. Attendees reached a consensus that these were appropriate focus areas for the City.

6.1.4 Visioning Exercise

RS&H introduced workshop attendees to the concept of a sustainability vision statement. Several examples from peer cities were presented and discussed. Attendees were then asked to work collaboratively in groups corresponding to the three elements of the Triple Bottom Line (Social, Environmental, and Economic). Each group then drafted a sustainability vision statement for their assigned element. The Environmental group drafted two versions. The groups reported on their progress and discussed how to improve the draft mission statements.

TABLE 8: SOCIAL, ENVIRONMENTAL AND ECONOMIC VISION STATEMENT DRAFTS FROM THE VISIONING EXCERCISE

Triple Bottom Line Element	Draft Vision Statement
Social	Create an atmosphere of cohesion amongst the community and vibrancy in our neighborhoods, and ensure equitable distribution of resources, services, and education so residents can come together with shared respect, vitality and educational and vocational prosperity. Preserve historic features from the past while celebrating diversity in the City through new opportunities for arts, events, culture, recreation and innovation.
Environmental	1. Commit to resiliency by preserving and protecting our natural resources and environment through enhanced transportation, energy and water resource conservation, and sea level rise adaptation. 2. We are committed to preserving, protecting and improving the quality of the land, water and air through purposeful and diverse investment in our City's development through management, public outreach and energy conservation to ensure a resilient community for Pompano Beach's businesses, residents and visitors.
Economic	Commit to develop and implement sustainability initiatives by incorporating incentives and policies citywide.

After the workshop, RS&H combined the three vision statements above into a single succinct version that encompasses all three Triple Bottom Line elements for the City's consideration. (See Vision above).

6.1.5 Projects Exercise

RS&H presented an introduction to the strategic process for developing sustainability projects, including the relationship between projects and goals, how to identify BMPs, the concept of backcasting, and successful project examples from Coral Gables, Fort Lauderdale, and Miami Beach. Attendees were then assigned to three groups with two focus areas each for a project brainstorming exercise. They were given a list of project ideas and tasked with developing a list of ten projects concepts based on the provided list or their own ideas (Table 3). Staff's ideas were incorporated into the Sustainable Program Development recommendations in the Strategic Analysis.

TABLE 9: PROJECT IDEAS FROM BRAINSTORMING EXERCISE

Group	Project Idea
Climate & Resilience / Land Use & Transportation	Greenhouse Gas Inventory
	Electric car charging stations
	Fleet conversions to fuel efficient & electric vehicles
	Seawall inventory (elevation) and assessment
	Study sea level rise impact areas to identify AAA's
	Reuse expansion of distribution system and revolving fund
	Study and implement on-demand shuttle for regional activity center, beach, multi-use districts, etc.
	On-demand driverless cars or golf-cart shuttles
	Implement sustainable features into innovation district
	Shared use pedestrian path improvements city-wide
	Adopt standard street sections and fund upgrades for complete streets

Group	Project Idea
Materials Management / Policy & Economics	Standardization and centralization of materials
	Local procurement mandates for contractors on City projects
	Reducing the number of printers and the volume of paper use
	Electronic record-keeping
	Mandate recycling and reusing of materials
	Reduce permit fees for buildings in Pompano Beach - 2 tier payment plan
	Eliminate payment process for City projects
	Provide tax incentives to businesses that have more than 10 employees
	Provide vocational / technical center training
	Implement internal Lean policies
Resource Conservation / Equity & Outreach	Resources - adding resources to these programs
	[Job] training for residents in green trades
	School engagement program
	Add exercise and shade equipment to airport walking trail
	Protect your home - provide needs-based funding for energy and water conservation and hurricane resilience
	Incentive program - fire protection - fire sprinklers in new neighborhood developments
	Solar panel initiative for City facilities and private buildings
	Invest in C-51 reservoir - water supply
	Mandate recycling
	Increase irrigation (reuse) - mandate connection

6.1.6 Workshop Materials

Pompano Beach Sustainability Strategy

Collaborative Workshop
August 14, 2009

RS&H

Agenda

1. Project Overview	08:00 – 08:05
2. Introductions	08:05 – 08:15
3. Sustainability Concepts	08:15 – 08:55
4. Break	09:00 – 09:10
5. Baseline & Benchmarking	09:10 – 10:40
6. Focus Areas	10:40 – 10:50
7. Exercise: Visioning	10:50 – 11:50
8. Exercise: Projects	11:50 – 12:50
9. Summary / Adjourn	12:50 – 01:00

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Today's Outcomes

1. *Preliminary Vision*
2. *Draft Focus Areas to fulfill the Vision*
3. *Project concepts within the Focus Areas*

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Project Overview

- High-level, strategic planning to establish a sustainability vision
- Establish a roadmap for sustainability vision implementation

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Project Overview

- Tasks
  - Existing Conditions Assessment
    - *Commissioner Interviews*
    - *Staff Interviews*
    - *Literature Review*
  - Benchmarking
    - *Literature Review*
    - *Interviews*
  - Strategic Analysis
  - Collaborative Workshop
  - Project Deliverable

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Introductions

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Sustainability Concepts

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Sustainability Value Proposition

- 90% of G250 publish CSR reports
- 4x the sales growth; 8x the employment growth (11-year Harvard study)
- Leaders stock prices 25% higher (Goldman Sachs);
  DJ Sustainability Index 36% > DJ Index. (World Economic Forum)
- Associates prefer CSR companies, are more productive and deliver higher quality work (University of Chicago)

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Sustainability Value Proposition for Cities

- Reduced expenditures on energy and resources
- Improved ability to attract investment
- Healthier, more productive residents and employees
- Greater resilience to financial shocks and resource price increases
- Greater resilience to climate impacts

Source: Institute for Local Government: The Fiscal and Economic Benefits of Sustainability

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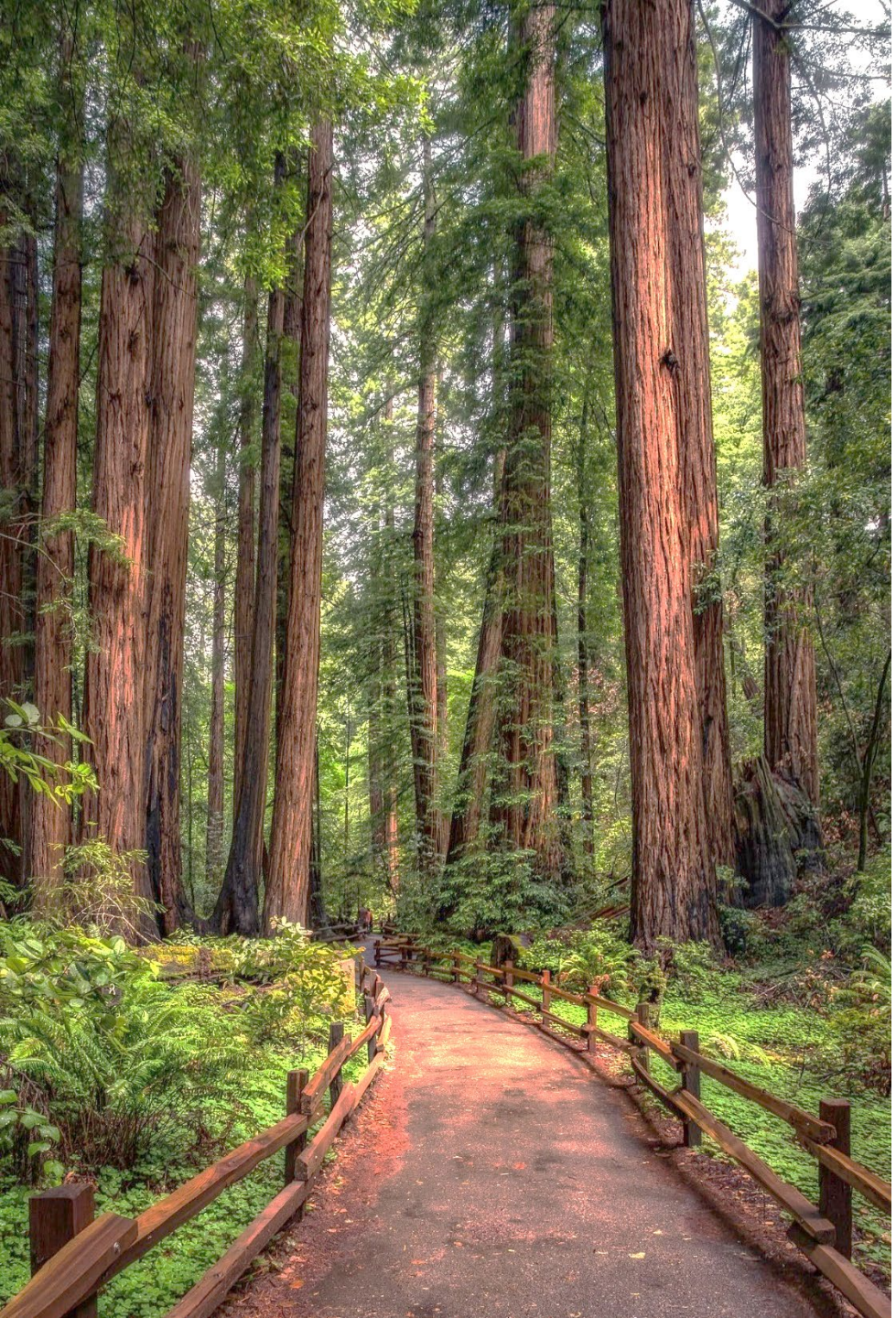
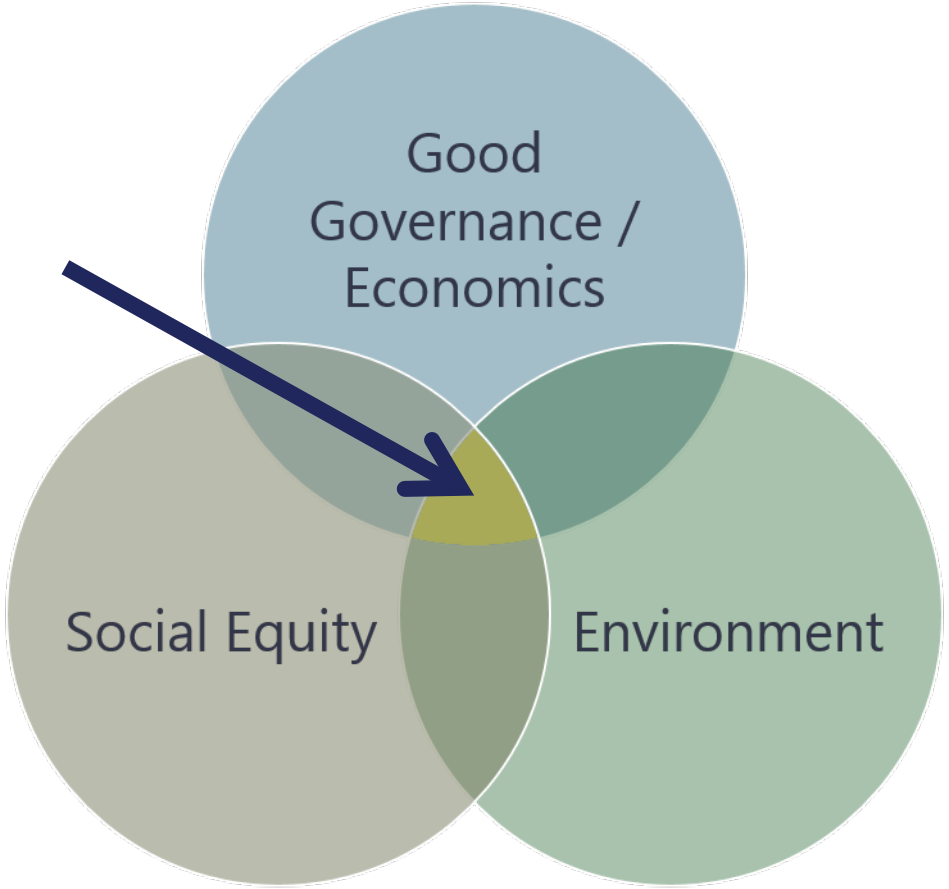


What is sustainability

- Development that meets the needs of the present without compromising the ability of future generations to meet their needs
  - Our Common Future, Report of the World Commission on Environment and Development

What is Sustainability?

- The Triple Bottom Line (TBL)
- Idea of maintaining over time:
  - Environmental quality
  - Quality of life
  - Economic prosperity



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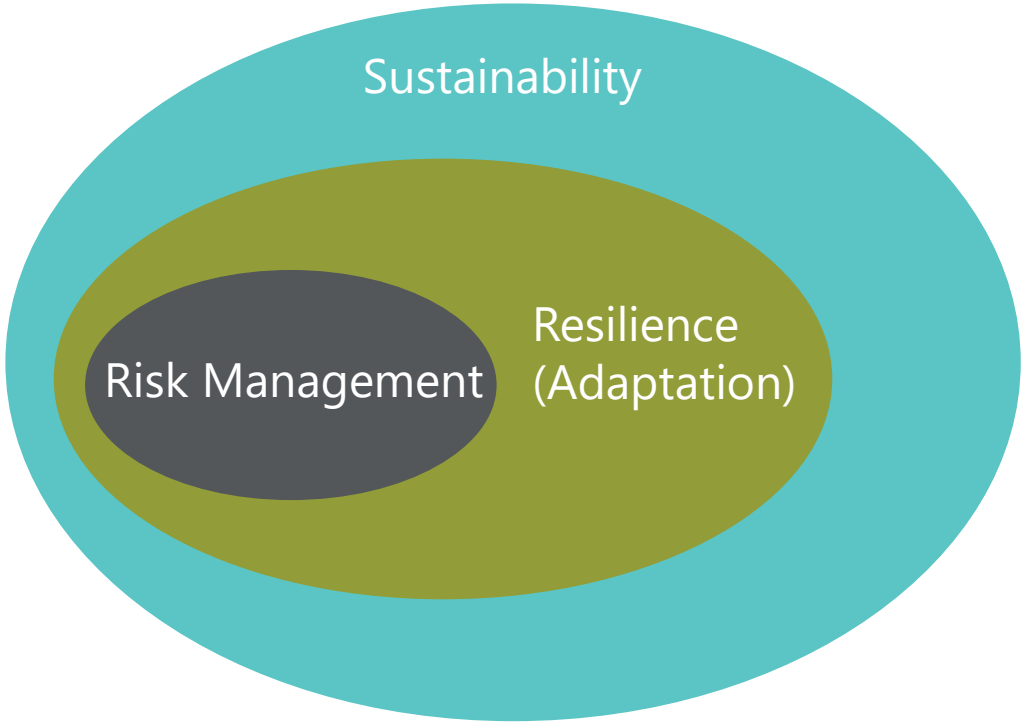
What is Sustainability?

» "Sustainable development…cannot be successful without enabling societies to be resilient to natural hazards"
  – The U.N. Commission on Sustainable Development



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Why do we need to adapt?

- Climate impacts
  - Increased Heat
  - Drought
  - Extreme Precipitation
  - Stronger Storms
  - Sea Level Rise
    - *SEFLCC projects 14"-26" by 2060 and 31"-61" by 2100*

Source: U.S. Army photo by Staff Sgt. Alexander Henninger

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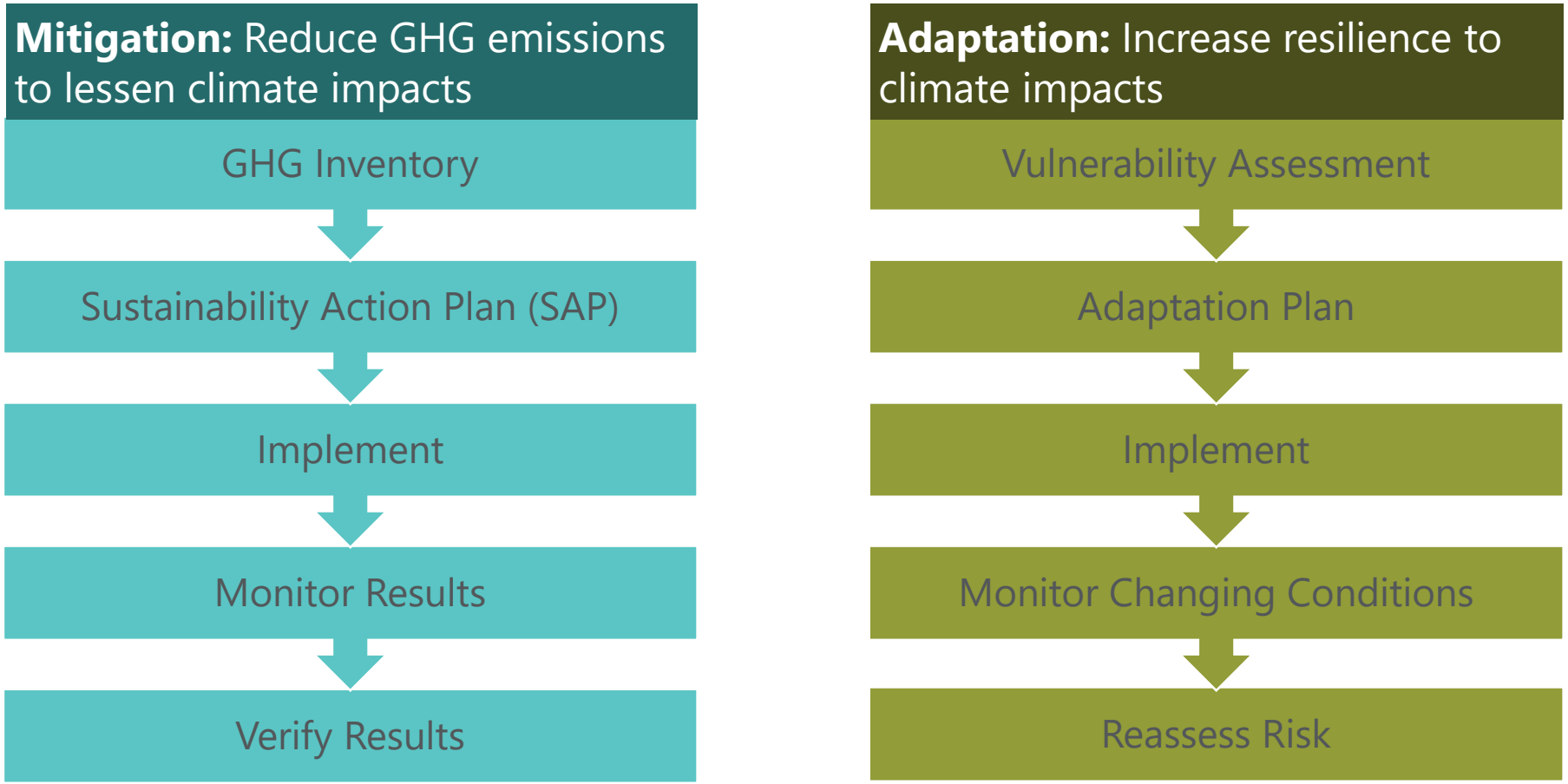
Climate Mitigation Vs. Adaptation



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Climate Mitigation Vs. Adaptation

- Mitigation and adaptation have a common goal – sustainability!
- Mitigation projects are commonly incorporated into sustainability programs
- Adaptation projects can also be developed and managed within the sustainability program
- Many mitigation projects also have adaptation benefits – e.g. renewable energy

Source: U.S. Navy Photograph by Mass Communication Specialist 2nd Class Daniel Barker

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Sustainability Planning Process

- Vision
- Baseline
  - Qualitative (complete)
  - Quantitative
- Goals
- Benchmarking
- Project Development -> SAP
- Implementation
- Monitoring & Verification

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Barriers to Sustainability

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Clearing the barriers

Vision

Management

Motivation

Measurement

Momentum

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Adapted from Seidel et al, 2010

Vision


Management

Motivation

Measurement

Momentum

Break

Return in 15 minutes!

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Baseline & Benchmarking

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Qualitative Baseline

- Review of Pompano Beach Plans and documents:
  - City Website
  - Municipal Code
  - Strategic Plan
  - Comprehensive Plan
  - SWMP
  - Vulnerability to SLR Report
  - Sustainable Development Standards
  - Operating Budget

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Qualitative Baseline

- Interviews with City Commissioners:
  - Mayor Rex Hardin
  - Vice Mayor Barry Moss
  - Andrea McGee
  - Rhonda Eaton
  - Tom McMahon
  - Beverly Perkins






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Qualitative Baseline

- Interviews with City staff :
  1. Greg Harrison: City Manager
  2. Horacio Danovich: GO Bond Capital Improvements Manager
  3. Michael Rada, Building Officer
  4. Suzette Sibble: Assistant City Manager over Finance
  5. Gene Zamoski: IT Director
  6. Pete McGinnis: Fire Chief
  7. Russ Ketchum: Solid Waste Director
  8. Rob McCaughn: Sieman's Project, City Facilities Maintenance
  9. Forrest Hall: Fleet Manager
  10. Randy Brown: Utilities Director
  11. John Sfiropoulos: City Engineer
  12. Andrew Jean-Pierre: Finance Director
  13. Kimberly Cristiano: Emergency Manager

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Benchmarking

- Peer Cities:
  - Coral Gables
  - Fort Lauderdale
  - Miami Beach
- Online research
  - City websites
  - Municipal code
  - Planning documents
- Interviews
  - With Sustainability Coordinators

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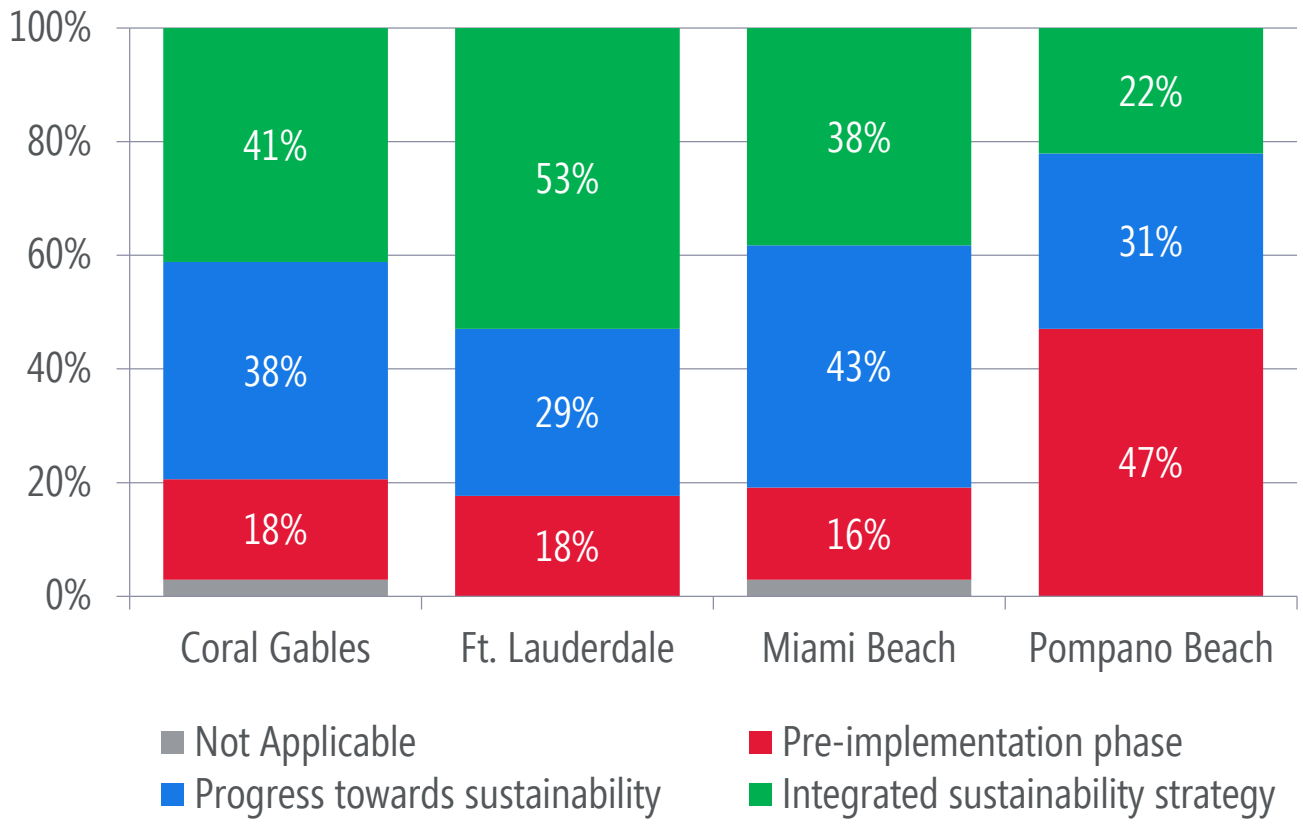
Benchmarking Results

