

Rethink Paradise: Today. Tomorrow. Together.
West Palm Beach Sustainability Action Plan
2020 Update

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I. **Executive Summary**

West Palm Beach continues to lead South Florida communities in resilience and sustainability programs and initiatives. The City's efforts to combat climate change have evolved and grown more robust since 2005, when the City signed onto the US Conference of Mayors' Climate Protection Agreement. The Office of Sustainability was created in 2008, and the "Rethink Paradise" West Palm Beach: Sustainability Action Plan was first developed in 2012, long before many coastal cities were even thinking about climate change. West Palm Beach was an early municipal participant of the Southeast Florida Regional Climate Change Compact (the "Compact"), and in 2013 joined the Global Compact of Mayors (now the Global Covenant of Mayors) in a pledge to reduce greenhouse gas emissions ("GHGEs") and initiate certain climate planning activities.



West Palm Beach Aerial November 2014 photo D Ramey Logan.jpg from Wikimedia Commons by D Ramey Logan, CC-BY 4.0

The City reports its GHGE reductions and other climate efforts through the global environmental reporting system, CDP (Carbon Disclosure Program), and is recognized as one of only 34 American cities and 105 cities worldwide to achieve the highest score of "A" in 2019 and 2020 for its transparency and action on climate change. Globally and locally, the City is a leader on climate change mitigation by tracking and reducing emissions and adaptation planning.

This 2020 update to the Rethink Paradise Sustainability Action Plan ("Rethink Paradise Plan", "RPP", or "Plan") provides a detailed report of what West Palm Beach has done since the Plan was last updated at the end of 2017. In the last two years, the City has exceeded the requirements of its existing commitments and sought innovative opportunities to keep moving forward on resilience. For example, an updated GHGE inventory was completed in 2018, giving the City a clearer picture of where it stands in terms of meeting its goals to curb emissions both through City operations and across the community. The City was fortunate to partner with NEMAC+Fernleaf and the University of North Carolina Asheville to conduct a climate resilience assessment to assist

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with adaptation planning. Recommendations from that assessment are included in the Plan's updated Recommendations, provided in Appendix A.

The Recommendations in the RPP are organized under three encompassing Goals, which include:

- **Sustainability:** Become a more sustainable community by enhancing our City's triple bottom line: environment, economy, and equity.
- **Resource Management:** Enhance opportunities for the community to experience and appreciate nature and its importance to our wellbeing.
- **Vulnerability:** Prepare for the impacts of climate change through proactive resilience planning, mitigation, and adaptation.

Under these Goals are nine Objectives that correspond to the nine performance measurement categories utilized by the United States Green Building Council's Leadership in Energy and Environmental Design ("LEED") in its LEED for Cities program.

Harmonizing all of the City's Plan Recommendations with the LEED for Cities categories was a critical organizational task to keep the City's sustainability program focused and outcome-driven. To that end, West Palm Beach will focus on LEED for Cities as a central organizing theme for its sustainability program and work toward improving its certification level. Because the City was previously rated a 4-STAR Community in the "Sustainability Tools for Assessing and Rating Communities" ("STAR") program, it enters the LEED framework pre-certified. LEED for Cities has very specific program prerequisites that form the baseline for the City's performance measurement. In 2020 and beyond, the City will compile the information and produce the narrative assessments for those prerequisites, setting the stage for more data-driven progress towards reaching its goals.

For this Plan, the City and its team reviewed and analyzed over four hundred recommendations from five sources: (1) LEED for Cities guidance; (2) the Global Covenant of Mayors for Climate and Energy requirements; (3) the existing Rethink Paradise Recommendations last updated in 2017; (4) the Compact Regional Climate Action Plan 2.0; and (5) the NEMAC+Fernleaf Climate Resilience Assessment. The final list of 2020 Rethink Paradise Plan Recommendations was organized to identify overlap across these plans and initiatives and the City's overall goals. West Palm Beach will use these Recommendations to guide its resilience and sustainability work in the next decade. The resulting 60 Recommendations and their priorities for implementation are provided in Appendix "A".

