



- Energy - Built Environment
- Waste • Transportation • Water
- Green Infrastructure and Natural Environment
- Climate Resilience

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# ABBREVIATIONS

CAP	Climate Action Plan
CTMP	Countywide Transportation Master Plan
EPA	US Environmental Protection Agency
ESCO	Energy Service Company
ESPC	Energy Savings Performance Contracting
FDOT	Florida Department of Transportation
FPL	Florida Power and Light
GHG	Greenhouse Gas(es)
GIAB	Green Implementation Advancement Board
IRC	The Institute for Regional Conservation
LDR	Land Development Regulations
LSV	Low Speed Vehicle
MS4	Municipal Separate Storm Sewer Systems
OSAR	Office of Sustainability and Resilience
RCAPv3	Regional Climate Action Plan version 3
SFWMD	South Florida Water Management District
TRI	The Reef Institute

# INTRODUCTION

Climate change is directly affecting Delray Beach and will be more and more in the future. Warmer temperatures and heavier rainfall events are already widespread. We've also seen hurricanes strengthen to Category 5 status very quickly, causing major damage to other South Florida cities.

A main contributing factor leading to the extreme rainfall and tropical storms, is the elevated temperatures both in the ocean and atmosphere. To address these threats, the City should take deliberate steps to reduce greenhouse gas (GHG) emissions, and prepare for impacts due to increased heat, heavy rain events, major tropical storms, etc.

A great deal of foundational work has been done to get to this point where a Climate Action Plan (CAP) has been developed for the City. Adding to this, priorities, activities, and milestones to address climate threats will be an effective way to guide actions and ensure progress.

The City completed a GHG Inventory in October 2022, using data for 2019. The report found that 549,032 MTCO<sub>2</sub>e were generated in Delray Beach by all sources, with transportation accounting for 52%, and commercial and residential buildings generating 44% of emissions. In May 2023, a presentation on the GHG Inventory report was given to City Commission. The presentation summarized GHG data and included recommended GHG emission reduction targets of 50% by 2030 and net zero by 2050.

Throughout 2023, the Office of Sustainability and Resilience (OSAR) organized regular outreach activities highlighting topics related to climate action planning, including green buildings, GHG inventory, water conservation, tree planting, water quality, green businesses, recycling, coral restoration, habitat restoration, stormwater flood insurance, and native plants.

Also during 2023, the Commission-appointed Green Implementation Advancement Board (GIAB) submitted a memo to the City Commission, recommending development of a CAP.

The Commission adopted Resolution 201-23 in November 2023, supporting implementation of the Regional Climate Action Plan version 3 (RCAPv3), written by the Southeast Florida Regional Climate Change Compact. OSAR developed a Climate Action Planning Survey (Survey) to gather public input, based on the RCAPv3 and multiple other surveys and CAPs from local governments, including Boca Raton, Boynton Beach, West Palm Beach, and Broward County.

The Survey grouped issues into six sections: Energy - Built Environment, Green Infrastructure and Natural Environment, Water, Waste, Transportation, and Climate Resilience. The Survey opened during Earth Month (April 2024) and ran until the week after Climate & Culture, September 16, 2024. During this period, extensive outreach and advertising was done through City social media, displays in multiple locations with a link to the Survey, email blasts by the City and partners, booths at the Green Market, an event during First Friday Art Walk, several presentations and webinars, and more. More than 350 responses to the Survey were received, and overall, more than 80% of responses indicated that a CAP should be developed.

# INTRODUCTION

The most popular selections, i.e. priority Challenges, from each of the six Survey sections, were the following:

**ENERGY – BUILT ENVIRONMENT:** Energy Efficiency of City Facilities, Community Energy Efficiency (Residential and Business), and Renewable Energy and Storage at City Facilities

**WASTE:** Waste Reduction, Expand City’s Recycling Program (Multi-family, Commercial), and Awareness of Environmentally Preferred Products

**TRANSPORTATION:** Multi-modal Transportation, Regional Public Transportation, and Increase Fuel Efficiency of City Fleet

**WATER:** Enhance Stormwater System to Manage Extreme Rainfall Events, Water Use Efficiency/Conservation Program, and Hardening of Water-related Infrastructure

**GREEN INFRASTRUCTURE and NATURAL ENVIRONMENT:** Dune Restoration, Tree Planting Program, Protection of Existing Trees, Parks Habitat Restoration, and Coral Reef Restoration

**CLIMATE RESILIENCE:** Tree Planting Program, Enhance Stormwater System to Manage Extreme Rainfall Events, Dune Restoration, and Coral Reef Restoration

Overarching principles to be incorporated into all CAP efforts are Outreach and Fairness.

In November 2024 the Survey results were presented to City Commission, and they supported development of a draft CAP. Subsequently OSAR worked with City staff and partners, to brainstorm Strategies to accomplish the priority Challenges identified in the Survey. The priority Challenges and Strategies were presented to the public for a final round of public input, beginning in February 2025. This draft CAP briefly describes each of the Strategies. Once the CAP is approved, workgroups can be formed for specific Strategies, to lay out a plan of action including goals, and then implementation will begin.

A presentation of the draft CAP, including priority Challenges and Strategies was scheduled for the City Commission meeting on Earth Day, April 22, 2025.

# ENERGY – BUILT ENVIRONMENT

Climate Action Plan Challenges and Strategies related to energy use in the built environment are the focus of this section. Here, this largely pertains to electricity, and the many ways that use of electricity can be reduced. Energy use by the built environment contributes more than 40% of GHG emissions in the City, so Strategies to reduce energy use by this sector are critical. The main subheadings in this section were identified by respondents to the Climate Action Planning Survey, and these are referred to as Challenges. Below each of the Challenges, Strategies are listed, which were developed by City staff working in concert with City partners. The Strategies will be the focus of next steps, with workgroups formed to design a plan of action, set goals, and begin implementation.