- Overall performance:
  - Pompano Beach has done a lot!
  - Some progress on ~53% of elements assessed
  - Significant progress on 22%
  - 47% not yet addressed
  - The 3 peer cities have sustainability divisions and have completed SAP's



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Benchmarking Results: Climate & Resilience

- Progress on:
  - Leadership commitment to reduce emissions
  - Coordination with SEFLCC, Broward Co., others
  - Incorporated adaptation measures into SWMP
  - Floodplain regulations
- Not yet implemented
  - GHG Inventory, SAP, Vulnerability Assessment, Adaptation Plan

Focus Area Elements	Coral Gables	Fort Lauderdale	Miami Beach	Pompano Beach
GHG Emissions Management	Integrated sustainability strategy	Integrated sustainability strategy	Progress towards sustainability	Pre-implementation phase
GHG Emissions Policy	Integrated sustainability strategy	Integrated sustainability strategy	Progress towards sustainability	Progress towards sustainability
Climate Resilience Policy	Progress towards sustainability	Integrated sustainability strategy	Integrated sustainability strategy	Integrated sustainability strategy
GHG Reduction Targets	Integrated sustainability strategy	Integrated sustainability strategy	Pre-implementation phase	Pre-implementation phase
Climate Adaptation Committees and Partnerships	Integrated sustainability strategy	Integrated sustainability strategy	Integrated sustainability strategy	Integrated sustainability strategy
Vulnerability Assessment	Integrated sustainability strategy	Progress towards sustainability	Integrated sustainability strategy	Pre-implementation phase
Adaptation Plan	Progress towards sustainability	Progress towards sustainability	Integrated sustainability strategy	Pre-implementation phase
Natural and Human Hazard Data	Progress towards sustainability	Progress towards sustainability	Progress towards sustainability	Progress towards sustainability
Hazard Area Zoning and Building Codes	Progress towards sustainability	Integrated sustainability strategy	Progress towards sustainability	Progress towards sustainability
Sea Level Rise	Progress towards sustainability	Integrated sustainability strategy	Integrated sustainability strategy	Integrated sustainability strategy
Seawalls	Progress towards sustainability	Integrated sustainability strategy	Integrated sustainability strategy	Progress towards sustainability
Stormwater Management	Integrated sustainability strategy	Integrated sustainability strategy	Integrated sustainability strategy	Integrated sustainability strategy
Hazard Mitigation Planning	Integrated sustainability strategy	Integrated sustainability strategy	Integrated sustainability strategy	Integrated sustainability strategy
Saltwater Intrusion	Not Applicable	Integrated sustainability strategy	Not Applicable	Integrated sustainability strategy
Post-disaster and Business Continuity	Progress towards sustainability	Progress towards sustainability	Progress towards sustainability	Progress towards sustainability

Integrated sustainability strategy
Progress towards sustainability
Pre-implementation phase
Not Applicable

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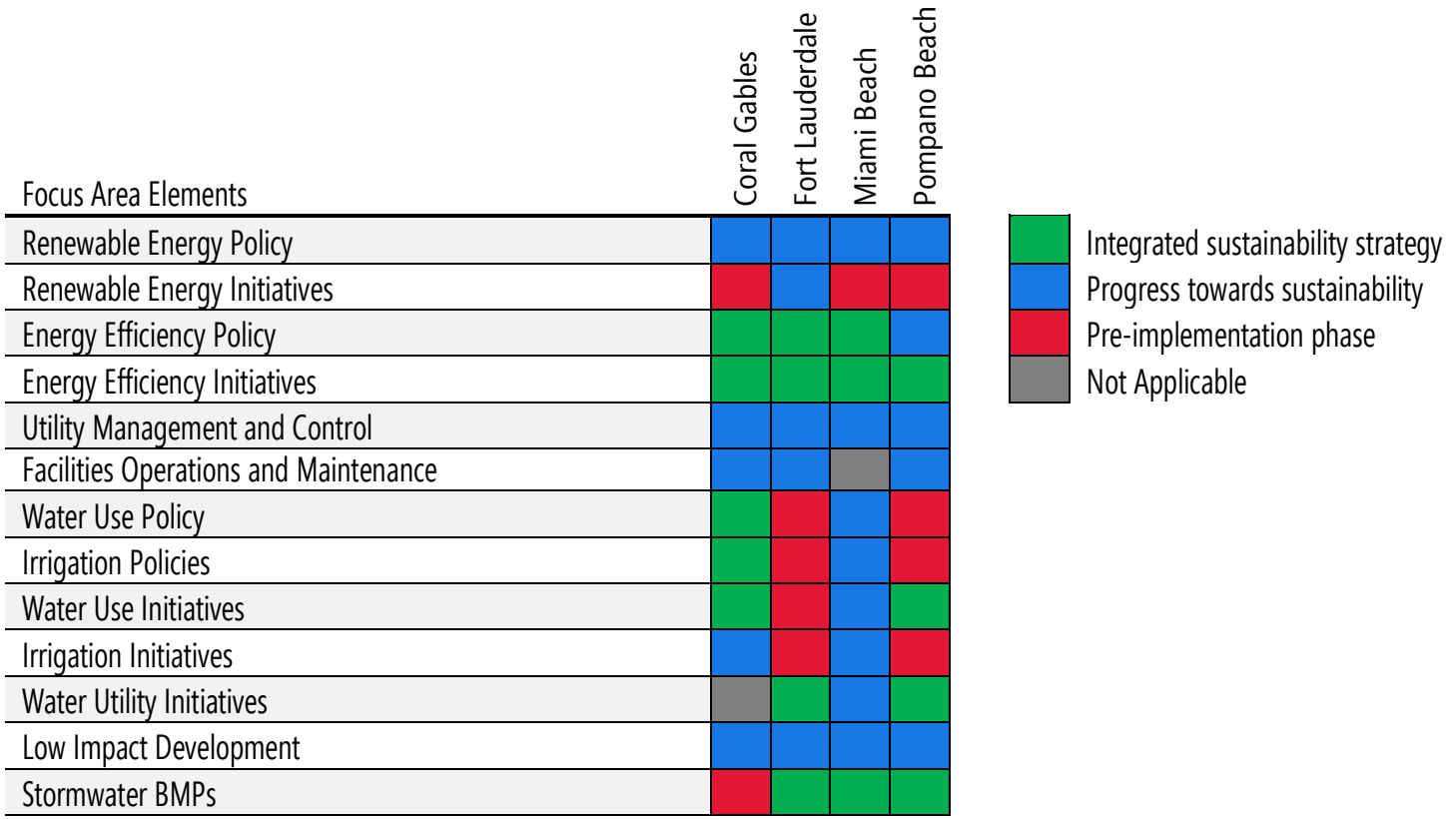
Benchmarking Results: Resource Conservation

- Progress on:
  - 70-80% of criteria
  - Energy efficiency, water use, water utility, stormwater BMPs
- Not yet implemented
  - Water conservation & irrigation policies
  - Irrigation initiatives
  - Renewable energy initiatives



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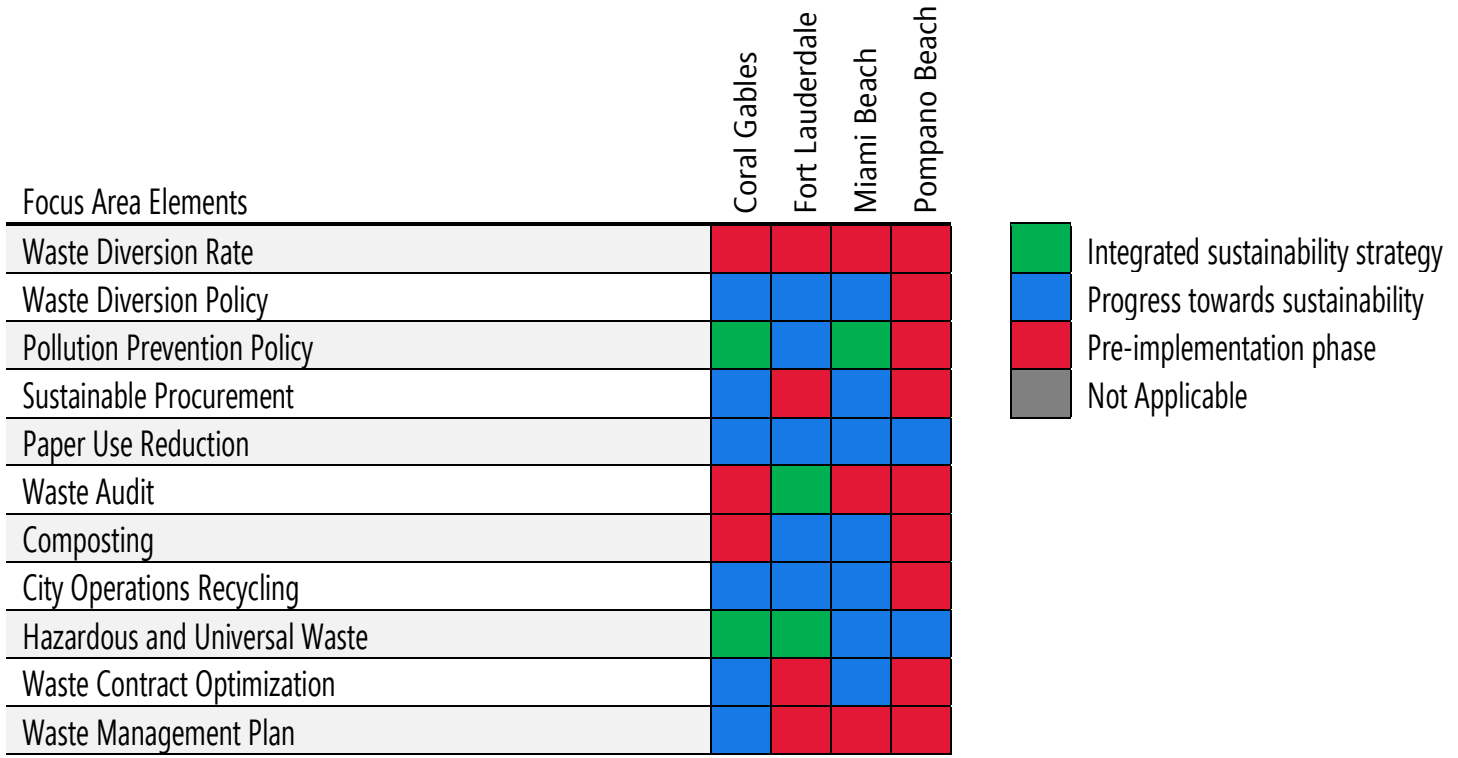
Benchmarking Results: Materials Management

- Progress on:
  - ~20% of criteria
  - Paper use reduction
  - Haz / Universal waste
- Not yet implemented:
  - Waste Audit
  - Waste Management Plan
  - Sustainable Procurement
  - Product bans, composting, contract optimization



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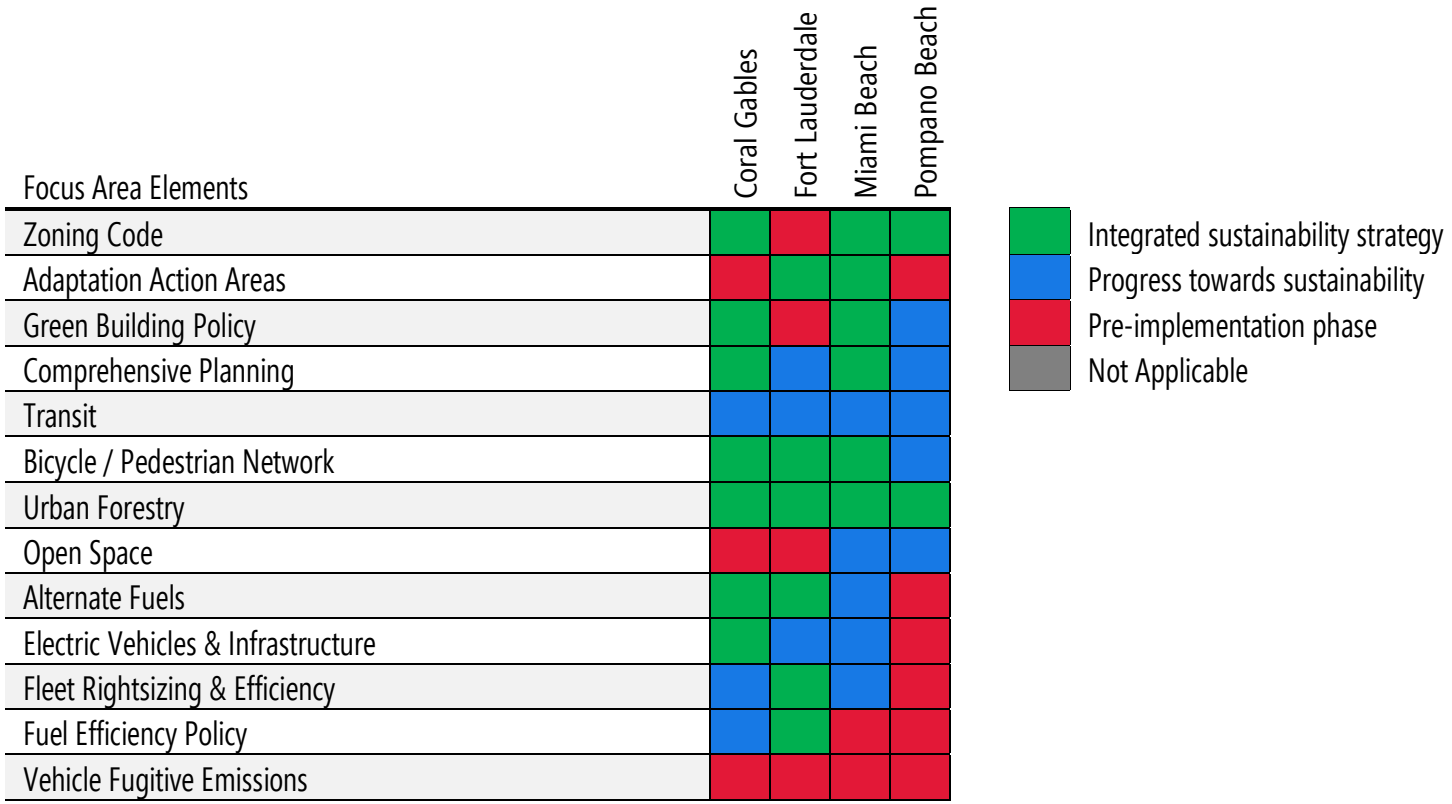
Benchmarking Results: Land Use & Transportation

- Progress on:
  - ~50% of criteria
  - Zoning, green building, comp plan, transit, bike/ped, urban forestry, open space
- Not yet implemented
  - Alternate Fuels & EVs
  - Fleet rightsizing & fuel efficiency
  - Fugitive emissions



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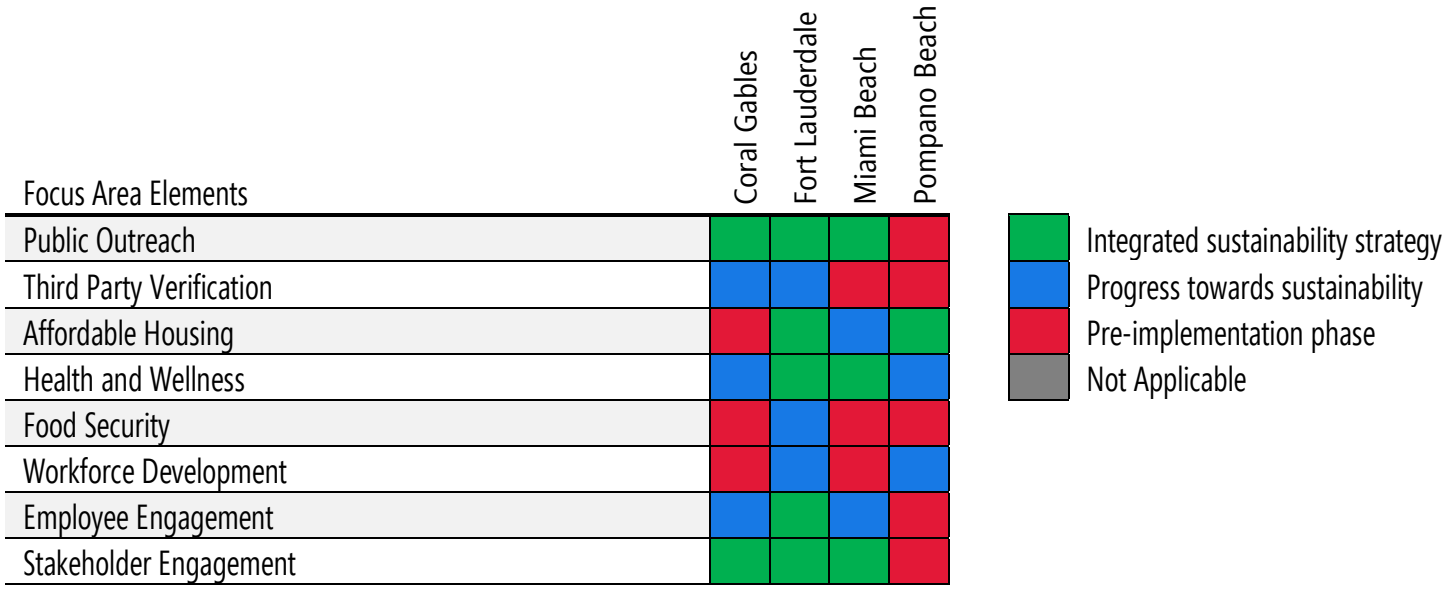
Benchmarking Results: Equity and Outreach

- Progress on:
  - ~25% of criteria
  - Affordable housing
  - Health and Wellness
  - Workforce Development
- Not yet implemented
  - Public outreach
  - Third party verification
  - Food security
  - Employee & stakeholder engagement



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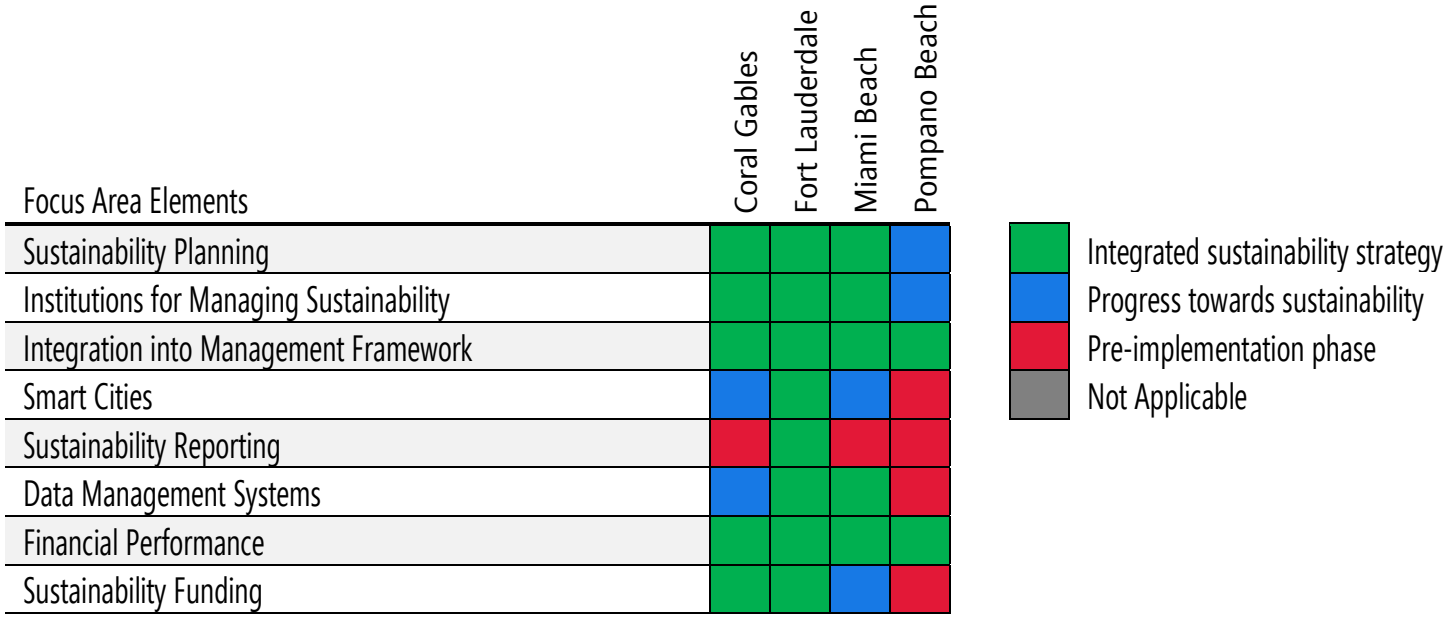
Benchmarking Results: Policy & Economics

- Progress on:
  - ~50% of criteria
  - Management framework
  - Financial performance
  - Sustainability planning
  - Managing sustainability
- Not yet implemented
  - Smart cities
  - Sustainability reporting
  - Data management systems
  - Sustainability funding



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Strategic Analysis

Strengths

- Leadership commitment and support
- Integration into the Strategic Plan
- Sustainability Coordinator staff position
- Staff awareness and interest
- Regulatory commitments to promoting green building
- Water utility initiatives
- Financial position

Weaknesses

- Quantitative baseline
- Greenhouse Gas management
- Planning framework
- Implementation policies and procedures
- Data management and reporting
- Strategic stakeholder engagement
- Established funding streams

Opportunities

- Sustainability / resilience program
- Cost savings / productivity gains / risk reduction / increase in adaptive capacity
- Update to Comprehensive Plan
- Seawall regulation
- Innovation District
- New transit infrastructure
- Rapid technological innovation

Threats

- Climate change impacts
- Public opinion / greenwashing
- Rapid growth
- Water supply
- Automobile dependence
- Social equity
- Supply chain laggards / anti-sponsors
- Misalignment with higher levels of gov't

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FOCUS AREAS

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Sustainability Focus Areas

Why have focus areas?

- Elaborate on Vision
- Framework for developing baseline, goals and projects
- Provide structure and reflect priorities
- Most organizations have between 5-10

Source: City of Hallandale Beach Sustainability Action Plan

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Sustainability Focus Areas

Climate & Resilience

- Seawalls
- GHG Inventory
- Flood Risk Management
- Climate Action Plan
- Stormwater Management
- Carbon Mitigation / Sequestration
- Hazard Mitigation
- Sea Level Rise
- Saltwater Intrusion

Resource Conservation

- Green Building
- Water Use
- City Facilities and Infrastructure
- Irrigation / Reclaimed Water
- Electronics and Equipment
- Stormwater and Wastewater
- Renewable Energy

Materials Management

- Waste Generation & Pickup Services
- Composting
- Sustainable Procurement
- Disposal
- Materials Bans
- Universal & Hazardous Wastes
- Recycling

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Sustainability Focus Areas

Land Use & Transportation

- Zoning and Land Development
- Open Space
- Urban Forestry
- Comprehensive Planning
- Transit
- Adaptation Action Areas
- Bicycle and Pedestrian Network
- Innovation District
- City Fleet Management

Equity & Outreach

- Affordable Housing
- Public Safety
- Health & Wellness
- Employee Engagement
- Food Security
- Stakeholder Engagement
- Workforce Development
- Public Outreach

Policy & Economics

- Strategic Plan
- Sustainability Reporting
- Sustainable Development Standards
- Data Management Systems
- Capital Improvements
- Financial Performance
- Smart City
- Sustainability Funding

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Sustainability Focus Areas

Climate & Resilience	Resource Conservation	Materials Management	Land Use & Transportation	Equity & Outreach	Policy & Economics

- Do the focus areas capture the City's organizational priorities?
- Should any elements be added?
- Should any elements be left out?