Finally, the Compact updated its Unified Sea Level Rise Projection (2019), which West Palm Beach will continue to incorporate into its planning practices. The new projections are provided and explained in this Plan. Utilizing the National Oceanic and Atmospheric Administration ("NOAA") and Intergovernmental Panel on Climate Change ("IPCC") sea level rise curves, the Compact's Projection shows that the region went from expecting between 14 and 26 inches of sea level rise by 2060 to 17-31 inches in the same timeframe. The narrative below describes how West Palm Beach is leading by example and preparing to meet this challenge.



II. Introduction

A. Sustainability in Context

The City of West Palm Beach is on the front lines of sea level rise and climate change in southeast Florida. Located on 58 square miles on the Lake Worth Lagoon, the City's population of 112,000 is accustomed to living with water.² But while hurricane warnings and afternoon thunderstorms are to be expected, the threats of more extreme weather, more powerful storms, and more frequent and higher tidal flooding pose a future challenge. The City is planning for 10-17 inches of sea level rise by 2040 and 21-40 inches by 2070. Other climate risks such as drought, and higher temperatures are anticipated to impact future environmental conditions, but West Palm Beach is prepared.

The Office of Sustainability was created in 2008 to manage the City's resilience and climate change efforts. In 2012, the City launched "Rethink Paradise," its Sustainability Action Plan that approaches climate change and sea level rise challenges comprehensively. Throughout the last eight years, the City has made great strides to increase energy efficiency, harden its infrastructure, and implement numerous resilience recommendations. The philosophy that guides the City's sustainability and climate resilience strategy embraces the "Triple Bottom Line" approach: everything is connected, and with the three elements of People, Planet, and Profit in balance, each will flourish. The City's actions are driven by the three elements in the subtitle of the Rethink Paradise Plan: Today. Tomorrow. Together.

The City chose this subtitle of "Today. Tomorrow. Together." to illustrate the confluence of beginning preparation and planning today, for a different environment impacted by climate change and sea level rise in the future (tomorrow) and doing so through an equity lens (together).

¹ All photographs are sourced from the City of West Palm Beach website and Instagram account.

² United States Census Bureau, July 1, 2019. Retrieved from

<https://www.census.gov/quickfacts/fact/table/westpalmbeachcityflorida,palmbeachcountyflorida/PST045219>

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The City places a high priority on beginning the conversations about how to respond to the future impacts of climate change and sea level rise but doing so for the benefit of all City residents.

This Plan comes on the heels of several extremely destructive hurricane seasons and high seasonal King Tides. Proximate to the South Florida region, Hurricane Dorian (2019), Hurricane Michael (2018) and Hurricane Irma (2017) ravaged the Bahamas, Florida's panhandle, and the Florida Keys. King Tides were a foot higher than predicted in the fall of 2019. It is clearer now more than ever that climate change and sea level rise are impacting our ways of life. West Palm Beach is learning from every emergency and taking best practices and lessons from across Florida and around the world. This Plan details the efforts undertaken thus far and outlines the recommendations and initiatives that will guide the City going forward.



The images above were borrowed from starcommunities.org announcing the City's community rating.

B. LEED for Cities: A New Framework

West Palm Beach has achieved national excellence for its comprehensive and multifaceted approach to sustainability and climate change. For the past several years, the framework for measuring the City's achievement in this realm has been the STAR Communities program. STAR, which stands for "Sustainability Tools for Assessing and Rating Communities", recognized West Palm Beach as a "Four Star Community" in 2016. At the time, STAR was the country's leading program for evaluating local sustainability through performance measures: West Palm Beach was one of only five cities in Florida and 57 cities nationwide to earn a STAR certification. It was the only city in Florida to earn the "Four Star Community" rating.

This year-long process began in June 2015, when the City became a STAR Member Community. From September 2015 through the Fall of 2016, the City evaluated a tremendous amount of data culminating in a "crosswalk" spreadsheet of 749 rows and 2,247 cells representing various information points that together, tell the story of a highly-organized and efficiently functioning local government that is well-positioned to meet the challenges of rising seas and changing climate.