## Energy Efficiency of City Facilities

### Energy Savings Performance Contracting (ESPC)

Energy Savings Performance Contracting (ESPC) involves a contract between the City and an Energy Service Company (ESCO). The ESCO has expertise in energy management and energy efficient equipment. The ESCO would conduct a comprehensive facility energy audit to identify energy saving improvements. The ESCO can then design a project that generates sufficient energy cost savings to pay for the project over the term of a contract, which typically runs 15 to 20 years.

### Electrical Usage Analysis, Benchmarking

Obtaining electrical energy use information is an initial and important step that can be used to track performance and identify inefficiencies. The City has multiple accounts with FPL, which if tracked in digital format could be analyzed more easily. Simple trend analysis, looking at usage for one account can provide insight. Benchmarking is a specific type of analysis, where characteristics of a building are used to categorize, so that comparison to other similar buildings can be done. Buildings that use more electricity than other comparable buildings would likely have good potential for making energy efficiency improvements. Energy usage analysis is also a standard part of an ESPC process.

### Retrofits, Thermostats, Controllers, LED Lighting

There are several different types of energy efficiency improvements that entail a range of cost and level of work to implement. Replacing doors and windows, or installing additional insulation are examples of more extensive retrofits. In some instances, weatherizing by sealing around doors and windows can be effective and cost-efficient improvements. Improvements to the system that controls the HVAC system, can increase efficiency. The HVAC control system includes thermostats, flow sensors, dampers, and fans. Changing over lighting to use LED fixtures and bulbs can also save significant electricity. An ESCO would broadly consider these types of improvements when developing an ESPC, or the improvements could be pursued in a less comprehensive way.

### Building Operations & Maintenance Staff Training

# ENERGY – BUILT ENVIRONMENT

The ongoing operation and maintenance of electrical equipment can have a significant impact on how well equipment functions. HVAC systems, lighting, water heaters, pumps and other equipment have maintenance needs that in many instances require expertise, experience, and training to perform. In addition, tracking the maintenance needs can ensure that equipment runs efficiently, without unexpected downtime. Many electrical systems have monitoring capabilities, which can assist operations staff in checking equipment status. Having a system and tools in place to manage maintenance can also contribute to energy efficient operations. Also see this Strategy under the Community Energy Efficiency (Residential and Business) Challenge.

## Capital Improvement Plan

The Capital Improvement Plan offers major opportunities to increase the energy efficiency of City operations. By definition, these are large projects that will operate for many years, so incorporating energy efficiency as a main consideration, and using more efficient designs such as green buildings, can be very effective in reducing energy use. Cost is always an important consideration when using taxpayer money. For this reason it's important to understand the return on investment that energy efficient designs generate in comparison to options that may cost less to buy, but more to operate and maintain.

## Community Energy Efficiency (Residential and Business)

### FPL Dashboard, Benchmarking

Florida Power and Light (FPL) is the electric utility for the Delray Beach area. Accounts with FPL can be accessed through the internet, where there is a Dashboard with basic functionality, which displays energy usage data. The data can be displayed for different timeframes, and on kilowatt hour or cost basis. Working with FPL to incorporate more functions, including data export, would provide customers with a simple way of better understanding their energy usage. Including use of the Dashboard as a topic in OSAR outreach events would make more customers aware of this capability and encourage its use.

### Green Building Ordinance

Delray Beach passed a green building ordinance, which took effect on November 1, 2023. The ordinance requires new buildings or expansions of 15,000 square feet or more to obtain a green building certification. Revising the ordinance to address more of the buildings in the City would increase energy efficiency, sustainability, and resilience of buildings. Selecting an approach that would be supported by the community, while achieving the greatest reduction in energy usage should be a guiding consideration for future amendments or ordinances related to green buildings.

### Building Operations & Maintenance Staff Training

There are many building management companies in our area, and many larger buildings which have maintenance staff. An OSAR outreach program can highlight benefits of efficient building operations, reduced costs and unscheduled maintenance. Working with partners in the area, it

# ENERGY – BUILT ENVIRONMENT

may be possible to identify providers that offer training for building managers and maintenance staff. OSAR may be able to sponsor training if cost and benefits are reasonable. Also see the Strategy of same name under the Energy Efficiency of City Facilities Challenge.

## Grants, Earmarks, Incentives, Vouchers

Obtaining external funding, and using funds for community energy efficiency initiatives are valuable financial mechanisms to advance sustainability. City staff and partners monitor grant opportunities, these can be shared in an organized effort to identify, prioritize, and write timely, and targeted applications. Grant funding has been reduced or discontinued from many agencies that have sustainability-related missions. As such, using the legislative process to obtain earmarks may become a more viable route for funding. Lastly, programs that provide funding to the community in the form of incentives and vouchers can increase energy-efficient behaviors.

## Solar Energy

Renewable energy is an indispensable Strategy if the City is to reach the goals of reducing greenhouse gas emissions 50% by 2030, and reaching net zero by 2050. While energy efficiency measures if implemented broadly are likely to reduce energy use by at least 30%. Solar energy is a viable means of achieving additional major reductions in use of electricity generated by fossil fuels. Large solar arrays could be installed on buildings, or parking structures. Smaller applications can also be designed for off-grid systems that provide lighting, signals, communications, etc. Also see the Energy Savings Performance Contracting, and Capital Improvement Plan Strategies under the Energy Efficiency of City Facilities Challenge, and the Battery Storage Strategy under the Renewable Energy and Storage at City Facilities Challenge.