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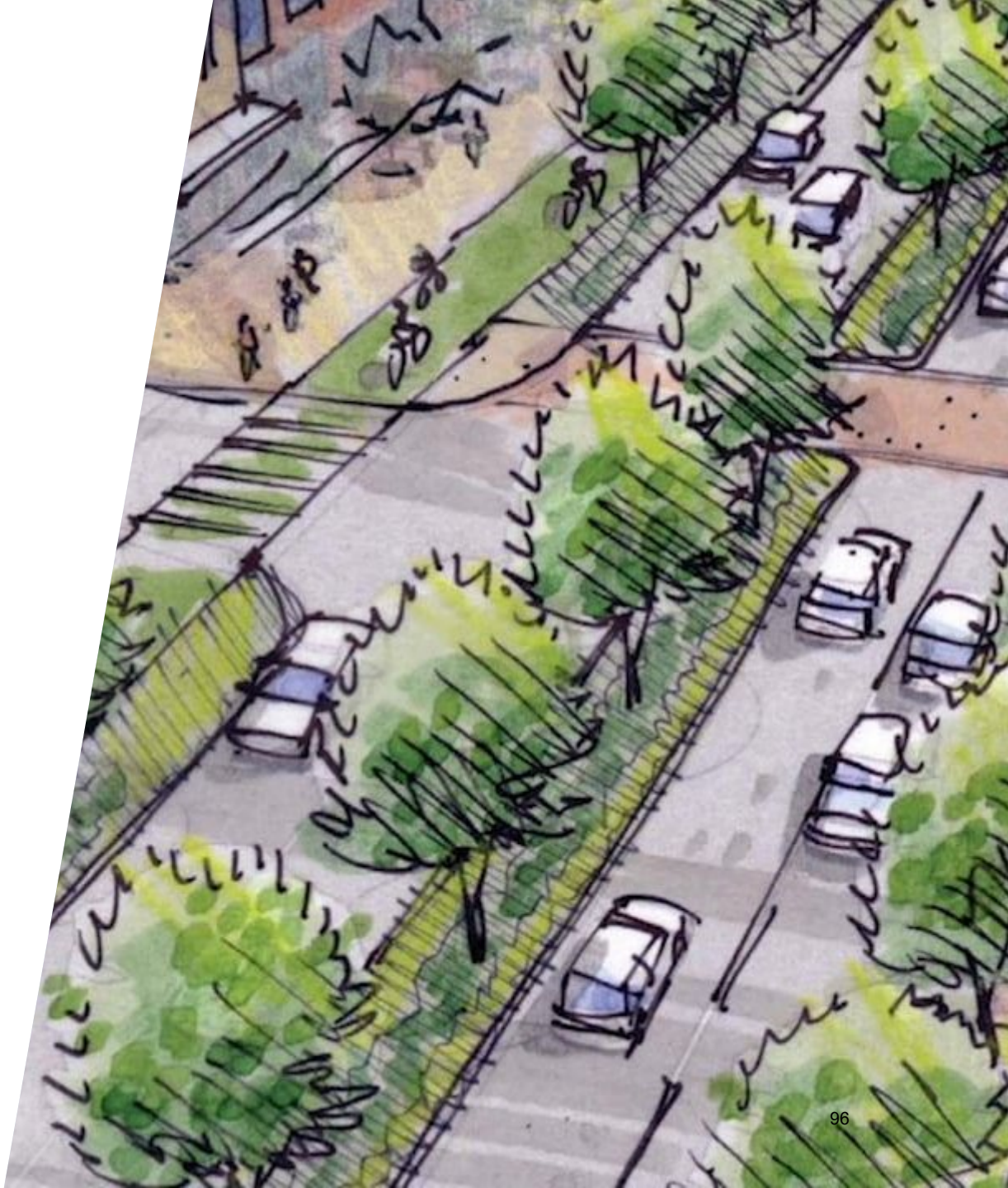
Visioning



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Vision

By 2023, Pompano Beach is a superior place to live, visit and locate or expand a business along the Atlantic Coast of Florida.

- Safe Community
- Sense of Place & Family
- Distinctive Architecture
- Award-winning, Alive Beach & Beachfront
- Leisure, Arts & Cultural Amenities
- Downtown & Innovation District
- Diverse Economy & Employment Opportunities
- Location and Reputation for Sustainable Development
- Stable Neighborhoods & Range of Housing Options

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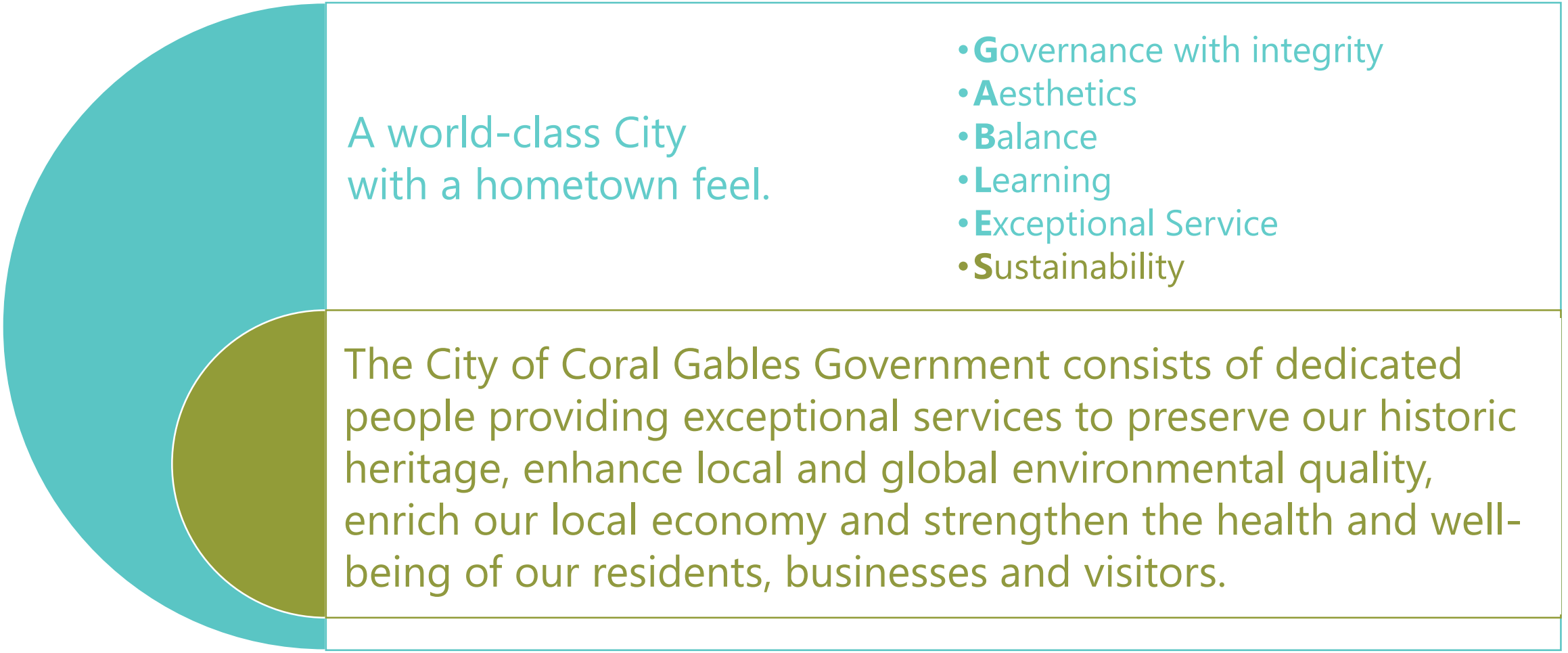
Vision: Coral Gables



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Vision: Fort Lauderdale

Connected	• Safe transportation where pedestrian is first
Ready	• Resilient and safe coastal community
Community	• Neighborhood of neighborhoods
Here	• Urban center and vacationland
Prosperous	• Laboratory for education and business
United	• Multi-generational cultures, ethnicities

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Vision: Fort Lauderdale

“Promote community sustainability by protecting, preserving and restoring the natural environment through reducing the City’s contribution of greenhouse gas emissions to the environment.”

-Sustainability Action Plan, Update 2011

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Vision: Miami Beach

Prosperous City with arts, culture, education and business

Safe City with iconic and historic neighborhoods

Resilient coastal City with thriving environment and modern infrastructure

People-first City where pedestrian is prioritized

Smart City of high quality and efficient services

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Vision: Miami Beach

“Improve resources, prevent harm to the natural environment, protect human health and benefit the social, economic and environmental well being of the community for present and future generations.”

-Sustainability Plan, 2010

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Visioning Exercise

- Group # 1 - Environmental
- Group # 2 - Social
- Group # 3 - Economic

Visioning Exercise

- Review the Triple Bottom Line handout for your group.
- Discuss – what stands out? What do you think is most important for the City? What is least important?
- Draft a sustainability vision statement for the City based on your group's Triple Bottom Line category. It should be no more than 2-3 sentences, inspirational, and point the direction you would like to go.
- Revise and improve the vision statement
- Have someone from your group read your vision statement and explain why you chose to include the things you did

Time available: 25 minutes after instructions.

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Projects

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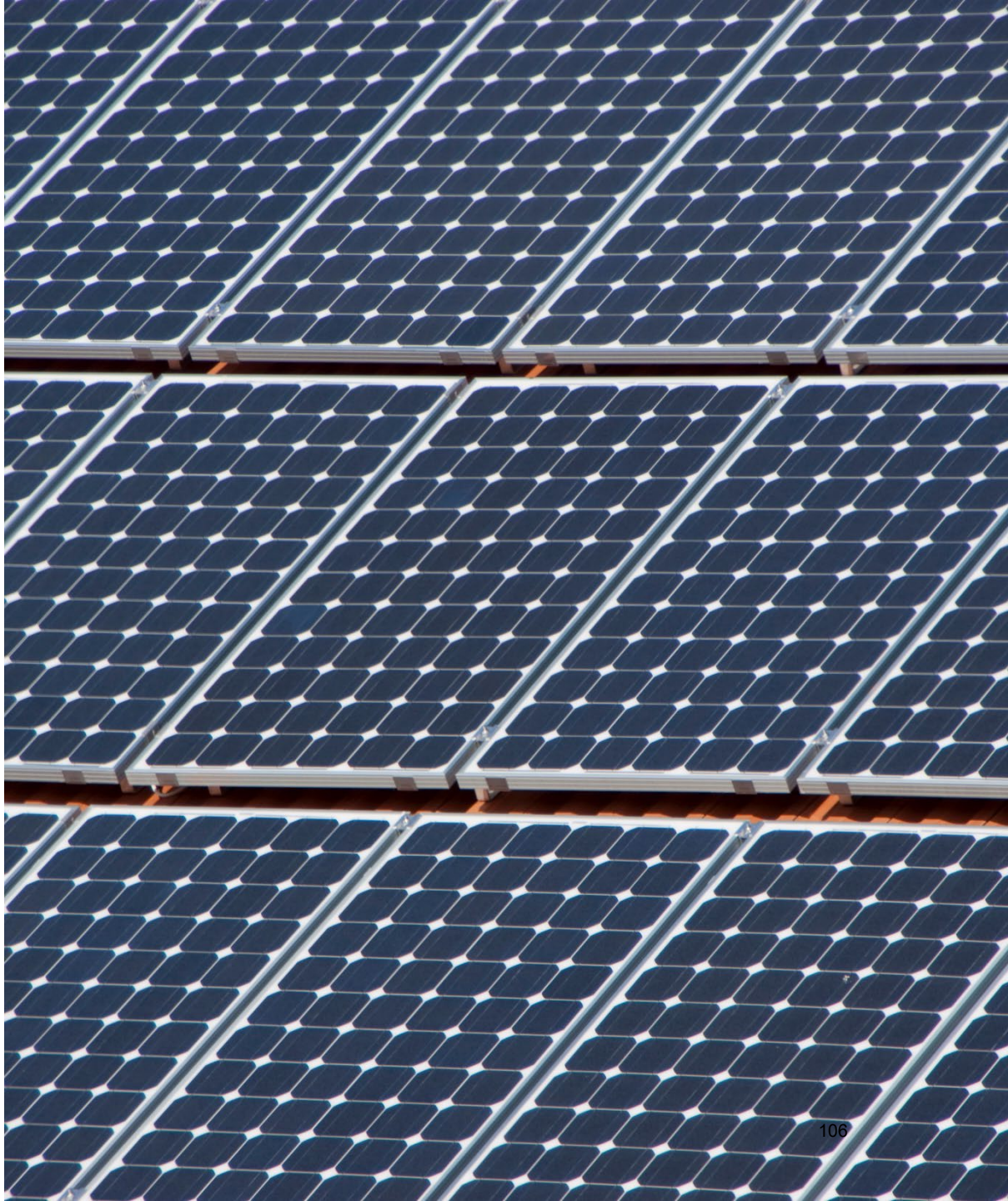
Finding BMPs

- Online Research
- Phone Interviews
- Questionnaires
- Process Flow Analysis
- Site Assessments
- Conferences
- Collaboration



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Coral Gables

- Green Fleet
  - 2015
    - *Zero alternative fuel vehicles in City Fleet*
  - Today:
    - *51 electric vehicles*
    - *2 L3 & 5 L2 EV charging stations*
  - Tomorrow:
    - *Goal for 78 EVs by 2021*
- Pollution Prevention
  - Plastic bag, Styrofoam and straw bans

Fort Lauderdale

- Bike / Pedestrian Planning
  - Complete Streets + Vision Zero + Connecting the Blocks Program + Integration into CIP
- Adaptation Action Areas
  - Integrated into Comp Plan
  - Mapped AAAs
  - Programming projects over 5 years in CIP
- City Operations
  - Waste Audit
  - ISO 140001 ESMS

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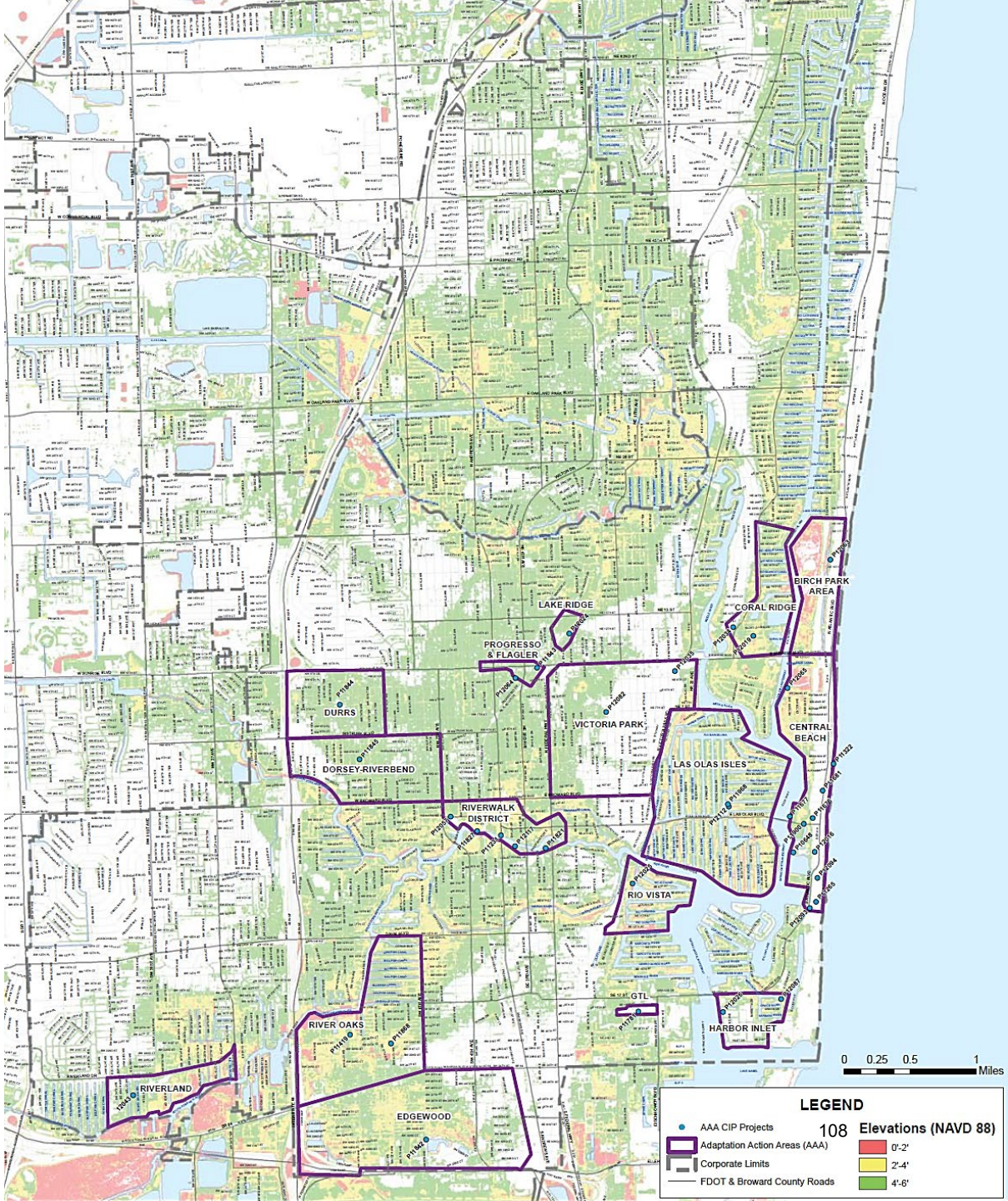
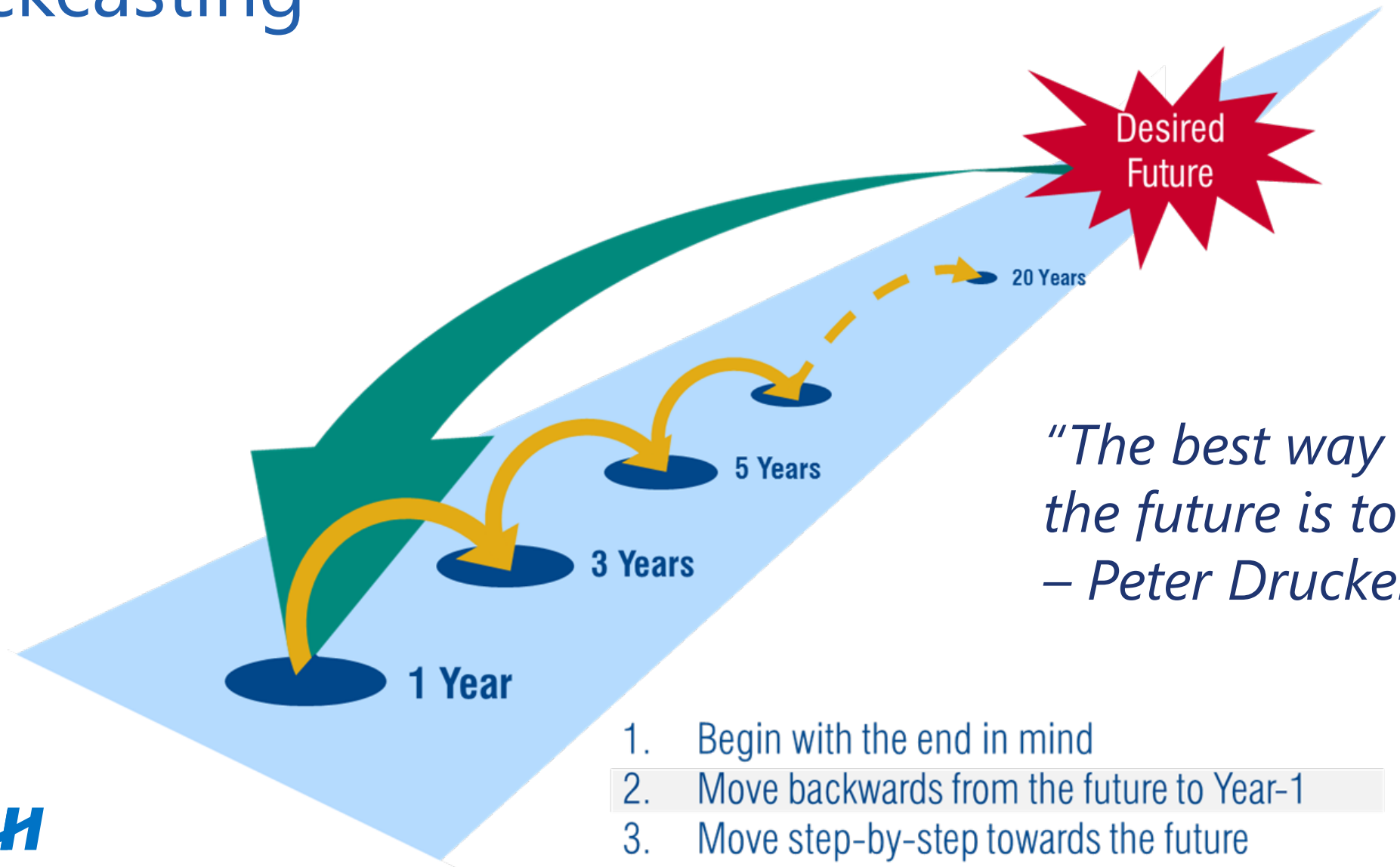


Miami Beach

- Green Building:
  - All new construction >7k gsf must be LEED gold
  - Cool roof & porous pavement requirements
  - Incentives for solar power
- Energy Management
  - EnergyCAP software for City facilities
  - Submetering
- Stormwater Management
  - Raising roads, pumps, utilities upgrades

Backcasting



"The best way to predict the future is to create it."
– Peter Drucker

1. Begin with the end in mind
2. Move backwards from the future to Year-1
3. Move step-by-step towards the future

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Project Brainstorming

- Choose a note-taker to capture and report ideas
- Write down 10 ideas for projects in your focus area in 10 minutes
- No criticism; no prioritization of ideas
- Consider building on / improving existing ideas (for example, see BMPs on reverse)

Time available: 10 minutes after instructions.