For the STAR certification process, the City converted all of this data into a reporting tool to track its progress and meet certain benchmarks; such data was then verified by the STAR organization. Based on its performance in seven focus areas, the City earned a 4 STAR rating. Those performance areas include: 1) Built Environment, 2) Climate & Energy, 3) Economy & Jobs, 4)

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Education, Arts & Community, 5) Equity & Empowerment, 6) Health & Safety, and 7) Natural Systems. The STAR certification process was aligned with the City's strategic planning, merging with other climate resilience and adaptation recommendations to become an overall framework informing City policies across disciplines.

In 2018, the STAR Communities organization merged with the United States Green Building Council ("USGBC"), which created the LEED for Cities and Communities program. LEED for Cities, like STAR, measures performance in different areas to improve the Triple Bottom Line of social, environmental, and economic sustainability. All active STAR subscribers automatically became pre-certified participants in LEED for Cities. West Palm Beach is now working toward improving its certification through LEED for Cities, realigning its goals and recommendations into this new, but not entirely different framework.

The City will be able to obtain LEED credits for many of its efforts to date and for its actions going forward; however, the LEED for Cities program has data-heavy prerequisites the City must meet first. LEED for Cities is performance driven because there is greater accountability in shared metrics. Accordingly, the City is currently compiling data, developing digital maps, and preparing documents tailored to meet all LEED for Cities prerequisites. There are 110 points available through the program, with a minimum of 40 points required for certification: The "Silver" certification level begins with 50-50 points. "Gold" certification is met at 60 points, and "Platinum" certification starts at 80 points. The City's goal is to achieve Gold level status in LEED for Cities by 2022.

LEED for Cities provides a globally-consistent scheme and platform for local governments to measure and communicate resilience and sustainability performance. The program provides a framework for planning, designing, measuring, and managing the performance of the City in terms of social, economic, and environmental conditions. The nine LEED for Cities categories for performance measurement provide the broad outline for this report:

Sustainability: Environment, Economy, and Equity

1. Transportation & Land Use
2. Water Efficiency
3. Quality of Life

Resource Management: Environmental Stewardship for Future Generations

4. Natural Systems & Ecology
5. Materials & Resources
6. Energy & Greenhouse Gas Emissions

Vulnerability: Preparing for Impacts

7. Innovation
8. Regional Priority
9. Integrative Process

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Beginning in 2020, West Palm Beach will move forward with a re-aligned set of Recommendations (see Appendix “A”) that include the LEED for Cities requirements. This process empowers the City to incorporate its LEED for Cities certification goals into the Rethink Paradise Plan, further harmonizing its strategic planning with resilience and sustainability. By aligning sustainability initiatives across City departments and updating planning efforts with a nationally-utilized model, the City can expand its leadership role on sustainability issues locally, regionally, and nationally. The City will receive its initial certification score by documenting its existing strategies and submitting performance data for review by the USGBC.

C. 2020 Sustainability Action Plan Recommendations

This Plan is accompanied by Appendix A, which is the comprehensive and complete list of the City’s Rethink Paradise Plan Recommendations for 2020. These Recommendations keep the City current with advances in its own plans, programs, and pertinent recommendations of its partner organizations. The RPP Recommendations come from the following resources: 1) the Compact’s Regional Climate Action Plan 2.0, 2) the Global Covenant of Mayors, 3) recommendations from the Climate Resilience Assessment conducted for the City in 2019, 4) LEED for Cities, and 5) existing Plan Recommendations that remain priorities. The RPP Recommendations are the product of thorough review and analysis of the City’s existing and planned activities, current opportunities, and long-term goals for meeting the challenges of climate change.



To focus the City’s sustainability efforts and ensure a consistent and clear approach, the RPP Recommendations are designed to track the LEED for Cities performance measurement categories. Each of the three categories listed above (Sustainability, Resource Management and Vulnerability) translates to a Goal statement in the actual Recommendations and is expanded through three Objectives and then supporting Recommendations.



III. Goal 1: Sustainability: Become a more sustainable community by enhancing our City's environment and economy, equitable for all.