## Renewable Energy and Storage at City Facilities

### Energy Savings Performance Contracting (ESPC)

See Strategy of same name under the Energy Efficiency of City Facilities Challenge, and the Solar Energy Strategy under the Community Energy Efficiency (Residential and Business) Challenge.

### Emergency and Recovery Planning

In addition to the sustainability benefits provided by solar energy, if designed well, significant benefits can occur during emergency and recovery situations. Having electricity for critical needs when the grid is down is a basic component of emergency planning. Historically this need has been addressed using generators powered by fossil fuels. This approach entails limitations such as ongoing cost, infrequent use of equipment, access to fuel, and generation of greenhouse gas emissions. Solar energy and storage systems cannot only reduce energy usage costs during normal operations, but also provide a source of electricity during emergency situations. Also see the Battery Storage Strategy under this Challenge.

### Battery Storage

# ENERGY – BUILT ENVIRONMENT

Large and smaller scale battery systems can be paired with solar energy systems to store electricity for a multitude of applications. These systems provide resilience benefits along with GHG emission reductions. Battery systems can also be charged by fossil fuel generators providing additional operational flexibility during emergencies or non-daylight hours.

## Solar Site Assessments

A solar site assessment is a decision-making tool, used to determine whether a location would potentially generate sufficient electricity to justify the installation of equipment. There are other subsequent considerations which would be made, but the solar site assessment can be used as an initial filter, to narrow down sites for further consideration.

## Capital Improvement Plan

See the Strategy of the same name under the Energy Efficiency of City Facilities Challenge.

## Other- From Public Comments

### Control Development, Promote Density

Existing mechanisms are in place that encourage development which is designed to use energy efficiently. The intended outcome of these mechanisms is to reduce sprawl, promote density where infrastructure is in place, improve transportation by means other than personal vehicles, increase green buildings, etc. Consideration can also be given to amend or add mechanisms which encourage the efficient use of energy.

### Address Gas-Powered Lawn Equipment

Gas-powered lawn equipment produces many times more GHG emissions than cars. The long growing season in Delray Beach means that lawn care is done year-round, making this a source that should be considered for ways emissions can be reduced. Lawn equipment for commercial use that performs acceptably on battery power may not be available yet, but several manufacturers are developing product lines. Certain equipment types, such as trimmers, may have models which are commercially viable. The cost of batteries and the lifetime of batteries used daily for commercial purposes may also be limiting factors.

### Green Roofs

A “green roof” generally is a specialized roofing system that has a vegetated covering. The design includes a waterproof layer, soil, and vegetation. This roof system functions to reduce the heat energy absorbed by a structure, and to conserve water. The City Land Development Regulations (LDR), section 4.4.13.(F)(9), includes some provisions relating to green roofs.

# GREEN INFRASTRUCTURE & NATURAL ENVIRONMENT

Climate Action Plan Challenges and Strategies related to green infrastructure and the natural environment are the focus of this section. The natural environment performs valuable functions including cleansing water and air, erosion protection, forming oxygen, and reducing the urban heat island effect. Green infrastructure entails incorporating natural and semi-natural features into a man-made design which provides environmental functions in a certain way and place. The main headings in this section were identified by respondents to the Climate Action Planning Survey, and these are referred to as Challenges. Below each of the Challenges, Strategies are listed, which were developed by City staff working in concert with City partners. The Strategies will be the focus of next steps, with workgroups formed to design a plan of action, set goals, and begin implementation.

## Dune Restoration

### Dune Management Plan

The healthy beach dune system can provide significant protection of landward areas, and as sea level rise continues to advance the protective function of the dune system takes on even more importance. Since the initial beach nourishment in the early 1970's, residents and City staff have worked diligently to build a natural rolling dune ecosystem through the intentional planting of native vegetation that catches and holds sand. Over time the dunes have continued to expand through natural selection and growth as well as through active management by City staff, contractors, and local non-profit environmental organizations to remove exotic species and replace them with native and endangered plant species. Today, the dunes along the municipal beach range from 140 to 215 feet wide, covering approximately 27 acres with a wide variety of plant species. The dune vegetation also captures windblown sand and creates a natural barrier between the ocean and the boardwalk. The City performs semi-annual dune maintenance events where exotic species are removed, native plants are added, and the dune vegetation is pruned to ensure that it maintains its healthy diversity. Local non-profit organizations, such as the Institute for Regional Conversation (IRC) and Fairchild Tropical Botanic Garden continue to invest their time and volunteer efforts by offering exotic removal, native planting and dune outreach and volunteer events annually.

### Encourage Research, Partner with Universities and Non-governmental Organizations

The beach dune in Delray Beach provides an excellent opportunity for research by universities and natural resource management agencies. A diverse assemblage of native vegetation is present, including several rare plants. Non-native invasive plants also are present, which can overtake and impair the environmental function of the dune system. Research Opportunities related to dune ecology, habitat restoration, protected species, management techniques, and many other areas can be promoted by outreach to academic and agency partners. Encouraging research which better describes the function of the dune system can give insight into dune management, and raise awareness of the important environmental and economic functions of the dune system.

# GREEN INFRASTRUCTURE & NATURAL ENVIRONMENT

## Tree Planting Program

### Tree Drop-Off

In 2019, the City initiated a program to plant 10,000 trees in 5 years. Efforts in the first two years of the program included many plantings on City properties and partner sites such as schools. In Year 3 of the program, Tree Drop-Off was developed, such that residents sign up online for trees to be delivered to their home, which the resident plants and cares for. This approach costs less per tree than trees planted on City and partner properties, as no maintenance is paid for by the City after the tree is delivered. In addition, Tree Drop Off has the capability to focus on certain areas, for example with a higher allotment of trees made available to lower canopy areas of the City.