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Project Brainstorming Worksheet

Focus Area (Circle two): Climate and Resilience, Resource Conservation, Materials Management, Land Use and Transportation, Equity and Outreach, Policy and Economics

1 _____

2 _____

3 _____

4 _____

5 _____

6 _____

7 _____

8 _____

9 _____

10 _____

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Next Steps

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6.2 BENCHMARKING RESULTS

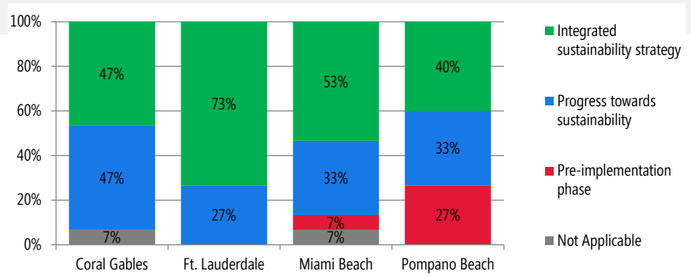
Climate & Resilience

Regulation / Policy	Description	Coral Gables	Ft. Lauderdale	Miami Beach	Pompano Beach	Summary
GHG Emissions Management	+ City has inventoried GHG emissions, set reduction targets, developed a climate action plan, is implementing policies and monitoring results ~ City has begun or completed at least two of the above - City has not completed any of the above	+	+	~	-	Coral Gables: Sustainability Master plan includes section on climate change that include GHG reduction goal, quantifies GHG mitigation of intiatives and a GHG inventory for 2013 and 2017 (Source: SMP) Ft. Lauderdale: Sustainability Action Plan includes section on air quailty that includes GHG reduction goal and results of GHG inventory for 2011-2014 (Source: 2015 SAP) Miami Beach: City has a 2015 GHG Inventory with plans for annual updates. CAP is in development. (Sources: 2015 Report - GHG Emissions, http://www.mbrisingabove.com/your-city-at-work/resilience-strategy/climate-action-plan/) Pompano Beach: City has not inventoried emissions, set targets or developed a CAP.
GHG Emissions Policy	+ City has ordinances, resolutions or directives for sustainable practices or behaviors related to carbon, GHGs, or CO2 reductions (i.e., solar feed-in tariff, municipal carbon tax, etc.) and can demonstrate improvements from a baseline year ~ City has ordinances, resolutions or directives for sustainable practices or behaviors related to carbon, GHGs, or CO2 reductions (i.e., solar feed-in tariff, municipal carbon tax, etc.) but can not demonstrate improvements from a baseline year - City doesn't have ordinances, resolutions or directives for sustainable practices or behaviors related to carbon, GHGs, or CO2 reductions (i.e., solar feed-in tariff, municipal carbon tax, etc.)	+	+	~	~	Coral Gables: Climate Mayors signatory (https://bit.ly/2YyMbuD), SEFLCC member, 6% reduction in community GHG emissions 2013-2016 (Source: SMP) Ft. Lauderdale: Climate Mayors signatory (https://bit.ly/2YyMbuD), SEFLCC member, 3.6% and 1% reduction in city operations and community GHG emissions 2010-2014 (Source: 2015 SAP) Miami Beach:Climate Mayors signatory, SEFLCC member. No net reduction in GHG emissions from 2014-2015 (3.7% increase). Solid Waste was the only category that reduced GHG emissions. (Source 2014 and 2015 GHG Inventories) Pompano Beach: Climate Mayors signatory (https://bit.ly/2YyMbuD) SEFLCC member
Climate Resilience Policy	+ City has ordinances, resolutions or directives pertaining to climate resiliency, vulnerable areas (flooding and shoreline erosion), storm preparedness and evacuation plans. ~ City is considering the adoption of ordinances, resolutions or directives pertaining to climate resiliency, vulnerable areas (flooding and shoreline erosion), storm preparedness and evacuation plans. - City has no ordinances, resolutions or directives pertaining to climate resiliency, vulnerable areas (flooding and shoreline erosion), storm preparedness and evacuation plans.	~	+	+	+	Coral Gables: Has storm preparedness / evacuation plans in place, but otherwise few formal policies despite significant initiatives in this area. Ft. Lauderdale: Established AAAs in Comprehensive Plan, Vision 2035 includes section on Resilience,"We Are Ready" (https://bit.ly/2ysFDDb), has incorporated climate resiliency into floodplan management and stormwater management ordinances (https://bit.ly/2YwMcTR) Miami Beach: Multiple examples, City Ordinance 2016-4027 amends Comp plan to encourage policies that reduce flood risk. 2017 Hurricane Guide includes evactatuon info. (Sources: Ordinance 2016-4027, 2017 Hurricane Guide) Pompano Beach: Adopted SEFLCC SLR Projection, incorporated an SLR goal into Strategic Plan, amended seawall code to require higher elevants, requires minimium elevation of structures through its LDR, participates in CRS, incorporated SLR into Stormwater Master Plan
GHG Reduction Targets	+City has established specific targets for GHG reduction and is implementing measures and can demonstrate reductions from the baseline year. ~ City has established specific targets for GHG reduction and is implementing measures but can not demonstrate reductions from the baseline year. - City has not yet established targets for GHG reduction.	+	+	-	-	Coral Gables: 20% below 2013 by 2025 (Source: SMP) Ft. Lauderdale: 20% below 2010 by 2020 (Source: 2015 SAP) Miami Beach: According to 2015 GHG Inventory, City has not yet set a GHG reduction target Pompano Beach: No target
Climate Adaptation Committees and Partnerships	+City has established climate adaptation committees and/or partnerships and can identify programs and projects that are improving resiliency. ~City has established climate adaptation committees and/or partnerships but can not identify programs and projects that are improving resiliency. - City has not established climate adaptation committees and/or partnerships.	+	+	+	+	Coral Gables: Sustainability Advisory Committee, Member of SEFRCC (Source: https://bit.ly/2YAfTDF), developed legal brief on SLR, partnered with FIU on tide gauge study, participated in 5-week Climate Resilience Dialogue project, participating in CRS (https://bit.ly/2GDQgrr) Ft. Lauderdale: Sustainability Advisory Commitee, Member of SEFRCC (Source: https://bit.ly/2YAfTDF), participating in CRS program, established and funded AAAs, developing stormwater preserves. Miami Beach:Participates in Rockefeller Foundation's 100 Resilient Cities program, SEFLCC and other partnerships; numerous action to improve sustainability&resilience (Source: Preliminary Resilience Assessment) Pompano Beach: No committee, but bember of SEFRCC (Source: https://bit.ly/2YAfTDF), worked with County on SLR Assessment Report, participating in CRS program, implementing stormwater systsem improvements.
Vulnerability Assessment	+ A vulnerability assessment considering stakeholders, organizational goals and the consequences and probability of their interaction with climate change stressors (e.g. sea level rise; increased drought; increased storminess and warmer temperatures) have been identified and a consensus reached with stakeholders on organizational risks. ~ A vulnerability assessment considering stakeholders, organizational goals and the consequences and probability of their interaction with climate change stressors is being developed. - A vulnerability assessment has not been developed.	+	~	+	-	Coral Gables: 2018 Assessment of Sea Level Impacts on Existing City of Coral Gables Infrastructure and Preliminary Adaptation Plan Ft. Lauderdale: The County prepared a vulnerability assessment in 2011, sea level rise has been incorporated into the City's Stormwater Management Plan, and the City has identified AAAs, but it does not have formal vulnerability assessment Miami Beach: City has completed Preliminary Resilience Assessment and vulnerability assessment for its infrastructure (Source: Preliminary Resilience Assessment) Pompano Beach: The City has not yet completed a comprehensive vulnerability assessment, although Broward County prepared a brief, high-level "Vulnerability to Sea Level Rise Assessment Report" for the City
Adaptation Plan	+ City and its stakeholders have analyzed their risk pathways and developed a climate adaptation plan that systematically achieves the objectives of prioritized adaptation actions and continually improves the process ~ City has developed a climate adaptation plan but it lacks collaboration with stakeholders, risk pathway analysis, a systematic approach to achieve the objectives of prioritized adaptations and /or a continual improvement process - City has not yet developed a climate adaptation plan	~	~	+	-	Coral Gables: 2018 Assessment of Sea Level Impacts on Existing City of Coral Gables Infrastructure and Preliminary Adaptation Plan Ft. Lauderdale: The City has developed AAAs and incorporated SLR into SWMP but does not have a formal Adaptation Plan Miami Beach: Greater Miami and Beaches Resilient 305 Plan could qualify (Resilient 305 Plan) Pompano Beach: The City has not yet completed a comprehensive adaptation plan
Natural and Human Hazard Data	+City has taken steps to reduce both the number of homes below code standards located in high risk areas, and the percentage of residents living in designated high risk areas ~ City has implemented at least one of the above, or plans to do so in the near future - City has taken no action on reducing the number of homes below code standards located in high risk areas, or the percentage of residents living in designated high risk areas	~	~	~	~	Coral Gables: No evidence of efforts to reduce homes below code in HHAs. Floodplain Regulations require any improvements to existing structures conform to new construction requirements. Ft. Lauderdale: No evidence of efforts to reduce homes below code in HHAs. Floodplain Regulations require damaged structures to meet all current construction and flood plain regulations when rebuilt. Miami Beach: City reduced CRS rating from 6 to 5. (Source: http://www.mbrisingabove.com/your-home/flooding/) Pompano Beach: Comprehensive Plan and Floodplain Regulations require damaged structures to meet all current construction and flood plain regulations when rebuilt. However, no evidence of efforts to reduce number of residents in high risk areas.
Hazard Area Zoning and Building Codes	+ City has both Zoning regulations limiting development in high hazard areas and city has building codes/standards for building in areas of high hazard vulnerability. ~ City has at least one of the above - City has none of the above	~	+	~	~	Coral Gables: Comprehensive Plan does not evaluate HHAs or include GOPs related to limiting development. Floodplain development regulations provide standards for development in hazard areas. Ft. Lauderdale: Floodplain development regulations provide standards for development in seaward of the cosatal construction control line. Comprehensive Plan GOPs include extensive content aimed at limiting development in HHAs. Miami Beach: Miami Beach City Commission adopted a 2017 ordinance establishing criteria that the City's four land use boards would incorporate principles to address and plan for the effects of sea level rise and climate change. (Resilient 305 Plan). Pompano Beach: Floodplain development regulations provide standards for development in seaward of the coastal construction control line. However, Zoning does not otherwise limit development in these areas.

Sea Level Rise	+City has implemented projects to address sea level rise, including infrastructure improvements ~ City is aware of the SLR threat and has commisioned or completed plans to address it, but has not yet implemented projects - City has taken no action on SLR to date	~	+	+	+	Coral Gables: Raising pump stations, installing BFPs, spending close to $2M on storm- and wastewater system upgrades (Source: SLR Initiatives Presentation) Ft. Lauderdale: Has identified AAAs and funded projects through CIP for 4 years. Miami Beach: Entire City has been designated an adaptation action area. Pompano Beach: The City's utility, public works and engineering divisions are actively planning for SLR and have begun implementing a variety of improvements to stormwater and wastewater systems to prevent groundwater flooding and stormwater overloads. However, this has not yet been addressed as part of a City-wide strategic planning effort.
Seawalls	+City has implemented projects or policies to raise seawalls in line with SEFLCC regional SLR projections ~ City has plans to change seawall regulations to address SLR threat - City has no plans to adjust seawall height regulations in response to SLR threat	~	+	+	~	Coral Gables: The City has identified raising sea wall heights as an potential adaptation action (Source: SLR Intiatives Presentation) Ft. Lauderdale: The City of Fort Lauderdale updated its seawall ordinance (ULDR Section 47-19.3) on June 21, 2016 to establish construction standards that ensure that seawalls contribute to coastal resilience and mitigate the effects of tidal flooding and sea level rise. On December 6, 2016, the seawall ordinance was modified (Commission Agenda Memo CAM 16-1414) to clarify provisions related to the height of docks and the criteria for determining whether an improvement constitutes a substantial repair. Miami Beach:City is constructing green living shorelines to complement sea walls. While homeowners are not required to replace seawalls at this time, new seawalls required to be more resilient per city code. New seawall construction guidelines ensure minimum elevations of 5.7' NAVD. (Source: http://www.mbrisingabove.com/climate-adaptation/public-infrastructure/seawalls/) Pompano Beach: The City requires that all property owners abutting a waterway construct a seawall, except for properties on the beach. The City's code was amended in 2012 to require higher seawall elevations. It plans to amend its code to align with County standards currently in development that will align with SEFLCC standards
Stormwater Management	+ City has implemented Stormwater infrastructure upgrades to harden against flooding/SLR, such as installation of backflow preventers ~ City plans to harden stormwater infrastructure, but has not yet implemented projects - No plans to harden stormwater systems	+	+	+	+	Coral Gables: Raising pump stations, installing BFPs, spending close to $2M on storm- and wastewater system upgrades (Source: SLR Initiatives Presentation) Ft. Lauderdale: Has updated SWMP to consider SLR and is moving forward with various initiatives to manage stormwater in light of climate change (Source: https://bit.ly/2K4T8Qe) Miami Beach: City is in 3rd year of implementing $400 million stormwater infrastructure upgrade plan, adding tidal control valves, pump stations etc. (Source: http://www.mbrisingabove.com/your-city-at-work/stormwater-program/) Pompano Beach: The City's 2013 Stormwater Master Plan (SWMP) includes inundation maps that show the impact of SLR and storm events, and identifies vulnerable stormwater facilities. The City has begun implementing a variety of improvements to stormwater and wastewater systems to prevent groundwater flooding and stormwater overloads.
Hazard Mitigation Planning	+ City has a Hazard Mitigation Plan, or equivalent, that considers climate change impacts in a comprehensive way ~ City has a HMP, but it only considers a few climate impacts - City's HMP doesn not consider Climate impacts, or City does not have an HMP	+	+	+	+	Coral Gables: City participates in Miami Dade County's Enhanced Local Mitigation Strategy, which explicity considers climate change Ft. Lauderdale: City participates in Broward County's Enhanced Local Mitigation Strategy, which explicity considers climate change Miami Beach: City participates in Miami Dade County's Enhanced Local Mitigation Strategy, which explicity considers climate change Pompano Beach: City participates in Broward County's Enhanced Local Mitigation Strategy, which explicity considers climate change
Saltwater Intrusion	+City has evaluated whether saltwater intrusion is a risk, and has plans to protect the water supply if it becomes a problem, or has made infrastructure upgrades in response ~City has evaluated risk of saltwater intrusion - City has not considered risk of saltwater intrusion	NA	+	NA	+	Coral Gables: Issue is outside of City's operational control, as it does not operate a water utility. Ft. Lauderdale: 10 Year Water Supply Plan (2015) includes evaluation and response to saltwater intrusion in light of climate change Miami Beach: City's water supply provided through MDWSD. Wells are located on western portion of aquifer. Pompano Beach: Since 2006, the City's utility, public works and engineering divisions have been planning changes to the infrastructure system to address SLR. Those initiatives and actions include using reuse water to abate saltwater intrusion impacts, as well as operating a second wellfield located further inland. In addition, the City's strategic plan requires implementation of saltwater intrusion abatement projects.
Post-disaster and Business Continuity	+City has both post-disaster plans and business continuity plans. ~ City has either a post-disaster or business continuity plan, but not both. - City does not have a post-disaster or business continuity plan.	~	~	~	~	Coral Gables: Policy SAF-1.4.1. Develop an emergency preparedness, response and recovery plan and update it every two years to provide comprehensive pre-disaster planning consistent with Miami-Dade County's Emergency Management Plan. City provided some info related to post-disaster / emergency response planning. Ft. Lauderdale: City has Comprehensive Emergency Management Plan that includes post-disaster elements. Miami Beach: Post diasater plan not found. Miami-Dade Beacon Council has business continuity plan and provides resopurces for businesses. (Source: https://www.beaconcouncil.com/solutions/small-business/business-continuity/) Pompano Beach: City has adopted Broward County's post-disaster redevelopment plan via the City's Comprehensive Plan.

Climate and Resilience Summary

Score	Description	Coral Gables	Ft. Lauderdale	Miami Beach	Pompano Beach
+	Integrated sustainability strategy	7	11	8	6
~	Progress towards sustainability	7	4	5	5
-	Pre-implementation phase	0	0	1	4
NA	Not Applicable	1	0	1	0



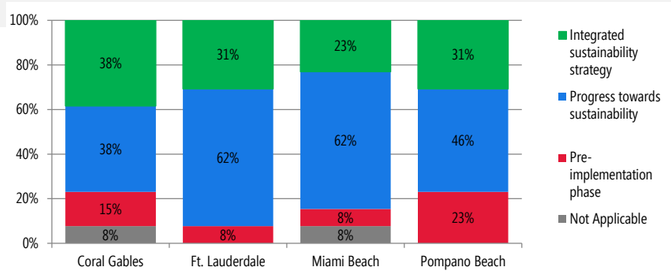
Resource Conservation

Regulation / Policy	Description	Coral Gables	Ft. Lauderdale	Miami Beach	Pompano Beach	Summary
Renewable Energy Policy	+City has ordinances, resolutions or directives that actively incentivize use of renewable energy for City facilities / operations or in the community; OR City has installed enough renewable generation or purchased enough renewable energy to offset 25% or more of its annual energy consumption ~City has ordinances, resolutions or directives that encourage or promote use of renewable energy for City facilities / operations or in the community -City has no policies promoting use of renewable energy for City facilities / operations or in the community	~	~	~	~	Coral Gables: City has no renewable energy installations and no policies incentivizing renewables for government buildings, but it is promoting use of renewables in the community (Go SOLAR Florida), waived permit fees. Ft. Lauderdale: Smart Watts program (grant funded) offered workshops and rebates for use of energy efficiency and renewable energy technologies; supports Broward Go Solar Rooftop Solar Challenge program; citizens may apply for solar panels online; installed solar parking meters, trash compactors, exterior lighting; no major offset of energy use. Miami Beach: City waives fees for public hearings/variance application for renewable energy installations (Source: Muni Code Sec 118-7) Pompano Beach: Code of ordinances 155.5803 includes renewable energy as an option for compliance with the City's Sustainable Develepment Standards for multifamily and nonresidential / mixed use development.
Renewable Energy Initiatives	+City has undertaken specific initiatives/capital improvements that resulted in a signficant, documented increase in the total energy use sourced from renewable sources ~City has undertaken some initiatives/capital improvements to increase use of renewable energy at the facility / infrastructure scale, but contribution to total energy use are not well documented or are minor -City has not has undertaken any significant initiatives/capital improvements to increase use of renewable energy beyond minor demonstration projects (e.g. solar powered components of larger systems).	-	~	-	-	Coral Gables: Installed solar benches in City parks. Working with University of Miami to pilot a solar microgrid at EOC. Ft. Lauderdale: Installed solar parking meters, trash compactors, exterior lighting; piloted wind project at park that powers EV charging stations. (Source: 2015 SMP & https://bit.ly/2GEBUqD) Miami Beach: Solar light installed around Henry Flagler memorial; City is working towards achieving SolSmart Gold Designation (Source: http://www.mbrisingabove.com/climate-mitigation/renewable-energy/solar-energy/) Pompano Beach: Solar powered lighting has been isntalled on a limited basis. There are no significant intiatives / capital improvements that increase use of renewables.
Energy Efficiency Policy	+City has ordinances, resolutions, directives or policies which significantly incentivize energy efficiency for City facilities / operations or the community ~City has ordinances, resolutions, directives or policies which encourage or promote use energy efficiency for City facilities and operations -City has few or no policies promoting energy efficiency for City facilities and operations	+	+	+	~	Coral Gables: Energy conservation goals are included in the strategic plan; specific energy efficiency projects in the SAP have been funded and implemented. Ft. Lauderdale: Energy efficiency is a criteria for prioritizing CIP projects; the City has developed a ISO 14001 ESMS that includes energy efficiency aspects; the Smart Watts program provided education and incentives to citizens (Source: 2015 SAP) Miami Beach: MuniCode Chp 133 Sustainability and Resiliency requires green building criteria intended to promote energy efficiency for buildings over 7,000 sf. (Source - MuniCode Chp 133) Pompano Beach: Chapter 152.51 of Code establishes a program for LEED certification of City facilities. It is optional. City has developed several LEED certified / certifiable new facilities. Code of ordinances 155.5803 include limited options releated to energy efficiency for compliance with the City's Sustainable Develepment Standards for multifamily and nonresidential / mixed use development.
Energy Efficiency Initiatives	+City has undertaken specific initiatives/capital improvements to increase energy efficiency which resulted in a documented energy savings of 15% or more for the project ~City has undertaken some initiatives/capital improvements to increase energy efficiency, but savings are not well documented or are minor -City has not has undertaken any significant initiatives/capital improvements to increase energy efficiency	+	+	+	+	Coral Gables: SAP includes several energy efficiency projects that are being implemented (e.g. interior and exterior lighting upgrades) (Source: SMP). Ft. Lauderdale: City has engaged in ESPC, is using ESPM Miami Beach:2011 Sustainability plan lists existing energy conservation initiatives: lighting retrofits, power transformer replacements, integration of HVAC controls, geothermal cooling, reclamation plant, roadway LED demonstartion projects. (Source: Sustainability Plan p12) Pompano Beach: City has engaged in ESPC, has built several LEED certified / certifiable buildings.
Utility Management and Control	+City has undertaken specific initiatives to track and manage energy use using software (e.g. database) and hardware (e.g. automated controls). ~City has undertaken specific initiatives to track and manage energy use using software (e.g. database) OR hardware (e.g. automated controls), but not both. -City has not taken initiatives to track and manage energy use using software (e.g. database) OR hardware (e.g. automated controls), but not both.	~	~	~	~	Coral Gables: City has staffers who systematically track and report on energy use using a spreadsheet tool. The tool is not integrated with BAS systems. Ft. Lauderdale: City has begun using ESPM to track facility energy use; no integration with BMS. Miami Beach: City's E&S departent uses Energy Star Portfolio manager to track city facility energy use (Source: http://www.mbrisingabove.com/climate-mitigation/green-house-gases/) Pompano Beach: Facility Due software is used to manage maintenace work orders and forecast maintenance needs, but it does not systematically manage resource consumption or interface with BAS. BAS are being installed in four recreation centers, but is not integrated or used comprehensively.
Facilities Operations and Maintenance	+ City has effective ordinances, resolutions or directives pertaining to building preventative maintenance that address energy efficiency, resource conservation or other sustainable elements. ~ City building preventative maintenance addresses energy efficiency, resource conservation or other sustainable elements opportunistically, without formal policy support. - City building preventative maintenance does not explicitly addresses energy efficiency, resource conservation or other sustainable elements	~	~	NA	~	Coral Gables: Ft. Lauderdale: Miami Beach: No Information found Pompano Beach:
Water Use Policy	+City has effective policies to reduce water consumption in City facilities, or has taken measures to reduce water use and can demonstrate reductions greater than 15% ~ City has some policies related to water consumption, but they are not effective (less than 5% reduction) or have not yet produced results - City does not have formal water use policies to reduce consumption	+	~	~	-	Coral Gables: City SOPs require use of efficient, low-flow fixtures when renovating existing facilities and for new construction. Water use has reduced by 25% since 2013 (Source: SMP). Ft. Lauderdale: SAP has water conservation goal. Miami Beach: City's 2011 Sustainability plan lists "Ameresco retrofit of municipal facilities & water reclamation plant". No percentage decrease found. Pompano Beach: No identified policies for reducing water use in City operations. City has utility programs for customers.
Irrigation Policies	+City has effective policies to reduce irrigation water use or has taken measures to reduce irrigation water use and can demonstrate reductions greater than 5% ~ City has some policies or has taken measures to reduce irrigation water use, but can not demonstrate at least a 5% reduction - City does not have formal policies to reduce irrigation-related consumption of water	+	~	~	-	Coral Gables: Based on data received, City does not track irrigation volumes/expenditures separately from facilities. Miami-Dade specifies low-flow irrigation fixtures but Coral Gables doesn't have specific policies. Landscaping staff indicated some irrigation fixtures were low-flow types. Ft. Lauderdale: SAP has water conservation goal. Miami Beach:City has some policies to reduce irrigatio use, such as xeriscaping program. Water utility is through MDWSD which has efficiency rebate programs for customers. Pompano Beach: No identified policies for reducing water use in City operations. City has utility programs for customers.
Water Use Initiatives	+City has undertaken specific initiatives/capital improvements to increase water use efficiency which resulted in a documented water savings of 10% or more for the project ~City has undertaken some initiatives/capital improvements to water efficiency, but savings are not well documented or are minor -City has not has undertaken any significant initiatives/capital improvements to water efficiency	+	-	~	+	Coral Gables: City SOPs require use of efficient, low-flow fixtures when renovating existing facilities and for new construction. Water use has reduced by 25% since 2013 (Source: SMP). Ft. Lauderdale: No significant projects. Has not been a focus area in the past. Miami Beach: City's 2011 Sustainability plan lists Proclomation of Water Conservation Month and Low-flow fixture replacement program and says water use is trending down, but doesn't give % reduction (Source: Sustainability Plan) Pompano Beach: Per Siemens ESPC report, the City realized >$30,000 in water savings in the first year (actual year unclear) of its contract.