- A. *Objective A: Transportation and Land Use: Improve the linkages between the City's transportation and land use to become a more connected community with alternative modes of transportation and efficient, diverse land use patterns.*

This Objective promotes non-motorized transportation such as biking and walking, and encourages the use of public transit. Mixed-use development and new urbanism principles in the downtown core, while expanding access to bike lanes and increasing sidewalk mileage are emphasized. The City has a Downtown Mobility Plan, as well as a Bicycle Master Plan, and the Transportation Element of its Comprehensive Plan prioritizes the development of "Complete

Streets” that are designed and maintained to accommodate cars and buses, but also bikers and walkers.

The City will improve its “Transportation Performance Score” through LEED for Cities by reducing the total number of vehicle miles travelled in the City. The total vehicle miles travelled (“VMT”) for the City was 1,501,820,364 when last calculated in 2018. The “Transportation-Related Emissions” section of this report on pages 22-23 describes some of the actions the City is already taking to incentivize electric vehicles and launch pilot projects, such as zero-emission activity buses and parking cash-outs.

Additionally, the City hosts “Bike to Work Week” annually in the spring. The event consists of a week-long challenge to commuters: that they register and commit to commuting by bicycle. Free tune up services are provided for cyclists such as tire pressure checks and chain inspections; educational materials are provided and activities are planned during the morning and afternoon commute hours. All Bike to Work Week details and events were emailed to commuters, along with a link to a “pledge” webpage.

The 2018 “Bike to Work Day” event outside City Hall was coordinated by the WPB Transportation Management Initiative. Sponsors Skybike, the Palm Beach County Transportation Planning Agency, the Mayor’s Office of Sustainability, and Zipcar supplied promotional items and prizes. In 2019, bicycle-related activities were held throughout the week, including a Bike Pit-Stop at the Intermodal Center, a bicycle safety “lunch and learn” and a “bike-in” movie. The week culminated with another “Bike to Work Day” event at City Hall that included more sponsors and giveaways for participants. The City has a bikeshare program in partnership with SkyBike, with dozens of bike racks scattered around downtown for use by residents and tourists alike.



- B. **Objective B: Water Efficiency- Prioritize a water conservation ethic for the community and the City that emphasizes a high quality, economical and sustainable future water supply.**

Surrounded by water and impacted by extreme storm events and sea level rise, the City is acting on many fronts to protect its water supply and integrate water resource management with quantity and quality such as reducing impacts from stormwater. Providing all residents with equitable access to clean drinking water, conserving water, and reducing flooding and water quality impacts through green infrastructure are key components of this objective. Going forward,

the City will continue to make smart investments in water resource infrastructure, improve its data collection and analysis processes, and expand its implementation of green stormwater infrastructure.

1. Stormwater Master Plan

In 2014, the City committed to a vision for its stormwater program through the development of a Stormwater Master Plan (“SWMP”). The SWMP is the first stormwater plan of its kind in South Florida to proactively modernize and adjust to the new realities of stormwater management in the context of climate change. The SWMP is a continuously evolving document that was most recently updated in 2018 to leverage the best of traditional technologies and integrate the use of resilience planning, interactive maps, and geographic information systems layers about the capital improvement plan. Some of these technologies include green infrastructure and low impact development, as well as modernized methods to better manage hydrology and water quality throughout the City. This innovative approach to stormwater planning will prepare the City’s integrated and complex watersheds for future conditions.

The SWMP consists of three volumes. The first, authored with the needs of staff, elected officials, and stakeholders in mind, provides the essential findings of the study in a format that is highly accessible and easy to use. The second volume includes detailed methodology and recommendations for data and modeling intended for technical professionals. The third volume contains a robust map atlas. The plan includes both major structural recommendations, programmatic recommendations, and an action plan.

The SWMP also directly benefits residents by linking with requirements in the National Flood Insurance Program’s (“NFIP”) Community Rating System (“CRS”). When the SWMP was updated in 2018, the project was overseen by a CRS-focused leadership team to ensure the City’s stormwater upgrades earn points that improve its overall score in the CRS program, reducing flood insurance premiums for homeowners with NFIP policies. It is expected that the City’s residents and business owners will save approximately \$13 million annually in flood insurance premiums from the work completed under the SWMP. FEMA advocacy around the SWMP also focused on creating a fair, defensible assessment of flood-risk throughout the City.