### Right Tree Right Place

FPL promotes a guide to planting trees, Right Tree Right Place. In summary, this approach assesses a location to ensure that there are no conflicts which would contraindicate tree planting. The presence of overhead or subsurface utilities, size of planting area, resources for tree maintenance, future land use, and other considerations can affect the viability of a site for tree planting. For an acceptable site, the size and species should also be considered when selecting an appropriate tree to plant.

### Diversity of Species

Planting multiple species of native trees has been a consideration of the Tree Planting Program. A diverse assemblage of trees is a crucial part of a healthy ecosystem, promoting overall biodiversity, and supporting wildlife habitat functions. Having diverse tree species planted also enhances resilience to pests and diseases, as these can be species specific.

### Tree Maintenance

Providing maintenance for both existing trees and newly planted trees is an important way of ensuring that trees survive such that canopy expands. A tree maintenance program requires sufficient funding for equipment, staff, and training. A cost-effective organized approach to tree maintenance requires a data tracking system for tree condition, maintenance needs, and maintenance work.

## Protection of Existing Trees

### Ordinance, Enforcement

LDR section 4.6.19 includes protections for trees. Understanding these existing requirements, and the preemptions in Florida Statute 163.045, should be prerequisite to any future steps. Specifically, the state preempts local governments from requiring permits for pruning, trimming, or removing trees on residential property if the owner has documentation from a certified

# GREEN INFRASTRUCTURE & NATURAL ENVIRONMENT

arborist or licensed landscape architect stating the tree poses an unacceptable risk. Outreach to the community to raise awareness of existing local tree protections and state preemption could inform community input and guide future steps in a productive way.

## Specimen Trees

Appendix A – DEFINITIONS of the City LDR states, “EXCEPTIONAL SPECIMEN TREE. Any tree determined to be of value to the public because of its size, location, age, historic association, ecological value, aesthetics or other unique characteristics...” Additional protections for these trees could be accomplished through amendment of the LDR.

## City Arborist/ Forester

Currently several different City Departments perform important roles related to planting, maintaining and protecting trees. Having a position with responsibilities and empowerment to coordinate and collaborate across Departments on tree-related concerns could move new initiatives forward in a timely manner, and assist existing tree-related City programs.

## Control Invasive Species

Invasive plants can quickly grow and spread, outcompeting native tree species. Training and equipping City maintenance staff to control invasive species would be an effective approach for many City properties. Outreach to the community, providing information on the identification of common invasive plants and means of control can reduce the spread of these plants. Also see Strategies under the Parks Habitat Restoration Challenge.

## Parks Habitat Restoration

### Restoration Plans, Functional Linkages

Several City parks have areas of native vegetation but often these areas have high coverage of non-native invasive plants. Developing restoration plans for these sites would lay out steps to restore native habitat, treat non-native invasive plants, plant native plants, monitor progress, communicate to the public, budget, etc. Outreach to the community around these parks, encouraging native plantings, can expand functional habitat and help create linkages between restoration areas.

### Pocket Refuges, Pollinator Gardens

Even small areas of a yard can be planted in such a way to provide natural functions. Several of these areas, Pocket Refuges and Pollinator Gardens, have been installed in City Parks. A Pocket Refuge is a small, carefully designed native garden within a park that aims to restore wildlife habitats and provides essential resources for pollinators, such as bees, butterflies, and hummingbirds. These refuges feature a variety of native plants that offer nectar, pollen, and shelter. Pollinator gardens are carefully cultivated spaces that feature plants specifically chosen to attract and support pollinating insects like bees, butterflies, and hummingbirds. It also helps

# GREEN INFRASTRUCTURE & NATURAL ENVIRONMENT

to maintain a healthy ecosystem and contribute to the overall biodiversity of our parks by providing a source of food and habitat.

## Herbicide Application License

Targeted and appropriate use of herbicides can increase the effectiveness and speed of restoration efforts. A Public Applicator License issued by the Florida Department of Agriculture and Consumer Services is required in order to apply restricted use herbicides during the normal course of work by City employees. Exams must be passed in order to obtain a Public Applicator License. Training can help employees prepare for the exam.

## Legislative Priorities

In recent years, the Florida Legislature has taken up bills concerning sustainability and resilience issues. Green infrastructure has been a topic of some bills, designed to develop agency guidelines, and encourage habitat restoration and the use of green infrastructure. Actively tracking, commenting, and supporting legislation as appropriate can further the use of green infrastructure and nature-based solutions.

## Coral Reef Restoration

### Coral Nursery

Coral nurseries are sites where coral colonies are kept for protection, research, and growth. They can be in-situ or in a land-based facility. One such coral nursery operation, The Reef Institute (TRI), is located in Palm Beach County. TRI has aquaria which hold thousands of coral colonies from more than 20 different coral species. TRI operations also include outplanting coral colonies on the natural reef for research and restoration purposes.

### Coral Outplanting

Coral Outplanting occurs when a coral colony is attached by an artificial method to a natural hardbottom area. This activity is considered restoration when the coral species attached previously existed at the site or nearby. Outplanting of species that cannot be confirmed as previously existing in an area should be done with due consideration of potential ecological effects.

### Reef Monitoring

Monitoring the reef habitat is an important part of coral reef restoration, as it documents baseline conditions and changes that occur. Beneficial information can be obtained from monitoring at sites where direct human activities are minimal, and at sites where human activities such as diving, fishing, restoration, etc. occur. Permitted coral outplanting activities require monitoring.