Irrigation Initiatives	+City has undertaken specific initiatives/capital improvements to increase irrigation efficiency which resulted in a documented energy savings of 15% or more for the project ~City has undertaken some initiatives/capital improvements to increase irrigation efficiency, but savings are not well documented or are minor -City has not has undertaken any significant initiatives/capital improvements to increase irrigation efficiency	~	~	~	~	Coral Gables: Irrigation water use has increased 19% along with new green space development, despite several intiatives to reduce irrigation water use in its existing systems, e.g. water-based controllers and flow sensors, drip irrigation systems, etc. Ft. Lauderdale: Staff have implemented a number of smart irrigation techologies. Hired a staffer to focus on irrigation O&M. Miami Beach:City's 2011 Sustainability plan lists ", Xeriscaping of public spaces". No percentage decrease found. Pompano Beach: City has restricted watering days to 2 days/week; has auto controls / weather sensors at facilities, partners with Broward mobile irrigation lab doing 6-9 audits per year (public and private), has AMI system that can show utility customer's water use hour by hour.
Water Utility Initiatives	+City has undertaken specific initiatives/capital improvements to increase resource efficiency of its water / wastewater utility AND provides incentives to users to reduce water use ~'+City has undertaken specific initiatives/capital improvements to increase resource efficiency of its water / wastewater utility or provides incentives to users to reduce water use, but not both -City has not has undertaken any significant initiatives/capital improvements to increase water /wastewater utility	NA	+	~	+	Coral Gables: City does not operate water utilities. Ft. Lauderdale: Water demand per capity has reduced 7% 2012-2014 due to escalating block rates, NatureScape irrrigation program, Conservation Pays incentives and Florida-friendly Lanscaping ordinance; City is implementing capital program to reduce I&I. Miami Beach: Water utility is through Miami-Dade WSD. MuniCode Chp 133 Sustainability and Resiliency requires green building criteria intended to promote water efficiency for buildings over 7,000 sf. (Source - MuniCode Chp 133) Pompano Beach: Water conservation goals are integrated into the Strategic Plan; the City implemented AMR via ESPC; City offers free water conservation equipment; Irrigation restrictions have been instituted; participates in the NatureScape irrigation program; City offers extensive water reuse program to large parts of the City.
Low Impact Development	+ City has ordinances, resolutions, directives or policies which require Low Impact Development (LID), and can demonstrate City or community facilities incorporate multiple LID design elements such as: grass swales, bio retention, permeable pavers, rain gardens, tree box filters, green roofs, xeriscaping, and/or rain barrels. ~ City has ordinances, resolutions, directives or policies which encourage but not required LID, but can not demonstrate City or community facilities routinely incorporate multiple LID design elements - City does not have ordinances, resolutions, directives or policies which require LID	~	~	~	~	Coral Gables: City requires LEED certification for City and community buildings, which makes incorporation of LID into new design optional. Ft. Lauderdale: LID concepts are incorporated into the City's complete streets manual. Miami Beach: City has webpage promoting rain barrels. Pompano Beach: The City's Sustainable Development Standards (Code of ordinances 155.5803) include options for LID; The City has opportunistically applied LID features to City facilities.
Stormwater BMPs	+City has a Best Management Practices (BMP) plan in place to reduce stormwater quantity and improve stormwater quality ~ City does not have a BMP plan but has some stormwater policies in place to reduce stormwater quantity and improve stormwater quality - The City has not documented planning regarding reducing stormwater quantity and improving stormwater quality	-	+	+	+	Coral Gables: Based on interview with Public Works staff, City doesn't have stormwater policies. City does have some personnel certified in BMPs. Ft. Lauderdale: City SMP includes proposed system improvements. Miami Beach: Stormwater masterplan includes conservation and resilience BMPs Pompano Beach: City Stormwater Master Plan includes recommended CIPs

Resource Conservation Summary

Score	Description	Coral Gables	Ft. Lauderdale	Miami Beach	Pompano Beach
+	Integrated sustainability strategy	5	4	3	4
~	Progress towards sustainability	5	8	8	6
-	Pre-implementation phase	2	1	1	3
NA	Not Applicable	1	0	1	0

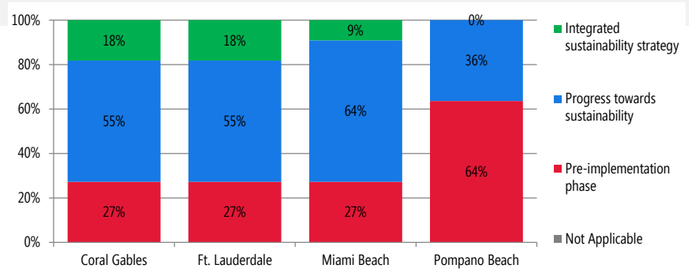


Materials Management

Regulation / Policy	Description	Coral Gables	Ft. Lauderdale	Miami Beach	Pompano Beach	Summary
Waste Diversion Rate	+ City has a MSW diversion rate > 75% ~ City has a diversion rate between 35% and 75% - City has a diversion rate less than the US average of 35%	-	-	-	-	Coral Gables: Community diversion rate is 20%; City operations rate is 12% (Source: SMP) Ft. Lauderdale: Community and municipal diversion rate could not be identified; however, planning documents imply that it is low (Source: 2015 SAP) Miami Beach: Community and LGO diversion rates unknown; Mimai-dade County's rate is only 18% Pompano Beach: Community diversion rate is 20%; City operations is 0%, since recycling and MSW are currently disposed together. (Source: Staff Interviews, Russ Ketchum).
Waste Diversion Policy	+ City has ordinances, resolutions or directives for increasing waste diversion, with targets in place and can demonstrate a diversion rate >50% ~ City has ordinances, resolutions or directives for increasing waste diversion, with targets in place but cannot demonstrate a diversion rate >50% - City has no policies for incresaing waste diversion, including targets.	~	~	~	-	Coral Gables: Strategic Plan includes a goal to meet 60% of the state's 75% diversion goal by 2019. Ft. Lauderdale: SAP includes goal to increase recycling rates by 50% by 2020. Code of ordinances requires recycling at multifamily residences (24-8) Miami Beach: Requires recycling by law (Source: http://www.mbrisingabove.com/your-home/recycling-waste/recyclingrequirements/) Pompano Beach: Code of ordinances requires recycling at multifamily residences for newspapers and magazines(96.21)
Pollution Prevention Policy	+ City has ordinances, resolutions or directives for pollution prevention, with targets in place and can demonstrate minimization is taking place ~ City has ordinances, resolutions or directives for pollution prevention, with targets in place but cannot demonstrate minimization is taking place - City has no waste minimization policies or incentives	+	~	+	~	Coral Gables: City has banned plastic bags, straws and styrofoam. Policy has been embraced by business community and it is complying. City is leading legal efforts in the state to protect these laws from state preemption. Ft. Lauderdale: Has banned straws. Miami Beach: Ordinance 2018-4208 bans plastic straws and stirrers from all city properties, 2018-4205 bans plastic bags, and 2017-4068 bans expanded polystyrene. City also has a "plastic Free MB Businesses" Program that encourages businesses to go plastic-free. Pompano Beach: City has plastic straw ban and ban on Styrofoam at City facilities.
Sustainable Procurement	+City has ordinances, resolutions, directives or policies in place to promote sustainable purchasing practices internally and includes purchasing impacts in GHG report or can demonstrate green purchases are > 50% of applicable purchases. ~ City has a formal sustainable purchasing policy, but does not include purchasing impacts in GHG report or can demonstrate green purchases are > 50% of applicable purchases. - City has not formally incoproprated sustainability into its procurement standards.	~	~	~	-	Coral Gables: Passed green procurement ordinance in 2016. It is still working to implement administrative rules. Meanwhile, Public Works department is piloting and educating peer departments on BMPs. Ft. Lauderdale: Green procurement standards are voluntary / encouraged, but not required. Miami Beach: Resolution 2016-29555 established the City's suatianble procurement policy. Not tracked in GHG inventory or Sus Plan to date. Pompano Beach: No formal policy but IT department buys HP printers and Dell Laptops/desktops that are Energy STAR. Servers are also energy efficient.
Paper Use Reduction	+ City has effective policies, ordinances, resolutions or directives to reduce paper use internally, and can demonstrate reductions greater than 15% from the baseline year ~ City has policies, but they can not yet demonstrate reductions greater than 15% from the baseline year - City has no formal policies addressing paper reduction	~	~	~	~	Coral Gables: Several department are engaging in paper reduction, but there is no comprehensive policy or metrics. Ft. Lauderdale: Several department are engaging in paper reduction, but there is no comprehensive policy or metrics. Miami Beach: Little info found. 2011 Sus Plan mentions waste prevention requirements in ITB/RFP/RFQ processes. Pompano Beach: City uses LaserFiche software that digitizes paper docs; purchase orders, invoices are digital; e-plan for planning documents, did as Lean 6 Sigma project, processes that used to take 34 minutes now take 7; have not calculated paper reduction/cost reduction/GHG benefits, but could do so.
Waste Audit	+ City has completed an internal waste audit and can demonstrate that the results have been used to increase diversion rates and/or revenue generation ~ City has completed an internal waste audit but cannot demonstrate that the results have been used to increase diversion rates and/or revenue generation - City has not completed a waste audit	-	+	-	-	Coral Gables: A waste audit has not been conducted. Miami-Dade has a county-wide waste audit from 2010. Ft. Lauderdale: City has completed a waste composition audit (Source: https://bit.ly/2ZmQDhh) Miami Beach: No evidence of a waste audit found online Pompano Beach: No data provided tosupport completion of a waste audit.
Composting	+ City has a composting program that includes both yard waste and/or food waste ~ City has composting demostration projects, but does not provide services to the public - City has no composting programs	-	~	~	-	Coral Gables: There is no active composting program at the City. The City encourages residential composting. Ft. Lauderdale: The City composts seaweed and by-products from mounted policy barn. It encourages residential composting (https://bit.ly/2KmgwI2). Miami Beach:Residents can drop off their compostable food waste at the Miami Beach Botanical Garden (Source: http://www.mbrisingabove.com/your-home/recycling-waste/composting/) Pompano Beach: There are no active composting programs at the City.
City Operations Recycling	+ City has an internal recycling program and can demonstrate diversion rates above 50% ~ City has an internal recycling program but can not demonstrate diversion rates above 50% - City does not have an internal recycling program	~	~	~	-	Coral Gables: Diversion rate is 12% (2013) Ft. Lauderdale: City has determined recycling rates in each department and has set goal to double rate, perform staff audits and develop a network of "champions" to implement initiatives (Source: 2015 SAP) Miami Beach: City has a signle-stream recycling program for its facilities, diversion rate unknown (Source: 2011 Sustainability Plan) Pompano Beach: City's collected recyclables are comingled with MSW and disposed together.
Hazardous and Universal Waste	+ City has a program to track hazardous and universal waste and can demonstrate reduced hazardous and universal waste generation ~ City has a hazardous and universal waste program but can not demonstrate reductions - No information was available on City's hazardous and universal waste program	+	+	~	~	Coral Gables: City holds regular hazardous waste collection events and tracks mass of materials collected (Source: https://bit.ly/2OvbU7C) Ft. Lauderdale: City holds regular hazardous waste collection events and tracks mass of materials collected (Source: 2015 SAP) Miami Beach: City has hazardous waste collection events (Source 2011 Sustainability Plan). No Info on tracking. Pompano Beach: The City partners with other Broward County municipalities to offer monthly collection and disposal of household hazardous waste and electronic scrap recycling at no cost to residents. A list of materials accepted is available on the City's website. Details of the City's programs to manage universal and hazardous waste generated at municipal facilities are unknown.
Waste Contract Optimization	+ City has a program to optimize collection contracts, pick-up frequency, and to right-size containers, and can demonstrate cost savings ~ City has a program to optimize collection contracts, pick-up frequency, and to right-size containers, but can not demonstrate cost savings - City does not have a program to optimize collection contracts, pick-up frequency, and to right-size containers	~	-	~	~	Coral Gables: City has hired Kessler Consultants to support renegotiation of waste contracts. Ft. Lauderdale: No evidence of waste management optimization. Miami Beach: Audit reports for City private waste hauling contractors found online. The audits check if contractors ar ecomplying with their contract agreements and city codes. Pompano Beach: Waste Manager thinks City has good waste recycling contract b/c it guarantees recycling even when market conditions are not favorable Contract with WM requires CNG trucks.
Waste Management Plan	+City has a waste minimization/management plan that identifies targets, goals, metrics, and measures to increase diversion and or reduce waste generation and can demonstrate improvement ~City has a waste minimization/management plan that identifies targets, goals, metrics, and measures to increase diversion and or reduce waste generation but can not demonstrate improvement -City has not documented a waste minimization/management plan that identifies targets, goals, metrics, and measures to increase diversion and or reduce waste generation	~	-	-	-	Coral Gables: A waste management plan is in progress. City has hired Kessler Consultants. Ft. Lauderdale: No waste management plan. Miami Beach:No evidence of a waste management plan. Pompano Beach: City has a waste management plan, but it has not been formally documented and is subject to change if personnel change.

Materials Mangement Summary

Score	Description	Coral Gables	Ft. Lauderdale	Miami Beach	Pompano Beach
+	Integrated sustainability strategy	2	2	1	0
~	Progress towards sustainability	6	6	7	4
-	Pre-implementation phase	3	3	3	7
NA	Not Applicable	0	0	0	0



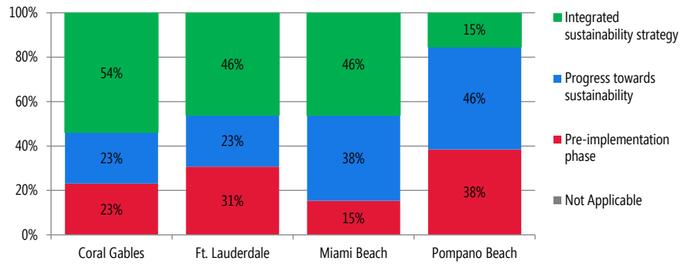
Land Use & Transportation

Regulation / Policy	Description	Coral Gables	Ft. Lauderdale	Miami Beach	Pompano Beach	Summary
Zoning Code	+ City has incorporated significant policies designed to require sustainable building practices or measures to improve resiliency into its zoning code '= City has incorporated significant policies designed to encourage sustainable building practices or measures to improve resiliency into its zoning code '- City does not have signficant policies that require or incentivize or encourage sustainability or resiliency in its zoning code	+	-	+	+	Coral Gables: Zoning Code includes Sustainability Standards (Section 5-1302). 2018 Zoning Code amendment requires EV charging stations for all new construction, except SFR, duplex and townhouses. All new construction requiring >20 parking spaces must reserve 2% for EVs. Zoning code includes open space requirements. Parking requirements are reduced for projects that acheive LEED certification. Minimum open space, bicycle stoarage infrastructure, sidewalks and pedestrian amenities are required. Fort Lauderdale: Zoning code enables dockless mobility programs. Zoning code includes landscape and tree preservation requirements. Zoning code includes irrigation efficiency requirements. Miami Beach: Sustianable Building code requires LEED; also resiliency provisions Pompano Beach: Chapter 152.51 of Code establishes an optional program for LEED certification of City facilities. Code of ordinances 155.5803 establishes Sustainable Development Standards that requires developers of multifamily and nonresidential / mixed use incorporate a minimum level of sustainability features selected from a list. Zoning code includes requirements for landscaping and tree preservation, including irrigation efficiency requirements. Zoning code includes options for electric vehicle charging.
Adaptation Action Areas	+City has established Adaptation Action Areas (AAAs), incorporated them into the Comprehensive Plan and is moving forward with funding and implementing projects ~City has established AAAs, but not yet updated Comprehensive Plan or moved forward with funding or implementation -City has not addressed AAAs	-	+	+	-	Coral Gables: Has not established AAAs Fort Lauderdale: Established AAAs, amended its Comprehensive Plan to include AAAs in Coastal Management Element (Source: https://bit.ly/314eKBP), and established projects and began funding for them as part of its 2016-2020 Community Investment Plan. City has continued through its current CIP. Did not include maps in Comp Plan to retain flexibility to change the AAAs. Have not attempted to develop a regulatory scheme for land use w/in AAAs. Miami Beach: The entire City has been designated an AAA Pompano Beach: The City has not yet formally adopted adaptation action areas. It is activity considering development AAAs as it revises its Comprehensive Plan and awaits release of the Coastal Zone A flood zone.
Green Building Policy	+City has ordinances, resolutions, directives or policies which require green building in the community. ~City has ordinances, resolutions, directives or policies which require green building in City facilities / operations OR incentivize green building in the community. -City has few or no policies promoting green building for City facilities / operations or the community.	+	-	+	~	Coral Gables: 2016 ordinance required LEED Silver for all new City buildings and all other buildings over 20,000 sf. A Green Building Bond is required that is forfeit to the City if requirements are not met. Fort Lauderdale: Fort Lauderdale has no incentives or requirements for green building. The City's "Green Your Routine Website" provides "tips" for green building. A cool roof ordinance is in development. Considering a green building or energy disclosure policy. Miami Beach: 2016 ordinance required LEED Gold / Living Building Challenge / Net Zero certification for any new construction over 7,000 sf or ground floor additions to existing structures over 10,000 sf additional floor area. Developers pay a sustainable fee reibursable upon meeting the ordinance standards. Fees gathered for projects that do not meet standards are allocated to a sustainability and resilience fund. Pompano Beach: Chapter 152.51 of Code establishes an optional program for LEED certification of City facilities. Code of ordinances 155.5803 establishes Sustainable Development Standards that requires developers of multifamily and nonresidential / mixed use incorporate a minimum level of sustainability features selected from a list.
Comprehensive Planning	+City has incorporated sustainability throughout the comprehensive plan as a core value ~City has some elements and policies which encourage or promote sustainability in comprehensive planning -City has no policies promoting use of sustainability / resilience in comprehensive planning beyond those required by law.	+	~	+	~	Coral Gables: Comprehensive Plan includes a "Green" element along w/ several policies aimed at promoting sustainability. Fort Lauderdale: Comprehensive Plan GOPs includes Adaptation Action Areas, several provisions regarding resilience to climate change effects and promotion of energy effciency. Comprehensive Plan elements do not include any analysis related to sustainability / resilience. Miami Beach: City's 2025 Comprehensive Plan includes objectives related to sustainability, energy efficiency, multi-modal transit, resilience and AAAs Pompano Beach: City is currently updating its Comprehensive Plan. A primary objective of the update is to incoporate sustainability and resilience elements throughout the document. The current plan includes content related to climate change in the Conservation Element (Source: https://bit.ly/334mqWu)
Transit	+City provides / enables transit services that supplement regional services and is acheiving signficant VMT reductions ~City provides / enables transit services that supplement regional services, but is not measuring or acheiving signficant VMT reductions -City does not provide / enable transit services that supplement regional services and / or VMT is increasing rapidly	~	~	~	~	Coral Gables: City operates a free trolley system designed around the Metrorail system. City is developing a multi-modal transit plan. City has enabled dockless bike and scooter share. No evidence of VMT reductions. Fort Lauderdale: City enables the SunTrolley and water taxi services which connect to regional transit services. It has also enabled bike / scooter share. City recently voted to end involvement in the WAVE streetcar program. Miami Beach: City operates a local trolley service and collaborates with MDC on transit facilities and routes Pompano Beach: Partners with Broward County to provide four community bus routes. No bike / scooter share program.
Bicycle / Pedestrian Network	+City has a formal bicycle / pedestrian, complete streets and/or bike / pedestrian safety plan and is actively engaged in developing complete streets, multi-use paths, etc. and associated amenities to encourage use of these modes and to improve safety ~City has developed complete streets, multi-use path projects opportunistically without guidance from a clear planning framework -City has no planning or implementation related to bicycle / pedestrian amenities	+	+	+	~	Coral Gables: City has a Bike / Ped Master Plan. City provides free bike racks to businesses. City is developing a Multimodal Transit Plan and a Bike / Ped Implementation Plan. It has completed several complete streets projects. (Source: https://bit.ly/2GEtyj2) Fort Lauderdale: City has complete streets policy and manual. City has adopted a vision zero plan for bike and pedestrian safety. (Source: https://bit.ly/2GGCSma). Adopted the implementation program entitled Connecting the Blocks Program, a multimodal infrastructure program, which identifies needed bicycle, pedestrian and transit improvements to establish a connected and multimodal community. Miami Beach: Bike/Ped is addressed in 2025 Comp Plan. City has good bike infrastructure and is improving. Pompano Beach: City has Complete Streets Design Manual and has completed demonstration projects. It has not developed a clear bicycle and pedestrian plan.
Urban Forestry	+City has a signficant tree canopy supported by policies and programs to monitor / maintain / expand it and has received third-party recognition for its canopy (e.g. Tree City USA) ~City has policies and programs in place to maintain / expand its tree canopy -City has no policies related to its tree canopy	+	+	+	+	Coral Gables: City has tree ordinances and permitting, has a geospatial inventory of its canopy, has a tree succession program and gives away trees, certified Tree City USA (Source: Sustainability Action Plan) Ft. Lauderdale: City has a canopy goal, has tree ordinances and permitting, has a urban forester on staff and provides urban forestry servcies and gives away trees, certified Tree City USA (Source: https://bit.ly/2GE0QOW) Miami Beach: Miami Beach has been a Tree City USA community since 2005, has a tree inventory. (Source: http://www.mbrisingabove.com/climate-mitigation/urban-canopy-2/) Pompano Beach: City has Urban Forestry Division, has tree ordiance and permitting, certified Tree City USA (https://bit.ly/2K9muLW)
Open Space	+ City provides ample (e.g. 6.8 - 20 acres / 1000 residents, per Trust for Public Land standards as adopted by STAR Communities) parkland relative to population density, open space is located within 1/2 mile of most housing units and parklands are well connected by off-road trails ~ City provides open space meeting County LOS requirements (as applicable), but not at the level defiend above; City has adopted standard for open space located w/in 1/2 mile of most housing units. - City is not providing open space at the LOS levels noted above	-	-	~	~	Coral Gables: LOS standard is 0.3 acres / 1,000 & 1/4 mile. Comprehensive plan does not include analysis of LOS performance (Source: https://bit.ly/2KbFVFq). Ft. Lauderdale: LOS for density is variable. For radius it is and 1/4 to 1/2 mile. Performance is 1.29 - 2.43. The County Standard is 3 acres / 1,000 residents (https://bit.ly/2GEhVZ6). Miami Beach: City's LOS standard is 10 acres per 1,000 residents for recreation and open space (Source: 2025 Comp Plan page 34). Miami Dade County requires only 2.5 acres per 1,000 residents for unincorporated areas. Pompano Beach: LOS standard is 1-2 acres / 1,000. There is no standard for radius. Performance is 1.4 - 3.6 acres / 1,000
Alternate Fuels	+ City has formal policies in place to require or incentivize use of environmentally preferable alternate fuels in its vehicle fleets, and has installed significant alternative fuels infrastructure or purchased alternative fuel vehicles ~City has formal policies which promote or encourage use of environmentally preferable alternate fuels in its vehicle fleets or have implemented limited alternative fuel vehicles and infrastructure -City has no policies or plans encouraging alternative fuels and have limited alternative fuel vehicles or infrastructure	+	+	~	-	Coral Gables: Strategic plan has goal for reducing gas / diesel use, 2% below 2013 by 2019 (Source: https://bit.ly/2K8L5BZ). SMP includes goals (20% below 2013 by 2025)projects related to alternative fuels. City has procured 51 EVs w/ a goal of 78 EVs by 2021. There are 2 level 3 and 5 level 2 EVSE at City parking facilities. The City tracks EVSE usage. (Source: https://bit.ly/2ZrcW5q) Ft. Lauderdale: SAP sets goal to reduce fossil fuel use by 20% by 2020; 39% of fleet in 2015 was hybrid or ULEV (Source: 2015 SAP). There are 13 EVSE at City parking afacilities (Source: https://bit.ly/331Ta2K) Miami Beach: Fleet has ~20 hybrid vehicles and ~3 EVs, fleet management is working towards goal of reducing fuel use an GHG emissions. (Source: Miami Beach Fleet Workplan) Pompano Beach: The City has no alternative fuel policies. The fleet does not utilize alternative fuels. It has developed limited (e.g. 4 level 2 stations in city parking facilities) EVSE for public use.