The SWMP included a detailed study, assessment, and planning process for sea level rise impacts. Considering future scenarios for both routine flooding and significant storm events, the City created a floodplain mapping program to further assess and manage flood risk. The City’s stormwater information technologies were modernized to utilize detailed models as opposed to simple base data. The City explored how best to implement tools such as green infrastructure and low impact development to reduce flooding and retain stormwater. The City’s code and regulations are being reviewed, updated, and streamlined to meet the goals of the SWMP.

As part of the SWMP process, the City overhauled its approach to water quality. Many of the recommendations in the SWMP are provided with the health of the region’s marine ecosystems in mind. For example, the SWMP recommends installing more stormwater retrofits in the eastern

portion of the City to better protect water quality in Lake Worth Lagoon. The City will also make a concerted effort to understand and monitor pollutant loads in terms of inflow from the west and throughout western communities. This is particularly important, given the significant development activity west of the City and adjacent to Grassy Waters Preserve, the City's main water supply. The City's internal water quality data was compiled with datasets from FDEP and SFWMD and analyzed to determine the spatial and temporal variations in the City's waterbodies, including, but not limited to Clear Lake, Lake Mangonia, Grassy Waters Preserve, and Lake Worth Lagoon. Annual pollutant loads were estimated and comparisons were made between the ambient, measured water quality data to the loading estimates to prioritize areas in need of projects or other management actions. The SWMP also emphasizes the importance of low-impact development for stormwater management and water quality.

The City was recognized for its innovative efforts in 2018. The Mayor's Climate Protection Awards is an initiative sponsored by the U.S. Conference of Mayors and Walmart, recognizing mayors for their energy and climate protection efforts. West Palm Beach was awarded a "Large City Honorable Mention" for its holistic stormwater master plan. Part of this recognition is due to the high level of citizen engagement and regional coordination that took place during the most recent update to the SWMP. The City's Watersheds Committee was involved throughout the process, and Palm Beach County, the Northern Palm Beach County Improvement District, and SFWMD were all actively engaged and consulted, resulting in a SWMP that does not exist in a vacuum, but rather reflects the interconnected, complex systems of water that flow through and around the City.

Many stormwater master plans focus on the development of capital improvement projects. These tend to be structural projects, like seawalls and roadway work. In addition, and in parallel to development of these types of projects, the City now has one of the most advanced, holistic stormwater archives and geodatabases in Florida. A modern and FEMA-compliant stormwater model was built for a majority of the City, along with a comprehensive study of City-wide flooding. Another key objective was to keep stormwater utility rates low by optimizing existing resources. Finally, the SWMP recommends ways to streamline and further optimize the City's operations and maintenance program in the future.



2. Engaging Residents and Businesses on Water

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The City has a unique program offering free “rain barrel” workshops to residents, where they can learn how rain barrels conserve water, save money, and reduce stormwater runoff. Eligible residents who attend a workshop can receive a free rain barrel, as well. The images below illustrate the City’s rain barrel program in action. Since 2016, the City has given away over 600 rain barrels, averaging 100 each year and doubling last year’s figures. The City was forced to respond to statewide quarantine orders due to the Coronavirus pandemic, and moved all workshops and sustainability programming to an online format. This increased participation dramatically, and as a result the City gave away over 220 rain barrels in 2020.



Photo credit (above): WPB resident



Since 2012, the City has celebrated National Drinking Water Week annually in May. West Palm Beach uses this opportunity to encourage residents and City staff to conserve water and eliminate single-use plastics. This year, the City celebrated Drinking Water Week virtually, with City staff sharing photos and videos that educate residents about how their water supply from Grassy Waters Preserve is treated and protected. Drinking Water Week encourages the use of tap water as the primary source of clean, affordable, readily available water that reduces dependency on plastic bottled water.

The City has participated in the Wyland Mayor’s Challenge for Water Conservation since 2013, a challenge between cities nationwide during Earth Month (April). The challenge incorporates a series of online pledges to see which city can be the most “water wise”, and cities with the highest percentage of residents who make a pledge are entered into a prize drawing for home irrigation kits, home improvement store gift cards, green cleaning supplies and a Grand prize of \$3,000 in paid utilities. Another annual initiative is “Imagine a Day Without Water”: WPB joins communities nationwide in an exercise to raise awareness around the value of water and wastewater systems.