### Reef Consortium Support Group

## GREEN INFRASTRUCTURE & NATURAL ENVIRONMENT

A local group of interested parties formed in 2024, The Reef Consortium, to consider ways to support coral reef restoration. Topics discussed by the group included artificial reef, coral nursery, and coral outplanting. Public interest and support for coral restoration efforts can benefit this type of activity in the waters off of Delray Beach.

# WATER

Climate Action Plan Challenges and Strategies related to water are the focus of this section. Water is a critical resource that affects both the environment and public health. Sustainable water management reduces flood risks, and ensures a reliable and high-quality water supply while reducing vulnerabilities to climate change, extreme weather events, and pollution. The main headings in this section were identified by respondents to the Climate Action Planning Survey, and these are referred to as Challenges. Below each of the Challenges, Strategies are listed, which were developed by City staff working in concert with City partners. The Strategies will be the focus of next steps, with workgroups formed to design a plan of action, set goals, and begin implementation.

## Enhance Stormwater System to Manage Extreme Rainfall Events

### Swales

A swale is a stormwater management feature which helps to promote water infiltration and reduces erosion. A common example of a swale can be seen along some roads, where the ground slopes slightly downward, allowing water to flow off the road. Swales can be a cost-effective way to increase stormwater handling, with less disruption due to construction compared to other types of stormwater management infrastructure.

### Permeable Surfaces, “Low Impact Development”

Designing development to emphasize stormwater management and water conservation is termed “low impact development.” Design features such as rain gardens, permeable pavement, preserving natural landscape, and others are examples of low impact development. Often the cost of these features can be similar to other alternatives, but with added benefits to flood control, and water quality.

### Stormwater Master Plan Revision

A Stormwater Master Plan is a document that describes a stormwater management system, including information regarding existing infrastructure, maintenance activities, funding, future infrastructure plans, etc. This plan is a useful tool for planning and tracking work, which is especially important as heavy rainfall events occur more frequently. The City has written Stormwater Master Plans in the past, and will begin another revision in the future. Regular updates and community engagement ensure that the plan remains effective and adaptive to emerging challenges.

### Tidal/ Sunny Day Flooding Protection

Flooding associated with high tides rather than rain or storm events is referred to as “sunny day flooding.” Rising sea levels is a major reason for the increased frequency of sunny day flooding seen in low-lying coastal areas of South Florida. Due to the widespread nature of this threat, federal, state, regional and county governments are investing in monitoring and predictive modeling to define where flooding will occur under various sea level rise scenarios. Multiple

# WATER

tools can be applied to mitigate this flooding, including tidal valves, elevated infrastructure, improved drainage outfalls, enhanced shoreline protections, and living shorelines.

## **Municipal Separate Storm Sewer System (MS4)**

The State of Florida defines a MS4 as “a conveyance or system of conveyances like roads with stormwater systems, municipal streets, catch basins, curbs, gutters, ditches, constructed channels, or storm drains: Owned or operated by a ... city, ... or other public body ... having jurisdiction over management and discharge of stormwater, ... that discharges to waters of the state; Designed or used for collecting or conveying stormwater...” Proper maintenance of stormwater infrastructure, such as catch basins and retention ponds, helps prevent contaminants from entering natural waterways. The city can enhance MS4 compliance by outreach, regular stormwater system inspections, integrating green infrastructure, and collaborating with state and federal agencies.

## **Water Use Efficiency/Conservation Program**

### **Water Audit- Continuous**

Continuous water audits help identify leaks, inefficiencies, and opportunities for conservation within the city's water distribution system. By regularly assessing water usage patterns, the city can detect anomalies, reduce losses, and optimize water management strategies. Implementing smart metering and data analytics further improves accuracy and responsiveness in addressing inefficiencies.

### **High Usage Customers**

Targeting high water usage customers with outreach programs and conservation incentives can lead to significant reductions in overall water demand. Customized recommendations, rebates, and educational resources can encourage responsible water use. A tiered pricing structure may also incentivize conservation among high-usage households and businesses.

### **Enforce Watering Ordinance**

Consistent enforcement of watering ordinances ensure that residents and businesses are aware of and adhere to designated irrigation schedules, reducing unnecessary water consumption. Increasing public awareness through campaigns and signage can improve compliance. Partnering with homeowner associations and landscaping companies can further promote responsible irrigation practices.

### **Energy Savings Performance Contracting (ESPC)**

Integrating water efficiency measures through ESPC allows the City to implement upgrades that reduce both water consumption along with the energy required to pump and treat water. Steps such as leak detection, pump optimization, and efficient irrigation systems can generate cost savings while improving sustainability. Also see Strategy of the same name in the Energy – Built Environment section.

# WATER

## Fixture Rebate Program

Rebates for high-efficiency water fixtures, such as low-flow toilets, faucets, and showerheads, can encourage residents and businesses to replace outdated fixtures. Partnering with retailers and plumbing professionals can increase awareness of the program, participation, and program effectiveness. Highlighting long-term cost savings, return on investment, and environmental benefits are important outreach topics which also encourage adoption.

## US Environmental Protection Agency (EPA) Watersense, South Florida Water Management District (SFWMD)

The EPA and the SFWMD are two good sources of information concerning water conservation. The EPA sponsors the WaterSense program, which labels water efficient devices, to give customers a simple way to identify sustainable products. WaterSense also partners with industries, and does extensive outreach. The SFWMD also has outreach materials and works with cities to improve water efficiency in the region. Collaboration with these organizations ensures the City has the latest conservation information and is aware of resources and events.