Electric Vehicles & Infrastructure	+ City has made a significant investment in electric vehicles and public EV support equipment (EVSE) ~ City fleet includes at least a few electric vehicles and has installed several public EVSE - City has no electric vehicles in fleet. It has limited public EVSE	+	~	~	-	Coral Gables: Largest municipal EV fleet is state (51 vehicles), 2 Level 3 public EVSE and 3 Level 2 public EVSE Ft. Lauderdale: No evidence of EVs in City fleet. City has installed 13 public EVSE. Miami Beach: City requires multi-family and commercial construction to include EV parking. City has installed 8 L2 ESVE and a Tesla Supercharger in its garages. Ordinance 2016-3988 incentivizes EVs and EV parking. (Source: http://www.mbrisingabove.com/climate-mitigation/green-house-gases/electric-vehicles/) Pompano Beach: City has not EVs. I has 4 pubilc EVSE.
Fleet Right-sizing & Efficiency	+City has formal programs / policies / initiatives to analyze fleet needs, match vehicles to needs and preferentially procure the most efficient vehicles for the task to reduce fuel use, VMT or uncessary vehicles ~City opportunistically pursues strategies to procure efficient vehicles, reduce VMT or elminate unecessary vehicles from the fleet without any formal requirements to do so -City does not deliberately manage its fleet to reduce fuel use, VMT or uncessary vehicles	~	+	~	~	Coral Gables: SMP includes initiatives related to right sizing; however, it is not a formal part of division SOPs. Ft. Lauderdale: SAP includes initiatives for right-sizing and calculates savings from fleet efficiency initiatives. City explicitly practices right-sizing, performing audits to identify underutilized equipment. (Source: https://bit.ly/2KjvcaC) Miami Beach: Fleet management is working towards goal of reducing fuel use an GHG emissions. (Source: Miami Beach Fleet Workplan) Pompano Beach: Fleet director has substituted some more efficient vehicles, although departments have the final say. Vehicles have GPS tracker that shows idling times, could be used to limit idling. City pushes workers to limit idling in cool months, in summer they need the AC. City doesn't have official anti-idling policy. IT created "where is my inspector app". It optimizes routing for building inspectors and customers can see inspector's progress through the route.
Fuel Efficiency Policy	+City has an anti-idling or other formal fuel conservation initiatives in place and can demonstrate fuel savings as a result ~City has an anti-idling or other formal fuel conservation initiatives in place but cannot demonstrate fuel savings as a result -City has no significant fuel conservation initiatives	~	+	-	-	Coral Gables: No anti-idling policy. City has formal goals for fuel conservation (2% below 2013 by 2019, 20% below 2013 by 2025) Ft. Lauderdale: City has anti-idling policy as well as formal goals to reduce fuel consumption (20% by 2020) Miami Beach: MuniCode section 142-745.h says delivery trucks are not permitted to idle in loading areas. No other refernces to anti-idling policies found. Pompano Beach: No formal anti-idling or fufel efficiency policy.
Vehicle Fugitive Emissions	+City tracks refrigerant use for vehicle fleet, calculates fugitive emissions and includes vehicle fleet fugitive emissions in GHG inventory ~City tracks refrigerant use for vehicle fleet but does not include emissions in GHG inventory -No info on vehicle fleet refrigerant use/fugitive emissions available	-	-	-	-	Coral Gables: Fugitive emissions data not available for 2013 or 2017 LGO inventories. Ft. Lauderdale: No evidence of fugitive emissiosn data included in GHG inventory. Miami Beach: Fugitive emissions not included in 2015 LGO Inventory (Source: https://bit.ly/3376eDS). Pompano Beach: No GHG inventory for the City.

Land Use and Transportation

Score	Description	Coral Gables	Ft. Lauderdale	Miami Beach	Pompano Beach
+	Integrated sustainability strategy	7	6	6	2
~	Progress towards sustainability	3	3	5	6
-	Pre-implementation phase	3	4	2	5
NA	Not Applicable	0	0	0	0

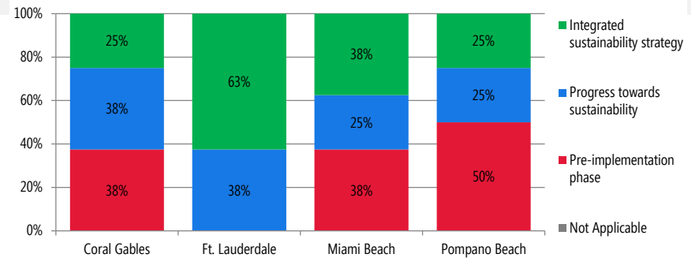


Equity and Outreach

Regulation / Policy	Description	Coral Gables	Ft. Lauderdale	Miami Beach	Pompano Beach	Summary
Public Outreach	+ City has three or more instances of documented programs, campaigns, and plans to consistently provide outreach and education on sustainability, climate change, greenhouse gas reduction, resource-efficient buildings, waste reduction and recycling, community awareness of natural hazards and hazard resiliency, etc. ~ City has less than three documented instances of consistsent outreach/education programs related to sustainability, as above - City has no signficant, consistent outreach and education related to sustainability	+	+	+	~	Coral Gables: City has limited web presence and active social media; City has held sea level rise dialogues; City has held public meeting related to development of its SMP; City holds regular Hazardous Materials events; City has television station that has produced content related to sustainability. Ft. Lauderdale: City has extensive web presence, including a suite of pages aimed at educating and encouraging citizens to behave sustainably; City has developed a mobile app; City has engaged in energy efficiency campaign; City holds regular Hazardous Materials collection events. Miami Beach: Many examples on City website Pompano Beach: Water utility department has done a lot of public outreach around conservation.
Third Party Verification	+ City has completed a STAR/LEED for Cities assessment or similar, and is certified ~ City has completed a feasibility assessment for STAR/LEED for Cities or a similar program or plans to certify in the near future or has become Florida Green Government Certified - City has not completed a STAR/LEED for Cities assessment or similar community benchmarking exercise	~	~	-	-	Coral Gables: The City has completed a preliminary feasibility study for STAR / LEED for Cities as part of its SAP (Source: SAP) Ft. Lauderdale: The City maintains (recertified in 2019) Florida Green Government Certified at the Gold Level (Source: https://bit.ly/2SUAKw8) Miami Beach: City does not appear to be FL Green Government, STAR Communities, or LEED for Cities certified. Pompano Beach: City has not completed any relevant assessments.
Affordable Housing	+City has multiple programs to address affordable housing and has seen and improvement as a result ~ City has a least one program to address affordable housing - City has no affordable housing programs	-	+	~	+	Coral Gables: The city has no affordable hosuing programs. The City's comprehensive plan includes several GOPs related to affordable housing. Ft. Lauderdale: Housing Authority of the City of Fort Lauderdale provides affordable housing. It has certified neighborhoods and facilities under the LEED rating system. The City has several programs, e.g. CDBG, HOME, SHIP. (Source: https://bit.ly/2LSgwCv) Miami Beach: 2011 Sustainability Plan lists: Housing Rehabilitation, Scattered Site Home Counseling, Multi-Family Housing Rehabilitation Program, Private Investment as existing affordable housing initiatives. City has an affordable housing wait list for two properties, Neptune Apartments and Madeleine Village. In July 2018 12,000 applied for 1,000 openings. Pompano Beach: The City is seen as a regional leader in provision of affordable housing. It has conducted housing needs assessment and market analyses. The City develops affordable housing.
Health and Wellness	+City has significant health and wellness programs for both employees and the community at large ~ City has provide limited health and wellness programs for either employees or the community at large - City has not taken any actions regarding health and wellness	~	+	+	+	Coral Gables: City provides fitness and wellness programs at its municipal fitness center. The City provides a wellness newsletter to staff. Ft. Lauderdale: City operates a health and wellness center that provides employees with primary, preventative and acute care; City has a biometric screening and health risk assessment program; Parks and Recreation department offers a wide range of programs Miami Beach: City's resilience startegy includes focus on Thriving Community which includes health and wellness; city offers wellness program to employees; was named one of FL top 10 healthiest employers (Sources: http://www.mbrisingabove.com/your-city-at-work/resilience-strategy/discovery-areas/4-a-thriving-community/ and https://www.miamibeachfl.gov/city-hall/human-resources/benefits/benefit-summary/wellness-program-contact/) Pompano Beach: The City hosts public events focused on health and wellness, for instance a free Health and Financial Wellness Fair was held in July, 2019. The event featured local medical providers conducting free health screenings along with financial seminars and insurance information for residents. Employee wellness programs are incorporated into the Fire Department as a result of CFAI certification. Workshop participants felt the City has robust health and wellness programs for employees.
Food Security	+City supports local food programs AND has taken steps to address food deserts ~ City supports either local food programs OR has addressed food deserts, but not both; or City has other programs that address food insecurity for lower-income residents - City has not taken any actions with regard to local food or food deserts	-	~	-	-	Coral Gables: No evidence of programs related to food security. Ft. Lauderdale: The City passed an ordiance (C-12-24) permitting urban farms and community gardens. Miami Beach: Nothing found on City website for community garden, food desert, local food, food insecurity Pompano Beach: The United States Department of Agriculture's (USDA) Food Access Research Atlas shows there are low-income census tracts in Pompano Beach where a significant number of residents are located more than one mile from the nearest supermarket. A search of the City's website did not reveal any current or past City programs focused on alleviating food deserts or food insecurity, indicating this may be an area for future attention.
Workforce Development	+City has programs which encourage businesses to create jobs for low income residents AND City provides/supports job training/workforce development for residents ~ City has at least one program which encourages businesses to create jobs for low income residents OR provides/supports job training/workforce development for residents, but not both - City has does not have any programs to encourage job growth or support workforce developemnt	-	~	-	~	Coral Gables: No evidence of workforce development programs. Ft. Lauderdale: The City supported green training through the Opportunities Industrialization Center academy (Source: 2015 SAP). Miami Beach: Miami Dade has Community Workforce Program. Did not find examples for Miami Beach. Pompano Beach: The City of Pompano Beach administers federal Community Development Block Grant ("CDBG") funds for eligible economic development projects. The Revolving Loan Fund (RLF) Program provides loan funds to eligible businesses with the ultimate objective of creating jobs for low/moderate income people.
Employee Engagement	+ City offers sustainability training for City employees, has employee engagement programs/incentives, and integrates sustainability into hiring and retention policies. ~ City has one or more of the above - City has no sustainability training, hiring, or employee engagement policies or programs	~	+	~	-	Coral Gables: City planning to train staff through the CLEO institute Ft. Lauderdale: City has provided specialized training to staff on how to integrate climate change into services and planning. The City has engaged staff in ISO 14001 training. The City engaged CLEO institute to train existing and new employees. Have engaged with NOAA for climate sciene training for 40+ employees. Miami Beach: Strategic plan includes management objectives to foster rewarding careers through training and assignements; includes resilient 305 goal of resiliency training for all Pompano Beach: No evidence of employee engagement regarding sustainability
Stakeholder Engagement	+City has formally identified its stakeholders and sucessfully engaged them in one or more sustainability or resiliency planning processes ~ City has identified it's stakeholders through a formal stakeholder mapping exercise - City has not identified or engaged stakeholders	+	+	+	-	Coral Gables: The City has identified sustainability / resilience stakeholders through its SMP and engaged them in development of the document. The City maintains a Sustainability Advisiory Committee. It has engaged in several outreach events. Ft. Lauderdale: The City has developed a "Green Your Routine" website and developed messages for business, residents, students and visitors. Miami Beach: City participated in developed Resilient 305 which included extensive stakeholder analysis Pompano Beach: No evidence of stakeholder engagement regarding sustainability / resilience at this time.

Equity and Outreach Summary

Score	Description	Coral Gables	Ft. Lauderdale	Miami Beach	Pompano Beach
+	Integrated sustainability strategy	2	5	3	2
~	Progress towards sustainability	3	3	2	2
-	Pre-implementation phase	3	0	3	4
NA	Not Applicable	0	0	0	0

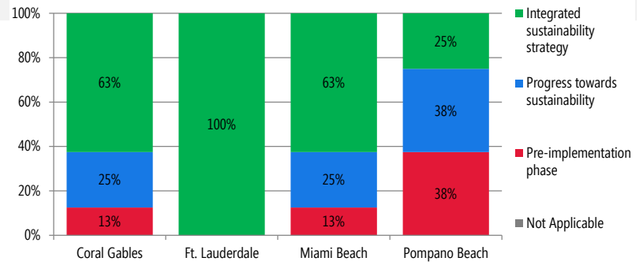


Policy and Economics

Regulation / Policy	Description	Coral Gables	Ft. Lauderdale	Miami Beach	Pompano Beach	Summary
Sustainability Planning	+City has developed planning documents (e.g. sustainability / resilience / climate action plan) that includes goals and initiatives and systematically tracks / communicates implementation progress on goals / initiatives ~City has demonstrates evidence of planning documents or active implementation of initiatives, but not both -City demonstrates no active sustainability planning activities	+	+	+	~	Coral Gables: City has a Sustainability Action Plan and an active web presence that communicates progress (Source: https://bit.ly/2yoBfoL). Ft. Lauderdale: City has a Sustainability Action Plan (2010) that was updated in 2011; City has ISO 14001 Environmental and Sustainability Management System, and an active web presence that communicates progress (Source: https://bit.ly/2LYj6ar). Miami Beach: City published a sustainanability plan in 2010. Plan includes goals and initiatives. Website communicates progress (Source: Sustainability Plan) Pompano Beach: City has no formal plan. While it has implemented several intiatives, it does not systematically communicate its implementation.
Institutions for Managing Sustainability	+City has a mature institutional structures for managing sustainability / resilience externally or internally, e.g. (Division, Responsible Staffer, Community advisory board and internal team that advises on operational sustainability) `City has some institutional structures for managing sustainabiilty (e.g. a staffer and an informal committes) -City has no institutional structures for managing sustainabity	+	+	+	~	Coral Gables: City has established Sustainable Public Infrastructure Division w/in its Public Works Department, has a dedicated staffer (Matt Anderson) and a Community Advisory Board (Source: https://bit.ly/2K8i7IG) Ft. Lauderdale: City has established a Sustainability Division w/in its Public Works Department, has a dedicated staffer (Glen Hadwen), a Sustainability Advisiory Board (Source: https://bit.ly/2K8ViON) and a Green Team (Source: https://bit.ly/33cw1ea) Miami Beach: Has sustainability director and dept., sustainability and resilience comittee, etc. Pompano Beach: No sustainability dept yet. Has plans to hire a sustainability coordinator.
Integration into Management Framework	+ Multiple sustainability and resiliency goals and projects have been implemented into most City planning documents (Strategic plan, comprehensive plan, capital improvement plan, etc. ~ At least one sustainability or resiliency goal or project has been implemented into City planning documents (Strategic plan, comprehensive plan, capital improvement plan, etc. - Sustainability and resiliency goals and projects have not been implemented into any City planning documents	+	+	+	+	Coral Gables: City has formally integrated elements of its SAP into is strategic plan, capital improvement plan and budget plan. Ft. Lauderdale: City is developing an index of sustainability / resilience in its Code of Ordinances (https://bit.ly/2YwMcTR); Sustainability / Resilience is well-integrated into Budget Plan and evaluation of performance, Environmental benefits are a criteria for prioritizing and scoring capital improvement projects; Strategic plan includes explicit sustainability / resilience goals and additional goals related to sustainability (https://bit.ly/2Zm4CE3); Vision Plan includes sustainability as one of six parts (https://bit.ly/2Ke94i4) Miami Beach: Sustainability/resilience element incorporated into strategic plan Pompano Beach: Sustainability / adaptation has been integrated into Vision 2033 and the 2018 Strategic Plan. Sustainable development standards have been incorporated into LDRs. The comprehensive plan is currently being revised and will include sustainability / resilience concepts.
Smart Cities	+ City has a smart city plan that incorporates sustainability or has implemented smart city connected technology and consciously uses it to strengthen the sustainability program ~ City is planning to implement smart city technology; or has implemented it but with no tie to sustainability program - City has not embraced smart city technology	~	+	~	~	Coral Gables: Ft. Lauderdale: City is using Smart Cities technology to manage parking (Source: https://bit.ly/32Zcwpa), it is using GIS to support resilience initiatives (Source: ESRI Case Study) Miami Beach: CONFIRM: 2019 Strategic Plan mentions goal to be a Smart City. City is using software dashboards to track performance indicators. (Source: Strategic Plan) Pompano Beach: The City is actively considering several smart city technologies, and is considering synergies with sustainability.
Sustainability Reporting	+City issues an annual, bi-annual, or other regular, publically available sustainability report ~ City has published at least one sustainability report - City has not yet published a sustainability report	-	+	-	-	Coral Gables: The City has not published is SAP. No formal regular reporing on sustainability. Ft. Lauderdale: The City published a progress report for its 2010/2011 SAP in 2015. It is currently working on an update. Miami Beach: Did not find a sustainability report Pompano Beach: The City has not published any sustainability / resilience reports.
Data Management Systems	+ City has a comprehensive data management system that summarizes sustainability data for ease of review and reporting ~ City has a limited data management system that summarizes sustainability data, but it doesn't cover all indicators needed or is not comprehensive for the entire sustainability program (example: Portfolio manager) - No sustainability data management system	~	+	+	-	Coral Gables: City has a staffer who is partially responsible for gathering and tracking data related to sustainability performance, but not a comprehensive system. Ft. Lauderdale: Data appears to be collected as needed to complete projects and monitor progress. In 2015, use of Energy Star Portfolilo Manager was just beginning, tracking of fleet data was established. Established ISO 14001 for certain operarations. Has adopted an "integrated environmental management, auditing, evaluation and revisions system." (Source: 2015 SAP Progress Report) Miami Beach: City has developed 3 pilot dashboards using Power BI, a business analytics tool, and plans to expand them. (Source: 2019 Strategic Plan)
Financial Performance	+ City has an A or better bond rating and generally good financial performance '~ City has at least a B bond rating '- City has financial challenges relative to the economic climate	+	+	+	+	Coral Gables: Moody' AA1, S&B AAA as of 2018 (source: https://bit.ly/2K50ymp) Ft. Lauderdale: Moody's AA1, S&P AA+ as of 2018 (Source: https://bit.ly/2YvzYep) Miami Beach: Moody's AA2, S&P AA+ as of 2018 (Source: https://bit.ly/2LMIrnm) Pompano Beach: Moody's AA2; S&P AA in 2018 (Source: City of Pompano Beach Adopted Operating Budget)
Sustainability Funding	+City has a sustainability revolving fund (SRF) or other dedicated source of sustainability funding. ~ City has sucessfully funded the sustainability program, but does not have an SRF or dedicated source of funding - City struggles to fund sustainability program, or program is in early stages	+	+	~	-	Coral Gables: The Sustainability & Transportation division within Pubilc Works has a 2020 budget of $400K, no increase over 2019. A revovling fund has been considered but is not established. Ft. Lauderdale: The Sustainability Division within Public Works has a 2020 budget of $1.7M an increase of 34% over 2019 (Source: 2020 Budget). It is unknown if a revolving fund is in use. Miami Beach: CONFIRM: did not find refence to revolving fund

Policy and Economics Summary

Score	Description	Coral Gables	Ft. Lauderdale	Miami Beach	Pompano Beach
+	Integrated sustainability strategy	5	8	5	2
~	Progress towards sustainability	2	0	2	3
-	Pre-implementation phase	1	0	1	3
NA	Not Applicable	0	0	0	0



6.3 INTERVIEWS WITH THE CITY COMMISSION

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CITY OF POMPANO BEACH SUSTAINABILITY STRATEGY
COMMISSIONER INTERVIEWS
AGENDA & MINUTES:

Meeting Date: April 17, 19 & 22, 2019

Meeting Place: 3rd Floor Conference Room, 100 W Atlantic Blvd, City of Pompano Beach, FL

Participants:

- Andrea McGee (4/17), Rhonda Eaton (4/17), Tom McMahon (4/19), Vice Mayor Barry Moss (4/19), Mayor Rex Hardin (4/19), Beverly Perkins (4/22)
- Jean Dolan (4/17, 4/19, 4/22), Jennifer Gomez (4/17, 4/19) - COPB
- Robert Collins (4/17, 4/19), Silvia Vargas (4/19, 4/22) – Calvin & Giordano & Assoc.
- Sheryl Dickey (4/22) – Dickey Consulting
- Ben Moore (4/17, 4/19, 4/22) – RS&H

I. Introductions & Project Overview: Introduce meeting participants and understand the project scope, schedule, etc.

II. Sustainability / Resilience Challenges & Opportunities: Understand the sustainability / resilience challenges and opportunities for the City.

1. What are the main sustainability and/or resilience opportunities that you see for the City?
2. What are the main barriers to sustainability and/or resilience that you see for the City?
3. What level of sustainability / resilience commitment / leadership should the City adopt?
4. What are some of the main results that you would like to see come out of a City Sustainability Strategy?

Compiled By: Ben Moore (954) 236-7378
Distribution: [Individuals CC'd]
File Location: [File Location]

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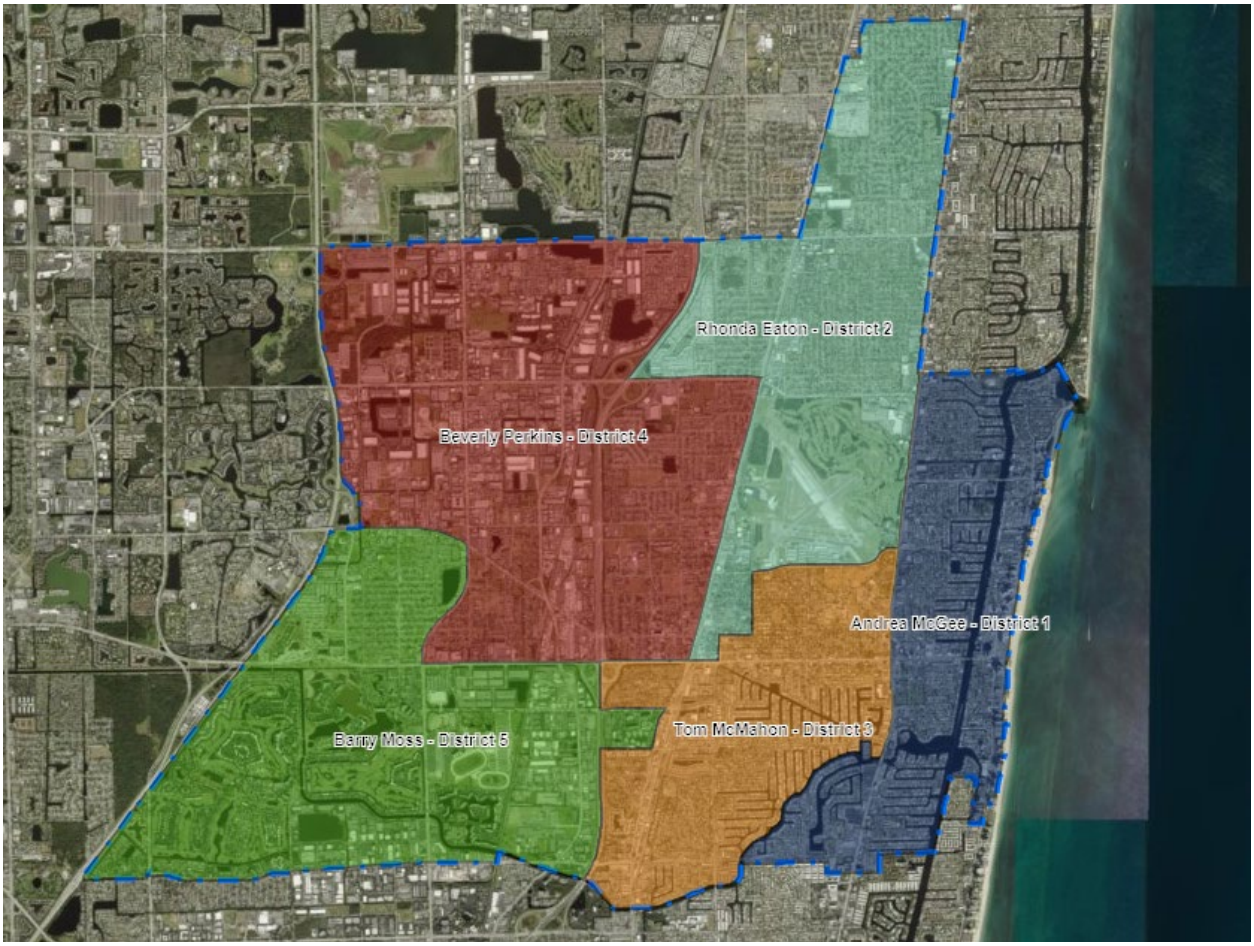
FIGURE 1: CITY OF POMPANO BEACH COMMISSION DISTRICT MAP



ANDREA MCGEE

Background

- District 1, Beach
- Real Estate broker, born and raised in Pompano Beach
- Mother is from Aruba; Aruba is close to energy independence and may be a good benchmark.
    - Jean Dolan mentioned that Atlanta is committing to 100% renewable energy. Would that be a commitment COPB should consider?
        - AG doesn't want to set a goal that isn't practical. She is concerned that 100% renewable energy may not be a practical goal.