## Reduce Maintenance Flushing

Maintenance flushing is an activity where water is released from select locations in the potable water distribution system, to increase turnover and decrease the time between when water leaves the plant and when it gets to the tap. This is a simple method to improve water quality at the tap, and though effective, it wastes energy and water. Often locations where flushing needs to be done are dead-end lines. Analyzing where maintenance flushing is needed, and comparing to the layout of distribution system pipes may identify opportunities to loop lines together, increasing water flow and improving water quality such that maintenance flushing can be reduced.

## Reclaimed Water and Reuse

The City has used reclaimed water distributed through a reuse system since 2008. The beneficial reuse of reclaimed water is an effective way to reduce the use of drinking water for non-potable purposes. If used extensively, reclaimed water can reduce potable water demand, extending the functional life of a drinking water treatment plant.

## Hardening of Water-related Infrastructure

### Treatment Plant, Distribution System, Collection System, Alternative Energy, Generators, Batteries

Water-related infrastructure can be exposed to multiple threats, including high winds, downed trees, flood waters, and increasing sea level. Assessing how each piece of infrastructure or asset may be vulnerable and considering mitigation options is an important Strategy for maintaining quality of life under normal conditions and also planning for the future, including recovery after a storm.

# WATER

## Maintenance Plan

A detailed maintenance plan is useful in keeping individual equipment and the overall system running efficiently and reliably. This plan also can tie into other processes, such as capital improvement, budget, inventory, training, etc.

## Aquifer Protection

Groundwater is the source of the City's drinking water. Protecting the water quality of drinking water wells is crucial to the City. As sea level rise continues, and demand for potable water rises, the risk of saltwater intrusion may also increase. Wellhead protection, and water conservation are two ways to protect the drinking water aquifer. Another approach can be to use stormwater to recharge groundwater in a way that enhances the barrier to saltwater intrusion.

# WASTE

Climate Action Plan Challenges and Strategies related to waste are the focus of this section. Managing waste in a sustainable way goes far beyond recycling, and in fact can start with many of the daily choices we make. Avoiding the generation of waste, choosing items that are made more sustainably, and finding ways to reuse items are also important ways to address the Waste Challenge. The main headings in this section were identified by respondents to the Climate Action Planning Survey, and these are referred to as Challenges. Below each of the Challenges, Strategies are listed, which were developed by City staff working in concert with City partners. The Strategies will be the focus of next steps, with workgroups formed to design a plan of action, set goals, and begin implementation.

## Waste Reduction

### Awareness of Environmentally Preferred Products

Raising awareness of environmentally preferred products is key to moving toward more sustainable choices. This strategy will provide information to residents, businesses, and City Departments on the benefits of choosing products that have lower environmental impacts throughout their life cycle, and how to identify these products. By promoting products that are energy-efficient, made from recycled materials, or designed for durability and reuse, the City can reduce waste generation and support the development of a circular economy.

#### City Policies, Manual, City as Example

The City can establish and follow sustainable procurement policies and guidelines which prioritize environmentally preferred products in city operations, reducing single-use waste, conserving resources, and encouraging the community to adopt similar practices.

#### Single-use Plastics

Single-use plastic items contribute to pollution that ends up in waterways, ecosystems, organisms, and even humans. Promoting alternatives can reduce plastic waste that is the source of major environmental degradation, and an arising human health threat.

#### Material Declarations

Knowing the composition of items we purchase can be a useful tool in making sustainable decisions. A Material Declaration is a document that contains information on a product, including the materials and substances used, where they originated, safety data, and regulatory compliance information. Outreach on the use of Material Declarations could assist the community in identifying more sustainable choices.

### Special Events, Recycle Right Events

Large events offer opportunities to not only collect significant quantities of recyclable materials, but also to show the community good examples of recycling on a larger scale. The Solid Waste Authority has a program, Recycle Right, where they partner and provide bins and services for large special events. Neighborhood and Community Services has organized Recycle Right events, including this year's Delray Affair.

# WASTE

## Old School Square, Green Market, Coco Market, Schools, etc.

Working with the City's closest partners, there are opportunities to increase the level and visibility of recycling at facilities and events. Old School Square, Green Market, Coco Market, Schools, and other partners are well-respected in the community, touching many residents and visitors in a positive way. These partnerships may also effectively promote waste reduction, or other sustainability-related initiatives.

## Straw Ordinance Revision

The City has an existing ordinance which prohibits the distribution of plastic straws. Revisiting aspects of the ordinance could make it more effective and enforceable. Reconsidering the definition related to materials could allow straws that are more sustainable than plastic and more pleasing to users. There may also be provisions which could make the ordinance more easily enforceable by Code Officers. Performing outreach to raise awareness of the ordinance and requesting public input may provide valuable direction. Broadening the application of the ordinance to other single-use plastics that are not preempted by the State of Florida, such as cutlery, or plastic stirrers, could lead to bigger reductions of unnecessary plastic waste and their impact on local ecosystems.

## Microplastics, Health

Many people are aware that plastic waste is a pervasive problem, but not as well-known is research showing that microplastics, or tiny fragments of larger plastic items, are even more widespread. Samples have shown microplastics are present in the most remote places of the world, carried there by wind and rain. Microplastics are also being found inside humans, and possibly are linked to negative health effects. Raising awareness of microplastics and highlighting the potential health impacts is a strategy which can encourage people to properly dispose, recycle and reduce use of plastic.

## Adopt-a-Street

The City Sanitation Division operates an Adopt-A-Street program throughout the City. The City encourages adoption of areas where there is significant neighborhood blight. On going support for this program will continue its success.

## Beach Art Receptacles

It is important to be creative when engaging with the public regarding waste management and reduction, because most people have heard about these topics many times. One example of a creative approach was seen at a European beach where large fish-shaped structures served as recycling receptacles.