Development

- Focus on integrating sustainability and vulnerability to new development. City currently has strong new construction standards.
    - Jean Dolan: 49% of building value renovations are required to meet new development standards. There is a separate standard for major renovations

Innovation District

- The district should attempt to attract "greentech" / "ecotech" companies.

- Supports an "Eco-district" concept for the Innovation district.

Sea Level Rise

- Seawall replacement: The City should require as high a standard as it can accomplish – "go as high as you can go".
- Very interested in coastal protection w/ respect to sea level rise.

Transit

- Interested in intercity mass transit for snow birds, retirees and tourists, residents on weekends. Weekly commuters are not as high a priority.
    - Would like to improve community shuttle service, which currently consists of four routes (Sponsored by the MPO). Suggestions include:
        - Improved routing
            - Route ideas include Atlantic Ave., A1A
        - Improved bus stop amenities
        - Improved rolling stock that is more inviting, distinctive. (Current stock looks like airport shuttles and may not induce or could discourage ridership).
            - Rolling stock should be electric
- Interested in ensuring Coastal Link becomes a reality in the City.
    - Jean Dolan / Jennifer Gomez noted that the City was involved in planning for the stations
- Suggested a mobile app to link mass transit options (water taxi, community shuttle, parking, freebie shuttle, hop-on-hop-off trams, etc.)
- Water Taxi:
    - Too expensive
- Believes TriRail stop at new casino is important to implement

Mobility

- Would like to see the City encourage use of "zip cars" / "flex cars" as is done in other cities (e.g. Washington DC)
- Dockless bikes / scooters:
    - Not opposed, but she is concerned about safety and clutter.
- Complete Streets:
    - Doesn't like the phrase. The City should develop a new language for promoting the concept.
- The City needs a better street tree canopy to promote pedestrian uses
    - There must be an adequate setback for large trees. Generally, prefers larger setbacks for pedestrian amenities and larger street trees.
    - Would like the City to require structural paving to accommodate larger trees.

Renewable Energy

- 100% renewable energy:
    - AG doesn't want to set a goal that isn't practical. She is concerned that 100% renewable energy may not be a practical goal.
- Cited a case in Oregon, where she believes turbines are being installed inside sewer pipes for power generation. Would like to know if it is feasible at COPB? [See link: http://tinyw.in/eZKK. Portland is working with startup, LucidEnergy to install turbines in *gravity-fed water domestic water* pipes. According to reference, 50 feet of pipe w/ turbines = 1,100 MWh / year @ cost of $1.7M. More study would be needed to determine if a similar system would be feasible in Pompano Beach.]

- Concerned about consumer protection for alternative project delivery for residential / small commercial solar (e.g. solar lease), citing a California company called Zero Energy, which she claims defrauded citizens.
    - Accordingly, she is not entirely supportive of distributed generation / solar at COPB.

Leadership

- Be bold on the mitigation side and the adaptation side.

RHONDA EATON

Background

- District 2
- Lived on barrier island in the past.

Development

- Entitlements in some areas are skewed (i.e. development is too intense in some areas; e.g. high-rises next to existing SFR).
    - Jean Dolan: County creates land use entitlements. Original maps reflected existing conditions. Cities can reduce entitlements established by the County as long as they don't violate property rights, but cannot increase them.
- Supports mixed use development.
- Her perception is that tourism is increasing, population is increasing, and lots of development is planned

Sustainability

- Definition of sustainability: vibrant healthy economy with good jobs, restaurants, hotels; electrified public transit; business-friendly city
- Would like to see City services become friendlier to residents:
    - Expedited permitting for commercial, residential renovation
        - Currently have to hire architect, engineer & builder for minor renovations
    - Make resources available on City website

Climate Change

- Supports finished first floor requirements for new builds.
- Would like to determine how to influence raising sea walls.
    - Jean Dolan: policy on sea walls is forthcoming from the County

Environmental Quality

- Her perception is that air quality is very good and is an asset to the community
- Water
    - Concerns
        - Water resources
        - Canal conditions
        - Flooding
    - Reclaimed water:
        - Would like to see it expand throughout the City.
            - Jean Dolan: City annexed parts of the County, but County retained right to provide utilities to pay off recent investments. Those areas may be hard to serve w/ reclaimed water.

    - No waste water plant for City; uses county.
- Concerned with noxious land uses, e.g. industrial uses impacting residential uses.

Mobility

- Not worried about traffic; doesn't feel like it has a big impact on quality of life at COPB.
- Supports Coastal Link:
    - Would like the City to leverage assets it has (e.g. FEC rail line) that it has to support development (e.g. Transit-oriented development induced by Coastal Link).
        - Would like to see a Coastal Link stop in Pompano Beach @ the Innovation District
- City is in a transportation concurrency exception zone. Can't add new lanes. Thus, transit is important.
- Gas tax revenue (one cent sales tax):
    - County has refused to allocate funding to the City for its own determination; open debate to see if City's will have any control over funding.
        - Jean Dolan: One cent sales tax funding will only add fiber optic infrastructure along Atlantic avenue, according to the Plan advertised for passage of the tax.

DICUSSION PRIOR TO INTERVIEWS ON 4/19/19

- Jean Dolan: Code for new construction incorporates sustainability / vulnerability elements. Working on revising them. Looking to understand the appetite for new regulation as new approaches are developed.
- Jean Dolan: County sea wall policy vs. city policy – both are in development
- Ben Moore: What kind of data inventory and analysis is being done by CGA for the resilience / sustainability element?
    - SV: This portion of the comprehensive plan update will be done by Sandra Lee.
- Jean Dolan: City has enough infrastructure to serve projected growth (water, sewer, etc.)
    - New infrastructure is being developed on a project by project basis; not in advance of development, e.g. innovation district will ask developer to work with the City to develop the infrastructure.
- Jean Dolan: Strategic plan has recently been completed. Defines City's projects and objectives over the next five years

TOM MCMAHON

Background

- District 3
    - Mostly SFR
    - Lots of flooding w/ many canals
- Involved in City development for about 10 years
- Interested in retaining character and history of City

Seawalls

- Interested in City's policy on seawalls; concerned about reduction in property values; tax revenue
    - Jean Dolan:
        - County is developing the policy. As soon as the normal tide crosses over an individuals' sea wall and floods an adjacent property or streets, owner will have one year to raise the wall:
            - 4ft NAVD by 2035
            - 5ft NAVD by 2050

- Funding needed to support
  - Estimates are $450 - $2000 per linear foot. Closer to $2000. Very expensive.
    - TM: Concerned that this could push people out of his district.
- Agrees that City will eventually need to raise roads, implement one way valves, add pumps and injection wells. New construction must consider eventual raising of streets.
- Jean Dolan: Pompano Beach has a good utilities department that has been working on sustainability since the 1980s.

Flooding / Storm Surge

- Concerned about Sanitary Sewer Overflows (SSOs) and lingering contamination at residential properties.

Climate Change

- Climate change is politically charged term; sustainability is a safer term. May prefer the new comp plan element refer to sustainability.
- Would like the City's policies (e.g. AAAs) to balance environmental protection with affordability, economic development.
- Would like the City's policies to harmonize with the County's and other cities.
  - Jean Dolan:
    - County working to add SLR to FEMA based final floor elevations. Modeling did not take place east of the control structure. County will develop standard for the east.

Transportation

- Wants a more walkable city with a downtown district. He rides bike to beach now.
- Interested in designing streetscapes to accommodate multi-modes.
- Interested in new transit amenities, e.g. autonomous bus system that connects west to east
- Interested in using mobile apps that make it easier to access transit.

Leadership

- Interested in the City taking a leadership role since it has strong staff and talent and the financial wherewithal to lead
- The City should move forward internally and externally at the same time
- The main criteria for the City's sustainability and resilience initiatives should be economic
  - Use cost benefit analysis and calculate return on investment
    - Quality of life (QoL) is still very important, even when it cannot be quantified.
      - The City must ensure that regulations that advance sustainability do not have negative impacts on QoL

VICE MAYOR BARRY MOSS

Background

- District 5
  - Nearly exclusively condos / high-rise residential, except for Collier city
    - A majority of residents belong to minority groups
    - Lots of snowbirds
- 5th year on commission, 15th year in Pompano Beach
- Lived in apartment all of his life.

Development

- Not concerned about density affecting quality of life
    - Many of his constituents are concerned, however.
- He expects lots of growth and induced traffic in D5 due to planned new casino and renovation Lockhardt Stadium (This is outside of D5 in Fort Lauderdale, but very close to its border along Cypress Creek Blvd.).
- How to improve traffic in D5?
    - Improve exist / entrances to Palm Aire condo and those like it.
    - Extend transit, e.g. community bus in this district
    - Use autonomous vehicles w/in large condo / high-rise developments
- The largest employers in the City are in D5: Point Blank (bullet proof vest manufacturer), John Knox Village, Isle Casino

Sustainability

- D5 constituents interested in solar energy, recycling
    - City has recycling committee / advisory board
- Would like to see improved recycling Citywide
- Would support source reduction initiatives, e.g. plastic / Styrofoam / straw bans or incentives (with a preference for incentives).
- Issues with illegal dumping in Collier City

Leadership

- Wants the city to push the envelope
    - Interested in the City "rattling legislators' cages" in Tallahassee
- Believes most of the commission would support sustainability activities.

MAYOR REX HARDIN

Background

- At-large
- Resident since 1963
- Went to local public schools, local business owner (printing business)
- Been on the commission since 2007 + 2 additional years.
- Lots of confidence in staff.

Development

- Leadership (and residents) should admit that City will be getting more urban
    - The City should plan to protect existing SFR, but densify along major corridors served by transit existing / new transit.
        - The City should plan to develop new commercial nodes, e.g. Innovation District, Isle Casino
        - Redevelop commercial corridors along Dixie Highway
- The City must attract higher paying jobs
- Affordable Housing:
    - Affordable housing needs to be encouraged but doesn't want to have more affordable housing than other areas.
    - City may be bearing too much of burden for affordable housing right now in the County.
    - The City should work at the County level to influence affordable housing policy to require every community to do their fair share. Other communities need to step up.

- Jennifer Gomez: City has done a detailed study of affordable housing. It shows that Pompano has a high level of subsidized housing.

Sea Level Rise

- SLR is critically important
- The City should attempt to encourage development where it is least vulnerable.

Seawalls

- It's fine to have rules and regulations, but if the funding is not available what do you do?
  - The City needs to take a larger view. It can't do it all itself, but unless it pushes, no one will pay attention. Need to talk to the County and others about regional funding.

Finished Floor Elevations

- Jean Dolan: County working on adding SLR on top of FEMA flood standards
- Mayor: Need to determine what the City will do about it

Mobility

- Supports transit-oriented development
- Wants the City to encourage multi-modal transportation
  - He is amazed that people fight multimodal transportation choices, but he encourages it.
- Supports Freebee [Free ride-hailing electric shuttle supported by marketing and government subsidies. See: http://tinyw.in/RSlo, regarding the company's expansion into Broward County]
- City has invested in electric vehicle charging infrastructure in the past
  - If there is demand, would support additional infrastructure.
  - Would support development & redevelopment regulations that would require EVSE ready infrastructure.

Renewable Energy

- Would like the City to encourage solar power
- Interested in seeing how the City can move issues like solar forward with or without FPL.

Waste Management

- Would like to know how recycling can advance given the current market conditions
- Supports source reductions
  - Bans or incentives are great, but State of Florida is a barrier, e.g. deposits on cans and bottles are good idea but has to be implemented at the state level.

City Fleet

- Interested in looking at the fleet and understanding how it should move forward with alternative fuels, e.g. CNG, electricity

Leadership

- Would like the City to go beyond words and start taking action – "It's in our face now."
- Believes the City is behind the curve right now and needs to catch up to its peers. "It may anger some people, but it needs to happen."
- Believes it is important to lobby the state and county on sustainability issues.
- Money is a big barrier to sustainability. Therefore, he would prioritize initiatives that lead to cost avoidance
- The City's sustainability / resilience initiatives must show ROI.
  - A net present value of zero is okay, because the government does not need to make a profit.

- The City must be able to explain how a given sustainability / resilience measure will work and how it will save money in order to adopt it.

BEVERLY PERKINS

Background

- On commission since 2016
- Lifelong resident
- District 4:
    - City is divided between the west side of Dixie Hwy and the east side of Dixie Hwy.
    - The City is not developing equally geographically. D4 is not benefiting as much as the other districts from development, if at all. Most developing is occurring outside of the district
    - Growing Hispanic and Haitian population. Multi-lingual challenges.
    - D4 housing stock is aged.
    - D4 sanitation: Chickens running around in the street
    - D4 safety: people hanging out on street corners.
    - Constituents financial literacy education.

Development

- Focus is on economic development (e.g. business and jobs) and support for SFR homes.
    - Interested in bringing new businesses to places where people live so they do not have to drive, e.g. grocery stores, restaurants
        - District lacks access to fresh, healthy food ("food desert")
    - Recent residential development
        - 106 duplex units replacing "old projects" developed by Housing Authority. Aimed at very low income, age >62
        - 77 Habitat SFR homes being built in neighborhood
            - Concerned about traffic impacts
            - Concerned about supporting commercial uses
                - Need a new commercial center
- There is development interest in the district due to the available land.
    - Developers are interested in developing multi-family units and self-storage buildings.
    - Would like to change development focus to lower-intensity and diversified commercial projects.
- A recent planning document captured interests of the community. It was developed by "Dr. Mack"
    - Jean Dolan: Will provide a copy of this document to the consultants
- D4 requires better access to youth activities after school
- A senior activity facility was funded and will be constructed in 2020
- Comprehensive Plan has not worked for District 4 in the past; how will it be different?

Innovation District

- Innovation District, located between Atlantic Boulevard and MLK from I-95 to Dixie Highway:
    - No physical connection to the district
    - People who live there do not want it.
    - Developed with out the input of the community
    - Community should have been brought in from the beginning

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Communication

- The City staff need better connection with D4
    - Idea: program to educate young people about what the City does
- Outreach in the D4 is different
    - Reach is through church announcement, flyers on the door
    - Individual calls
        - Not useful: newspaper, website

Housing

- Previously thought SFR was most important for the neighborhood. Recently begun to think that younger generation prefers rentals to SFR
- More than 2000 people applied for four apartment units being developed in the neighborhood

Climate Change

- It is important to include a climate change element in the comprehensive plan
- No recent flooding or rain-related events in district

Transportation

- Transportation is not a concern for D4. Broward County transit serves the community well
- ATV riding is popular in the neighborhood; concerned that it is dangerous

6.4 INTERVIEWS WITH CITY STAFF

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CITY OF POMPANO BEACH SUSTAINABILITY STRATEGY STAFF INTERVIEWS AGENDA:

Meeting Date: May 14, 22 & 23

Meeting Place: City of Pompano Beach

Participants: See meeting participants below

I. Introductions & Project Overview: Introduce meeting participants and understand the project scope, schedule, etc.

II. Organizational Dynamics: Understand the role of the City's functional areas and how they operate.

1. What does your department / functional area do?
2. What is your role?

III. Sustainability Challenges & Opportunities: Understand the current role of sustainability / resiliency in the City's functional areas.

3. How is sustainability / resiliency incorporated into what your department / functional area does and/or what you do?
4. What are the main sustainability / resiliency opportunities that you see in your department / functional area?
5. What are the main barriers to sustainability / resiliency that you see in your department / functional area?
6. What are some of the main results that you would like to see come out of the City's Sustainability Strategy project?

IV. Meeting Participants:

1. Horacio Danovich: GO Bond Capital Improvements Manager: Horacio.danovich@copbfl.com
2. Greg Harrison: City Manager: greg.harrison@copbfl.com
3. Michael Rada, Building Officer
4. Suzette Sibble: Assistant City Manager over Finance: suzette.sibble@copbfl.com
5. Gene Zamoski: IT Director: Eugene.Zamoski@copbfl.com
6. Pete McGinnis: Fire Chief: Peter.McGinnis@copbfl.com
7. Russ Ketchum: Solid Waste Director: Russell.Ketchem@copbfl.com
8. Rob McCaughn: Siemens Project, City Facilities Maintenance: Robert.mccaughn@copbfl.com
9. Forrest Hall: Fleet Manager: forrest.hall@copbfl.com
10. Randy Brown: Utilities Director: randy.brown@copbfl.com
11. John Sfiropoulos: City Engineer: john.sfiropoulos@copbfl.com
12. Andrew Jean-Pierre: Finance Director: Andrew.jean-pierre@copbfl.com
13. Kimberly Cristiano: Emergency Manager: Kimberly.spill-cristiano@copbfl.com

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HORATIO DANOVICH

1. What does your department / functional area do? What is your role?

- GO Bond Capital Improvements Manager. Capital Improvement and innovation district director. Oversee capital improvements as they are funded by the City and CRA. In charge of all government obligation bond and surtax initiatives. Oversees project management for planning, design and construction. Current workload is overloaded. Project management is allocated w/in the department based on availability, etc. Interested in outside of the box design, e.g. materials, occupant experiences, etc.

2. How is sustainability / resiliency incorporated into what your department / functional area does and/or what you do?

- Sustainability is incorporated into capital improvements in an opportunistic manner:
    - Example 2011, redo Atlantic Blvd. Using conventional civil engineer and landscape architect. Encouraged incorporation of bioswale into the project for the first time. Bioswales are working well. Prior to reconstruction, flooding into commercial structures. Bioswale mitigated flooding to commercial structures.
    - Beach Library: Public supported a new library, but the County did not. Interested in converting impervious area into a LID project. Used pervious pavers in project to provide stormwater attenuation for the entire site. First time that the product had been used in Broward County.
    - Example EOC. Estimated $300 - $400 / sf to build to withstand Cat 5 hurricane; ended up estimating $500 / sf. Designers have been challenged with making it as energy efficient as possible. Looking at incorporating renewable energy.

- Horatio doesn't believe that solar power has made enough progress to implement widely in the City. He believes passive solar not applicable in South Florida and active solar is cost prohibitive.

- There is a formal written policy (Chapter 152, City Ordinances) that all City buildings must be built to requirements and to withstand a Category 5 hurricane. Certification is minimum; Silver and Gold is the goal. Examples of buildings built to LEED standards (unclear if certified) include: Fire station 11, 103, 24, etc., Cultural Center, EOC, Public Safety, Senior Activity Center. Horatio believes LEED is a waste of time. Extremely difficult to complete the paperwork. Doesn't like the process. Too long to get certification. Certification doesn't coincide with opening of the project. He doesn't think it costs more. Would like the City to have its own specific standards and still use LEED.

- City is considering ISO certification, e.g. 9001, 14001

- Every streetlight fixture in the City is being replaced with LEDs

- Horatio was involved in installing the first 4 EV charging stations in the City. 1 in parking garage, 2 on Pompano Beach Boulevard and 1 in Harbor Village. City does not charge for use. Innovation Village specifies 240v infrastructure for future use by EVSE.

- Pompano Beach was the first to receive context-sensitive designation in County, which paved the way for complete streets. County followed the City's example on complete streets.

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3. What are the main sustainability / resiliency opportunities that you see in your department / functional area?
   - Additional transit, e.g. light-rail, trollies, etc. (e.g. Ft. Lauderdale WAVE). County has taken over WAVE project. Working with the County to extend the project along Federal Highway to Pompano Beach and potentially Atlantic Boulevard (Coral Springs to Federal Highway).

   - Greater use of electric, automated vehicles. Car sharing. Currently investigating car sharing, e.g. Zip Cars. An ordinance is being drafted to facilitate use of car sharing in the City.

4. What are the main barriers to sustainability / resiliency that you see in your department / functional area?
   - Expense is a barrier. Sustainability projects must be cost-effective.

   - County does not have a vision of urbanism / "how to live in an urban world." County has control over roadways in terms of striping, signage, traffic signals and performance on the MPO's traffic models. Must seek County approval for use land use plan amendments, which can set up conflicts. For example, the City is okay w/ LOS F, because it induces other modes and supports economic development, but the County punishes the City for Complete Streets projects that reduce LOS when a change of land use category is required for a land development project.

   - Command and control regulation is not a realistic option. It is a barrier to establish a standard (e.g. points system) for sustainability that applies to the market. City can function as a leader by example, but the market may not have the resources. The City's regulatory approach must be flexible and provide choices to the private sector.

5. What are some of the main results that you would like to see come out of the City's Sustainability Strategy project?
   - Not discussed.

GREG HARRISON

1. What does your department / functional area do? What is your role?
   - City Manager

2. How is sustainability / resiliency incorporated into what your department / functional area does and/or what you do?
   - Gregg Harrison periodically gets questions from developers or general public regarding sustainability. It is coming up more often. That is why Jean's role was developed and RS&H was hired. News articles in local media also drives attention. Common question is "What are you doing about climate change?"
   - Sea level rise is the main issue that comes up. It often occurs after minor flooding events. Main area is North of Atlantic / West of A1A. North of 14th Street Causeway.
   - He is interested in looking at this in a comprehensive manner, in order to get ahead of the issue.

3. What are the main sustainability / resiliency opportunities that you see in your department / functional area?
   - Based on Pompano Beach's situation on the coast, the City Manager doesn't believe the City will see climate change impacts, other than SLR, more intense storms and higher temperatures.

    - Jean: There are vulnerable areas based on mapping.
        - New sea wall regulations are coming from the County. This is the first regulation that will catch up with climate change. When an existing sea wall is crested, it must be replaced per new regulations. City has two years to incorporate County's regulations into the City's code. The standards will be: 4 ft NAVD by 2035, expandable to 5 ft by 2050. There is no minimum for Pompano Beach now. Ft. Lauderdale has a minimum of 3.5 NAVD or elevation of finished floor.
            - GH: Are Cities required to follow the County's code?
                - Jean: No, not required, but must follow County's comprehensive land use plan. That's is the enforcement mechanism for the County. City should comply anyway. Already putting in one-way valves into stormwater system. Eventually will need to raise streets and install pumps.
- The City Manager could see the City involved with working with private developers to locate a rail station in Pompano Beach for both Brightline and TriRail.
- County has proposed to cover funding of community shuttles using sales surtax funding. This could take control of the system away from the City.

4. What are the main barriers to sustainability / resiliency that you see in your department / functional area?

- The City Manager does not see any barriers, unless at the County level. As long as the City is taking an assertive approach, the County is likely to step back and say, "more power to you."
- Funding is a barrier depending on the project.
    - If it is too expensive for the normal CIP, then novel financing would have to be identified, e.g. raising roads, installing pump stations.
        - Jean: a special taxing district may be advisable to allow the City to get involved with managing sea wall improvements.
- The CM is interested in emphasizing the economic benefits of the plan, but is more concerned about balance.
- City is behind its peers now with respect to sustainability, e.g. Miami Beach and Fort Lauderdale have been getting a lot of press on this issue.
- City does not want to be out in front of other cities in South Florida. It is preferable to do a good job in the areas it determines as priorities.

5. What are some of the main results that you would like to see come out of the City's Sustainability Strategy project?

- CM prefers an outcome that includes a list of projects that are prioritized, studies could be included. Recommendations for future improvement.
- CM needs to know in general what RS&H thinks about what the City should focus on going forward. From that a list he would like to see recommended projects for the City to look into.

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MICHAEL RADA

1. What does your department / functional area do? What is your role?

- "Mike" started out about 20 years ago as a building inspector, then a plan reviewer, then a chief. He became Acting Building Official as of about a month ago.
- His department processes and issues permits for any development that occurs in the City. It performs unsafe structure review. It issues electrical / mechanical / plumbing permits and performs associated inspections. The office's purview includes residential, commercial and industrial. Pompano Beach has the most industrial buildings of any City in the County.

2. How is sustainability / resiliency incorporated into what your department / functional area does and/or what you do?

- Office has gone paperless as of 2013.
- The City has developed a stronger flood plain standard than FEMA. Base flood plus 1 foot. Finished floor: Residential: 18" above highest adjacent crown street. Commercial: 6" above crown.
- Expedites review of Solar PV permit applications (3 days)

3. What are the main sustainability / resiliency opportunities that you see in your department / functional area?

- MR believes there is an opportunity to overhaul the City's Green Building regulations.
    - Chapter 152 is City ordinance for buildings. 152.51 refers to LEED. Program does not require certification for City buildings, it is voluntary for all others.
    - Adding content to Chapter 152 is an option for advancing sustainability.
- Miami Dade County's proposed commercial building benchmarking policy is worth looking into.
    - There may be opportunity to focus on industrial sector (e.g. warehouses). Requirements are lower for that sector. Incorporate requirements upon renovation.
- Adaptation Action Areas.
    - When Coastal A Zone is released in 2020, the City is interested in looking at what it can do in those areas.
- Office of Housing and Urban Improvement builds a lot of houses for low income residents. There is an opportunity to incorporate sustainability features into Office of Housing and Urban Improvement's projects.
- Florida Building Chapter One is written by the County Board of Rules and Appeals of Broward County and Miami-Dade County. There is an opportunity for the City to influence this Chapter.

4. What are the main barriers to sustainability / resiliency that you see in your department / functional area?

- The City can only enforce what is included in the Florida Building Code. It cannot be more restrictive than that, but it does have the opportunity to approach the Florida Building Code Council to make improvements.
- There could be push-back from the development community if new regulations are put into place.
    - There is a sustainability checklist in the Zoning code, but it is kind of weak. (Fred Stacer is chair of Planning and Zoning Board and would like to introduce a revised checklist into the Zoning Code).

5. What are some of the main results that you would like to see come out of the City's Sustainability Strategy project?
   - Development is happening very quickly in the City. Would like to see sustainability keep pace, e.g. more public / open space. Sustainability could be used to improve quality of life in the City.

SUZETTE SIBBLE

1. What does your department / functional area do? What is your role?
   - Suzette is Assistant City Manager. She supervises budget, finance, parking, real property management (City and CRA owned parcels), IT, Office of Housing and Urban Improvement, Purchasing and Grants.
2. How is sustainability / resiliency incorporated into what your department / functional area does and/or what you do?
   - The City manages 1900 parking spaces. There is a solicitation on the street to construct a parking garage right now. (Pier Parking Lot Redevelopment). It will include 2 spaces for electric vehicle support equipment (EVSE). There are several EVSE w/in the City's parking portfolio
   - Smart City Capital: Vendor is offering free wifi in exchange for gathering data.
   - Transit: Car-sharing ordinance, including freebee transport, zipcar, trollies (Sun Trolley)
3. What are the main sustainability / resiliency opportunities that you see in your department / functional area?
   - SS would like to find opportunities to use more solar on City projects. Open to solar lease projects.
   - Innovation district is still conceptual. There are opportunities for including sustainability / vulnerability principles in the Innovation District design.
   - A sales surtax to support development of a transit / train station (Coastal Link / Brightline) downtown.
4. What are the main barriers to sustainability / resiliency that you see in your department / functional area?
   - Funding. The City is moving forward on may projects at the moment, which make funding limited. Options for funding sustainability projects include: Independent taxing districts and Public Private Partnerships.
5. What are some of the main results that you would like to see come out of the City's Sustainability Strategy project?
   - Standards for bidders
   - Incorporate sustainability into public private partnerships

GENE ZAMOSKY AND BARBARA HARRISON

1. What does your department / functional area do? What is your role?
   - Gene is Chief Information Officer. Barbara is Assistant CIO. They oversee all computers, telephone (voice over IP), radio, cellular, security cameras, wifi, and supporting infrastructure including public wifi at city buildings.
     - 750 customers / employees who have computers

  - No interaction with the public
  - Performs plan reviews for IT aspects of developments
- They do not oversee audio / video. Multifunction machines are handled by purchasing.

2. How is sustainability / resiliency incorporated into what your department / functional area does and/or what you do?

- No energy efficiency is included in purchasing decisions. Focused on performance of equipment. All computers are Dell, all printers are HP. Open to incorporating Energy Star and EPEAT, etc. into purchasing decisions.
- For years the department has been virtualizing servers.
- IT security requires computer / monitor hibernation w/in 15 minutes.
- Going paperless through software solutions. Working on this for 3 or 4 years now. Trying to get away from buying printers.
  - Will go paperless for invoices using Laserfische software
  - City accounting department records are digital.
- New fiber line for telephone connects Comcast to EOC, where there is a generator. It is a direct line that is not shared. This makes the City's EOC and City Hall communications IT system resilient to outages due to storms.
- Russ Ketchum (Solid Waste) is in charge of recycling IT devices. The IT department is unsure of how electronics are disposed. About 75+ devices are replaced per year.
- In 2017, IT department created a policy that would not allow employees to have more than one computer. Previously, staff would have desktops, laptops and tablets, etc.
  - Reduced inventory of equipment and the time required for service.
- Most devices have a UPS.
- Wireless point to point network that links all City facilities (data and voice). This saves money because the City does not have to pay ATT for wires.
- Lean / Six Sigma is used throughout the City. It was tied into the strategic plan; however, it is less of a focus now than it used to be.
- City has redundant systems that result in more energy use; however, it promotes resilience.

3. What are the main sustainability / resiliency opportunities that you see in your department / functional area?

- License plate recognition cameras in the City are attached to streetlight poles. Cameras take snapshots of license plates. Software reads the plate and matches it with City police or State databases for warrants, etc. Located at City parks, beaches, etc. There is an option to use solar panels to charge batteries for powering the cameras, but it is used sparingly.
- Department is getting a new van. Van is used to shuttle equipment around the City. Would like new van to operate with alternative fuels.

4. What are the main barriers to sustainability / resiliency that you see in your department / functional area?

- Not open to using cloud-based services for servers, because it cannot be controlled by the City. Understood that it could save energy, but it is not worth the risk to the City.
  - Risk system is being put on the cloud.
- The department cannot procure energy-saving equipment that does not meets performance specifications.

- How do you quantify the energy savings? Need some support for quantifying sustainability / resilience benefits in IT initiatives.

5. What are some of the main results that you would like to see come out of the City's Sustainability Strategy project?
   - The strategy should communicate benefits of IT initiatives.

PETE MCGINNIS

1. What does your department / functional area do? What is your role?
   - Fire Marshall. Pete oversees growth, development and regulation.
   - Strategic Plan for the department was recently adopted by the Commission. It indicates where the department thinks it needs to be over the next five to ten years.
   - Department is pursuing CFAI certification by August 8th [This has since been achieved].
2. How is sustainability / resiliency incorporated into what your department / functional area does and/or what you do?
   - As the city grows, rescues including ocean rescues are being overwhelmed with calls. New stations are being put online to keep up with growth. New stations are and will be LEED certified. Station 103 is LEED 2009 Gold, 114 will be LEED v4 Silver.
   - Existing stations: Station 11 (2013), built to LEED Silver. By 2024, all stations will be rebuilt.
   - ISO certified.
   - Next step: CFAI certification. Should be certified by August 8th. [Achieved]. It improves communication inside the department and establishes a clear framework for communicating outside of the organization.
   - Emergency management: Comprehensive emergency management plan is incorporating the latest information related to climate change.
3. What are the main sustainability / resiliency opportunities that you see in your department / functional area?
   - An additional Fire Station will be needed in the Northwest, mostly industrial and commercial area; call volume will drop at night. This will require acquiring property and building the station. This will occur beyond the next five years.
   - Will acquire smaller equipment to accommodate increasingly urban development patterns. The challenge is to fit equipment on the vehicle. There are not yet enough dense urban areas to easily develop a clear operational strategy for Adaptive Response. New, smaller turning radius has been adopted via ordinance.
   - Looking at utilizing smaller backflow preventers to accommodate developers requests to conserve space. Utility department requires them, but the Fire Station does not want them.
   - Jean: Should a study be done to project demand from new development and establish mechanisms to obtain resources to meet those needs?
     - NFPA 735 establishes risk analysis criteria for evaluating new development
   - The Fire Department does not control traffic signals yet (Omnipoint), but should have that ability soon. This is required as part of CFAI accreditation.

4. What are the main barriers to sustainability / resiliency that you see in your department / functional area?
   - Funding is the biggest concern. Department proposes a budget every year. The strategic plan has been adopted. As a result, issues obtaining resources are not foreseen.
   - Alternative fuels are not widely used by Fire Departments in the United States.
   - Health and welfare of employees.
     - Opioid crisis is getting worse. Three people within the last 90 days have overdosed in a public bathroom. New staff experiencing PTSD as a result of experiences. There is a debrief after such events. If additional counseling is necessary at that point it occurs
     - There is screening for health problems, e.g. cancer. Several staff have passed away from cancer.
     - NFPA 1582 provides standards for care of personnel
     - Florida Law now provides workers compensation for PTSD
     - Department is ahead of the curve because of CFAI
     - Bays are now treated as sensitive area where only items related to operation of vehicles are stored

5. What are some of the main results that you would like to see come out of the City's Sustainability Strategy project?
   - Not directly discussed.

RUSS KETCHUM

1. What does your department / functional area do? What is your role?
   - Solid Waste Director.
   - Oversees Waste Management contract for residential solid waste, residential recycling, commercial solid waste, construction waste
   - Recycling for commercial – open for competition by state statute. Department oversees contracting.
   - Oversees contract for beach cleaning
   - Hurricane debris removal
   - Litter removal from streets / beach / parks servicing municipal garbage containers
   - Hazardous material removal, e.g. residential household hazardous waste and spills (via contractor)
   - Canal cleaning (via boats)
   - Solid waste customer service center – interface between residents and waste management

2. How is sustainability / resiliency incorporated into what your department / functional area does and/or what you do?
   - Implemented automated pick up of carts in 2016 for residential solid waste and residential recycling, including multifamily. However, rental units are considered commercial.
     - Waste and recycling carts are supplied by the City
       - 95 gallon cart for garbage; 65 gallon cart for recycling
         - Additional carts are available for one-time $50 fee; additional carts do not affect the service fee. There is a 65 gallon option for garbage and a 95 gallon cart for recycling.
     - Waste Management owns vehicles for residential solid waste and recycling.

        - Vehicles are CNG, per contract
            - Fueling infrastructure is owned by Waste Management. The fueling yard is near Sample Road and Powerline.
- Landfill:
    - Waste Management landfill at Sample & Powerline (North) captures methane and utilizes it to generate energy.
        - Waste to energy facility on site is abandoned in place
        - The City's waste is landfilled there.
    - Other cities' waste in Broward County is transferred to 595 landfill (South) operated by Wheelabrator
        - The facility is overcapacity
        - Waste is then transferred back to North for landfilling
    - Rates: $81 / ton, tipping fee
        - $55 / ton for MSW disposal
        - Not cheap, but not on the high end either.
        - 100,000 tons / year
- Recycling
    - Single stream
    - 19.5% (last 12 months) diversion rate
        - Participation rate is more important. Diversion numbers include contamination.

3. What are the main sustainability / resiliency opportunities that you see in your department / functional area?

- Could dispose of waste in Palm Beach County as it has capacity and infrastructure to handle the City of Pompano Beach.
- Home composting program is a possibility
- China is building waste to energy facilities
    - China may be begin taking Southeast Florida garbage.
- Overhauling waste handing at City hall to end recycling and MSW being disposed together.

4. What are the main barriers to sustainability / resiliency that you see in your department / functional area?

- Separating yard waste is a challenge because it requires a third vehicle (solid waste, recycling and yard waste)
    - Evaluated during most recent RFP process. No obvious place to store / dispose of the materials. May never segregate it out.
- Composting
    - Palm Beach County had a compositing facility, but it closed down.
- Single stream may be a barrier
    - Separating sources may become more important
        - Quality not quantity; right now, single stream is low quality and is often landfilled as a result.
    - Participation not diversion rate.

5. What are some of the main results that you would like to see come out of the City's Sustainability Strategy project?
   - Not directly discussed.

ROBERT MCCAUGHAN

1. What does your department / functional area do? What is your role?
   - Public Works Director.
   - Oversees streets, buildings, streetlights, parks, fleet maintenance, animal control, airport, cemetery
   - Solid waste is a separate division
     - City has unlimited bulk trash pick-up, which has been a problem for the City with respect to illegal dumping.

2. How is sustainability / resiliency incorporated into what your department / functional area does and/or what you do?
   - Streetlights
     - Working to transition all City-owned streetlights to FPL ownership. City has 1000 poles / lights, mostly on state roadways. FPL has 5,000. Swap out to LED is at no cost to the City
   - Facilities
     - Siemens performance contract
       - Contract was funded w/ City money. Siemens did not provide upfront capital. There are 14 projects under the Siemens performance contract.
         - Spent about $1 million of American Recovery and Reinvestment Act (ARAA) grant on central chiller plant
         - Spent about $100,000 on LED streetlights
         - Retrofitted all lighting in the City
         - Automatic meter reading (AMR) meters installed
         - Low flow fixtures installed in City Hall
         - Total payback 9.2 years
         - Best payback project was at the Municipal Pool, retrofitting chlorine system with an ionization system (1.5 year payback) – it didn't happen
   - Uses Facility Dude to manage maintenance work orders and forecast maintenance needs
   - Has completed City-wide facilities condition assessment
   - Electronic timesheet has been implemented
   - Solar lights installed at beach, in parking lots
   - Solar thermal in fire stations was evaluated at Fire Stations, but not installed, since natural gas is the fuel for water heating

3. What are the main sustainability / resiliency opportunities that you see in your department / functional area?
   - Future energy efficiency projects will be done with City investment
   - Interested in utility management systems
   - Working with Siemens to install a Building Automation System (BAS) @ 4 recreation centers. Has trained staffer to operate City BAS.
   - GEO Bond projects will be LEED certified. LEED can be frustrating; there is interest in developing the City's own design criteria

- Commissioning is used for new construction. There is interest in retro-commissioning
- Security processes / procedures could be improved. Require wearing the badge

4. What are the main barriers to sustainability / resiliency that you see in your department / functional area?
   - Not directly discussed
5. What are some of the main results that you would like to see come out of the City's Sustainability Strategy project?
   - Not directly discussed.

FORREST HALL

1. What does your department / functional area do? What is your role?
   - Fleet Manager
     - Repair all City vehicles and equipment. 1300 total pieces of equipment: Fire trucks, Lawn equipment, Pumps, Generators, Trucks, Off road vehicles, Fire engines, Trailers, Boats
   - Handles purchasing
     - Currently using Enterprise Leasing instead of purchasing
       - About 13 vehicles were acquired this year through the lease
       - Not a fan of the leasing program, since Forrest believes it is more expensive than direct purchase off of available contracts
2. How is sustainability / resiliency incorporated into what your department / functional area does and/or what you do?
   - As a consequence of the recession 10-year lifecycles were pushed to 15. Average age of fleet is now 10 years
   - Average VMT is 10-15K
   - Trying to purchase more fuel-efficient vehicles.
     - E.g. escape vs. explorers and expeditions. Open to hybrid-vehicles
     - Develop standard specifications that would include size and fuel economy requirements.
3. What are the main sustainability / resiliency opportunities that you see in your department / functional area?
   - Public works facilities will be renovated soon, which will include modernized fleet facilities. Green principles could be included, including ventilation that would allow use of CNG or propane.
   - Car sharing hasn't been implemented. However, pool cars are a big opportunity.
   - Alternative Fuels
     - Open to using electric vehicles, 30-40 cars as a max limit. Need EVSE first to support. Need EVSE at City hall. Need EVSE at fleet yard. Would like one or two fast chargers at fleet yard and multiple Level II chargers. Most vehicles could charge overnight. Forrest has contemplated EV for pool car
     - Doesn't believe that contracting will be a limitation for acquiring cars
   - Would like to see replacement cycle to be reduced to 8-10 years
     - Save maintenance expenses
     - Department receives favorable salvage values
     - Fuel economy is improved by turning over vehicles faster

- Newer vehicles are safer

4. What are the main barriers to sustainability / resiliency that you see in your department / functional area?

- No control over Fire Department purchasing
- Departments are still buying vehicles that are not fuel efficient. People want bigger vehicles for non-functional reasons
- Need City Manager / ACM to make it clear that fuel-economy requirements are mandatory.
- Alternative Fuels
  - Maintenance facility does not have adequate ventilation for propane or CNG.
  - Evaluated CNG, but infrastructure is too expensive. Estimated $1-2 million for a time-fill CNG station. Open to using a publicly-accessible station, but average annual mileage is probably not enough to justify transition. Vehicles that may be transitioned to CNG include:
    - About 35 F450
    - 4 clam budget trucks
    - 3 garbage trucks

5. What are some of the main results that you would like to see come out of the City's Sustainability Strategy project?

- Not directly discussed.

RANDY BROWN

1. What does your department / functional area do? What is your role?

- Utilities Director

2. How is sustainability / resiliency incorporated into what your department / functional area does and/or what you do?

- Reclaimed water; offsetting 2.6 – 3 mg/d of potable water
  - Use of reclaimed is voluntary in Pompano Beach about 75% of eligible users participate.
  - No wells are allowed in the reuse area
- Residential Water Conservation
  - Work with homeowners to connect to reuse
  - Give out low flow aerators and shower heads
  - Advice about toilets
  - Increasing block rates
- Commercial Water Conservation
  - Changeout restaurant spray valves
  - Increasing block rates
- About 50% of potable water is used for irrigation
- Performance Contract
  - Not happy with it. New meters were installed. Siemens set it up, but did not maintain it.
- Minimum performance is 100% compliance for sanitary sewer system. The system typically meets this standard.
- Sea level Rise
  - The department did a study with FAU to establish best practices for utilities

- Master Plan has incorporated climate change since 2014
  - Has full support of City Management and Commission
- Treatment plant is designed for a Cat 5 hurricane. Built on highest ground in the City.

3. What are the main sustainability / resiliency opportunities that you see in your department / functional area?

- More reuse construction will save potable water for development
- Use of reuse needs to be mandatory (25% don't use it)
  - Cost of connection to the house is done by the City.
  - It is cheaper than potable.
- Line more of the sewer mains to reduce I&I
- Ordinance prohibits over-irrigation, but only enforced during drought conditions. Would like to enforce it more.
- Solar
  - Interest in putting solar on roofs
  - Interest in using vacant parcel for "solar farm"
  - Incorporating solar into new designs
    - Return should ideally be about 5 years; 10 years may be acceptable
- Utilities department is getting electric vehicles
  - Need EVSE

4. What are the main barriers to sustainability / resiliency that you see in your department / functional area?

- Not directly discussed.

5. What are some of the main results that you would like to see come out of the City's Sustainability Strategy project?

- Not directly discussed.

JOHN SFIROPOULOS AND TAMMY GOOD

1. What does your department / functional area do? What is your role?

- John: City Engineer
- Tammy: CIP Manager
- The department is responsible for CIP, GIS, Inspections (anything in the right of way, docks, seawalls, CIP projects). No overlap with building inspections
- Involved with many other City departments; working closely with them.

2. How is sustainability / resiliency incorporated into what your department / functional area does and/or what you do?

- The department designs new water reuse facilities
- Climate Change Resilience
  - The department is responsible for overseeing seawall elevations. It will be establishing a minimum elevation standard based on upcoming County requirements
- The department works with MPO to install sidewalks and shared-used paths
- Buildings. The department oversees new construction and renovation of City Buildings.
  - Very happy with LEED process. Cultural center will be LEED Gold

3. What are the main sustainability / resiliency opportunities that you see in your department / functional area?
   - Bike / Ped master plan
   - Standardize process for building design
     - E.g. a design guide may be required, a collaborative process for CIP for LEED design

4. What are the main barriers to sustainability / resiliency that you see in your department / functional area?
   - Standardization of processes, both work process and maintenance of materials, e.g. Total Quality Management, SOPs, Policies
     - Barrier: Not enough time to establish SOPs.
   - Continual improvement
     - Data is not available
       - Looking at new database for managing CIP process (Ebuilder, $150,000 configuration, $50,000 to maintain)

5. What are some of the main results that you would like to see come out of the City's Sustainability Strategy project?
   - Not directly discussed.

ANDREW JEAN-PIERRE

1. What does your department / functional area do? What is your role?
   - Finance Director
   - Department processes all the revenues for the state and local taxes and services the city charges
     - It does a survey of service charges to ensure that they are competitive.
     - Sets up processes for tracking fees
     - Conducts rate studies
     - Process all payments
     - Manages accounting, comparing budgets to actuals
     - Manages credit rating; currently AA
       - Unsure if sea level rise is part of credit review process. There is a check list of topics that requires a written response. An interview process elaborates on the written response.
     - Oversee financial audit

2. How is sustainability / resiliency incorporated into what your department / functional area does and/or what you do?
   - Investing in technologies to make work more efficient / productive, e.g. automating call center functions
   - Maintaining operating contingencies and reserves for disasters or recession
     - 50% of utility revenues kept as reserve.
     - Recent incident that incurred a $7 million expense would require increasing utility rates to maintain reserve
     - The reserve may be lowered
     - Policy that limits debt, e.g. maximum indebtedness or interest rates.

- Current rates (for use in discounting)
    - GeoBond: 3.6%
    - Operating lease for vehicles: 2.2%
    - Rate earned on investments: 2%
- Consultant on staff now to evaluate maintenance contracts and avoid costs
- Investigating selling naming rights to city facilities to raise revenue ("corporate sponsorships").
- Parking fees are likely to go up.

3. What are the main sustainability / resiliency opportunities that you see in your department / functional area?

- Efficient technologies:
    - Electronic payment systems
    - Automate call center functions
        - Automatic call center requires a $9,000 license payment which represents a cost savings relative to staff time
- Seawall funding solutions
- Revolving fund would be acceptable
- New fees for sustainability program are acceptable
- Assessment fee for businesses that generate more police service calls or other public nuisances
- Investigating fees for parks and recreation activities.

4. What are the main barriers to sustainability / resiliency that you see in your department / functional area?

- Staff and resources are limited
- Succession planning for retiring staff. How do you attract talent? Build capacity?

5. What are some of the main results that you would like to see come out of the City's Sustainability Strategy project?

- Not directly discussed.

KIMBERLY CRISTIANO

1. What does your department / functional area do? What is your role?

- Emergency Manager
- Housed in the fire department and reports to the fire chief
- Works with all departments on disaster preparedness, from mitigation to preparedness, protection, response, and recovery; including planning, training and exercises
- Oversees consultants for after action reviews
- Manages FEMA reimbursements for disaster recovery spending.

2. How is sustainability / resiliency incorporated into what your department / functional area does and/or what you do?

- Emergency management website: www.pompanobeach.com/getready
- Enhanced Local Mitigation Strategy
    - Recommended document for understanding department
- Comprehensive Emergency Operations Plan (Online), updated every five years
    - Includes section on climate change action planning

    - After action reports are online
- Generators are diesel
- One fueling station and diesel tank in the City
- There is a shelter in Pompano Beach (Pompano High School). It is small. City is not statutorily responsible for managing a shelter and does not operate it. (School Board is responsible). The City commits two law enforcement and two paramedics.
- The City manage distribution points for food and water in a disaster.
    - After Irma, set up response center at E. Pat Larkin center and organized multi-government response effort.
    - Policy: every employee is "essential" and is eligible for participation in emergency response efforts.
- City has ordinance to support State executive order requiring nursing homes and assisted living centers to have generators

3. What are the main sustainability / resiliency opportunities that you see in your department / functional area?

- New EOC is being built. Architect has been selected, but it has not been designed yet.
- Open to using a solar microgrid at new EOC.
- Need a second fueling station and tank west of I95
- Need Continuity of Operations Plan (COOP) for each department that rolls up into a comprehensive plan.
- The City needs pandemic planning
    - Working with Department of Health on an MOU to work together on a plan for mass prophylaxis within 24-hours.
- The City needs Active Critical Incident Plan (active shooter)
- Additional outreach with faith-based, business organizations to form partnerships
    - E.g. Islamic center has offered to be a distribution point for food and water, and it is a Cat 5 rated structure
- Every facility should have:
    - Generator
        - E.g. Cultural center has no generator
        - Bi-fuel generators
    - CCTV
        - E.g. Not at park facilities
    - Security, e.g. metal detectors at buildings – particularly City Commission chambers.
- Mitigation planning project list needs to be updated

4. What are the main barriers to sustainability / resiliency that you see in your department / functional area?

- One fueling station and diesel tank in the City

5. What are some of the main results that you would like to see come out of the City's Sustainability Strategy project?

- Not directly discussed.