## Expand City's Recycling Program (Multi-family, Commercial)

# WASTE

## Multi-family Residential Developments

Multi-family developments are required to have an area for the collection and pick up of recyclables, and these developments are included under the City's hauler agreement with Waste Management. Developments which do not have a high rate of participation in recycling offer an opportunity to reach multiple people through outreach. A method for contacting property managers or resident associations may identify developments that are interested in increasing their recycling.

## Commercial- Individual Agreement with Vendor

Recycling for commercial operations is not included under the City's hauler agreement with Waste Management. Some commercial businesses along Atlantic Avenue have expressed an interest in recycling, and there are likely others in the City. This Strategy has potential for benefit but there are also challenges including space for recycling containers, logistics, and cost.

## Reduce and Reuse Strategies

Recycling in Palm Beach County is effective, with recyclables collected separately and processed in a different facility than other solid waste. The cost of the recycling operation in recent years usually has been greater than the revenue from sales of the recycled material. Locally and around the world, there has been a recognition that though recycling can work in theory, an additional consideration should be to reduce the waste that is generated, and to find ways to reuse materials without significant reprocessing. Outreach can raise awareness of this Strategy, and cooperative effort between the City and targeted business sectors could lead to significant progress. See Strategies under the Waste Reduction Challenge.

## Outreach- Waste to Energy, Dual Stream

The management of waste in Palm Beach County involves the separate operations for collection and processing of recyclable material, versus other solid waste which is taken to a waste-to-energy plant. The waste to energy plant generates electricity using solid waste as fuel. Outreach to the community would be helpful in clarifying recycling and waste to energy plant operations. This outreach and raised awareness in the community can provide opportunities to engage on other topics, such as reducing waste and reuse.

## Awareness of Environmentally Preferred Products

### Waste Reduction

See Strategies under the Waste Reduction Challenge.

## Other- From Public Comments

### Composting

## WASTE

Composting was suggested multiple times in comments from the public. The City is limited in its abilities as any solid waste collected at the curb by the City is required to be transported to the Solid Waste Authority. This topic does offer opportunities for outreach to interested parties in the community, and is important due to the significant resources required to produce food, and the greenhouse gases produced by food waste.

# TRANSPORTATION

Climate Action Plan Challenges and Strategies related to transportation are the focus of this section. Transportation is a major quality of life issue, and it is also important for reasons related to air pollution, energy consumption and associated greenhouse gas emissions. The main headings in this section were identified by respondents to the Climate Action Planning Survey, and these are referred to as Challenges. Below each of the Challenges, Strategies are listed, which were developed by City staff working in concert with City partners. The Strategies will be the focus of next steps, with workgroups formed to design a plan of action, set goals, and begin implementation.

## Multi-modal Transportation

### **Bike and Pedestrian Master Plan**

The City had a Bicycle Pedestrian Master Plan report written in 2024. A main project goal was “to integrate bicycle and pedestrian modes as part of the City’s overall mobility strategy.” The Master Plan will serve “as a blueprint for Delray Beach to create a robust, safe, comfortable, and convenient network of bicycle and sidewalk facilities throughout the city, as well as provide connectivity to regional “active transportation” networks.” The Master Plan will serve as a guide for infrastructure and policy.

### **Freebee, Shuttle, Trolley**

Transit options like Freebee, shuttle services, and trolleys provide opportunities to enhance connectivity within the City. Freebee is an existing, free, electric, on-demand ride service that reduces the need for short car trips in its service area. A trolley previously operated in the City and anecdotal information was positive, though the service was discontinued. Shuttle or trolley services could be revisited considering past obstacles, current beneficial routes and key destinations. Potentially these services could reduce single-occupancy vehicle trips, improve mobility, and increase access to downtown, beaches, and special event locations.

### **Tri-Rail**

Improving access to and integration with Tri-Rail, a regional commuter rail service, can improve transportation in and out of the City that decreases reliance on personal vehicles. Enhanced connectivity to Tri-Rail through shuttles, trolleys, bike paths, convenient parking, and less conventional means such as an elevated pedestrian bridge can encourage greater ridership, reduce traffic on highways, and support regional mobility goals. Transportation planning can pair considerations of other challenges, for example, how can transportation help address workers commuting to Congress Ave or the City Central Business District; or reduce parking needs during times of peak demand.

### **Fixed and On-Demand Transit, Special Event Access**

A combination of fixed-route transit (such as buses) and on-demand services can offer flexible, convenient transportation options tailored to different user needs. Providing special event access through targeted transit services can reduce parking demand and congestion during high-traffic events, while improving overall mobility.

# TRANSPORTATION

## Commuting Workers, Incentives

Encouraging businesses to offer incentives for commuting alternatives, such as public transit stipends, bike-to-work programs, or carpooling incentives, can reduce the number of single-occupancy vehicles on the road. These programs aim to improve air quality, reduce emissions, and make commuting more affordable and sustainable.

## Demand-Based Parking Fees

This strategy involves adjusting parking fees based on demand to encourage more efficient use of parking resources. Higher fees during peak times can discourage unnecessary driving, reduce congestion, and encourage the use of alternative transportation modes like biking, walking, and public transit.

## Regional Public Transportation

### Palm Beach Transportation Planning Agency, Palm Tran, WPBGo

Collaborating with regional transportation partners like the Palm Beach Transportation Planning Agency, Palm Tran (the county's public bus service), and WPBGo (West Palm Beach's mobility program) can improve regional transit connectivity. These partnerships help align local transportation planning with regional goals, ensuring seamless travel options across jurisdictions.

### Florida Department of Transportation (FDOT) District 4

Along with other jurisdictions in Palm Beach County, the FDOT District 4 is an important partner. Funding for major projects could come at least indirectly from FDOT, and design of projects such that they are consistent with FDOT goals could increase the likelihood of receiving funding. Aside from funding, a focus on state priorities can have indirect benefits to local and regional decision-making, increasing coordination on major projects, and addressing regional transportation challenges.

### Countywide Transportation Master Plan

On March 11, 2025, the Palm Beach County Commission passed a resolution supporting development of a Countywide Transportation Master Plan. The City should actively participate in the development of the plan. From the Palm Beach County webpage: "The Countywide Transportation Master Plan (CTMP) will establish a multijurisdictional process and planning framework that provides for a countywide vision for a multimodal system that safely connects people to places. As part of the CTMP development process, a Consultant-team will be working with County staff and a core technical group of stakeholders regularly in the development of the CTMP, in preparation for the presentations to all stakeholders at key project milestones and in various geographical locations within PBC."

"The CTMP may be used as a foundation for Palm Beach County and municipalities within the

# TRANSPORTATION

County to separately adopt and/or update their specific plan of improvements. Each jurisdiction may be able to select appropriate recommendations that fit the needs of each unique community while coordinating regionally significant transportation corridors through the recommended framework. Ultimately, each plan of improvement adopted by each jurisdiction may lead to a plan-based improvement methodology as set forth and specifically referenced in Florida State Statutes.”

“Three proposals were received on March 4, 2025 and have been deemed responsive to be forwarded to the Selection Committee for evaluation on April 7, 2025 at 9:30 a.m. and April 21, 2025 at 10:00 a.m. (if oral presentations are conducted). Both meetings will be held at the Purchasing Department, 50 S. Military Trail, Room 2N-123, West Palm Beach, FL 33415 The proposers are as follows: 1) Alfred Benesch & Company, 2) CTS Engineering, Inc., 3) WSP USA Inc.”

## **Bike and Pedestrian Master Plan**

Palm Beach County, the City of Boca Raton, and the City of Boynton Beach all have plans related to pedestrian and bicycle transportation. An understanding of these plans and coordinating with neighboring jurisdictions may provide benefits. Also see the Strategy of the same name under the Multi-modal Transportation Challenge.

## **Rail, Bus Connectivity- Atlantic Ave, Congress Blvd, Major Centers**

The South Florida Regional Transportation Authority operates TriRail, providing regional rail connectivity between Miami and West Palm Beach, including a station on Congress Ave in Delray Beach. PalmTran, operated by Palm Beach County, has 31 bus routes in total, 7 of which service Delray Beach. PalmTran routes run along Atlantic Ave, Congress Ave, and US 1. Enhancing connectivity with rail and bus services could benefit workers and customers through improved access to major employment and commercial centers. Also see the Strategies under the Multi-modal Transportation Challenge.

## **Increase Fuel Efficiency of City Fleet**

### **Fleet Transition Plan**

Changing from fossil fuel vehicles to more fuel-efficient vehicles should be planned, to ensure a smooth transition with no reduction in services or unanticipated consequences. A main consideration involves determining which vehicle uses may be met by a commercially available hybrid or alternative fuel vehicle option. Additionally, charging or fueling infrastructure must be in place to support new vehicles.

### **Low Speed Vehicles (LSVs)**

There are effective means other than cars for City staff to move around the City in certain instances. For short trips near City Hall or other City facilities, a LSV can be a viable option. LSVs

# TRANSPORTATION

are street legal, but their appearance is similar to a golf cart. LSVs can run on electricity, be charged from a regular wall outlet, and cost a fraction of the price of a car.

# CLIMATE RESILIENCE

The Climate Resilience section was approached differently than the other 5 sections of the CAP. The selections in the Climate Action Planning Survey under Climate Resilience were all present in another section of the survey also. This design was intended to reflect on the consistency of responses, and indicate issues that respondents saw as most closely associated with climate change. The results did show that the top survey responses in this section were all top responses in other sections, indicating there was some consistency. The main headings in this section are referred to as Challenges, and below each is a reference to the Challenge of the same name in another section. Detail on Strategies for these Challenges can be found in the other section of the CAP that is referenced.

## Tree Planting Program

See Challenge of the same name under the Green Infrastructure and Natural Environment section.

## Enhance Stormwater System to Manage Extreme Rainfall Events

See Challenge of the same name under the Water section.

## Dune Restoration

See Challenge of the same name under the Green Infrastructure and Natural Environment section.

## Coral Reef Restoration

See Challenge of the same name under the Green Infrastructure and Natural Environment section.

# CONCLUSION

This CAP was developed after studying other similar initiatives by local governments, and with extensive input from the community. The Challenges listed in the plan all received a high number of responses in the Climate Action Planning Survey which was run in 2024. Focusing on these Challenges not only will serve to prepare Delray Beach for the future, but will also address issues that the community has identified as important.

Considering that Delray Beach is a coastal city in South Florida, where changes are already being observed, the common sense, cost-effective, and beneficial initiatives described in this CAP will serve as a helpful guide to prepare for the future. The CAP was written with attention to what is practical, but there is much to be done, so careful selection, cooperation, and organization will be needed to successfully implement Strategies.

As with any successful initiative, especially one that is multi-faceted and complicated, measuring and reporting progress to leadership and the community is critical. A written report of progress on this CAP along with a presentation to the Commission should be made at least every six months, and include an outline of work anticipated over the subsequent six months.

The next step in the CAP process is to select the highest priority Strategies, and form workgroups to design a plan of action, set goals, and begin implementation.