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This campaign, in its sixth year, recognizes that many Americans take water for granted every day and engages communities in advocacy, events, student competitions, and social media activities.

The City has a “Water Savers” Program for both residential and commercial properties to upgrade to high-efficiency toilets. Owners of properties built in 1995 or before can obtain replacement toilets for old plumbing fixtures that consume 3.5 gallons per flush or more. The program provides a toilet voucher for \$125 toward a high-efficiency toilet and associated installation equipment for each approved toilet to be replaced. Residents and business owners have installed 3,733 new toilets with a maximum flush rate of 1.28 gallons per flush for residential properties and a maximum flush rate of 1.6 gallons per flush for commercial properties through this program. This program provides over 500 toilet vouchers to City residents and businesses annually, resulting in 139.13 million gallons of water saved annually since the program’s inception in 2012.

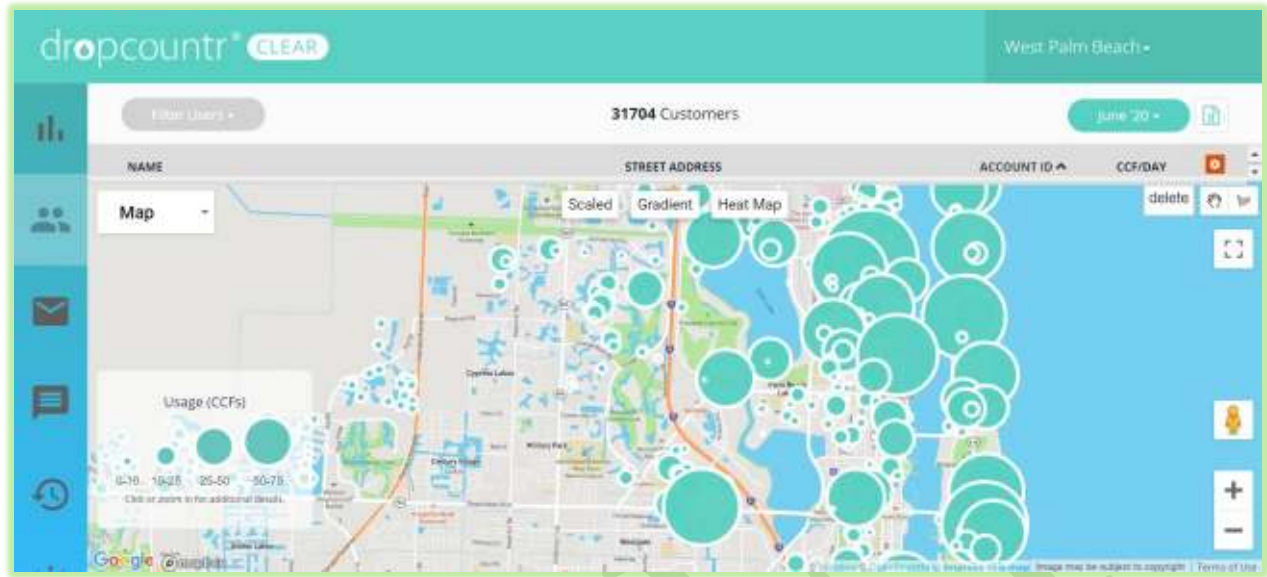
5.33 million gallons of water were saved in 2014. For the 2017-2018 program year, the City increased the amount of water saved to 6.96 million gallons. The table below shows the number of toilets installed annually through this program.

Finally, the Public Utilities Department and Office of Sustainability recently launched new customer engagement software called the DropCountr Water Engagement app. This technology

Year	Number of High-Efficiency Toilets Installed	HET Water Savings, MGY	Number of years from installation	HET Water Savings Total (2012-2020), MG
2012	502	4.669	8	37.352
2013	517	5.766	7	40.362
2014	535	5.33	6	31.98
2016	428	2.655	4	10.62
2017-2018 (2 year program)	1080	6.96	2	13.92
2019	367	2.426	1	2.426
2020	363	2.47	0	2.47
Total	3792	30.276		139.13

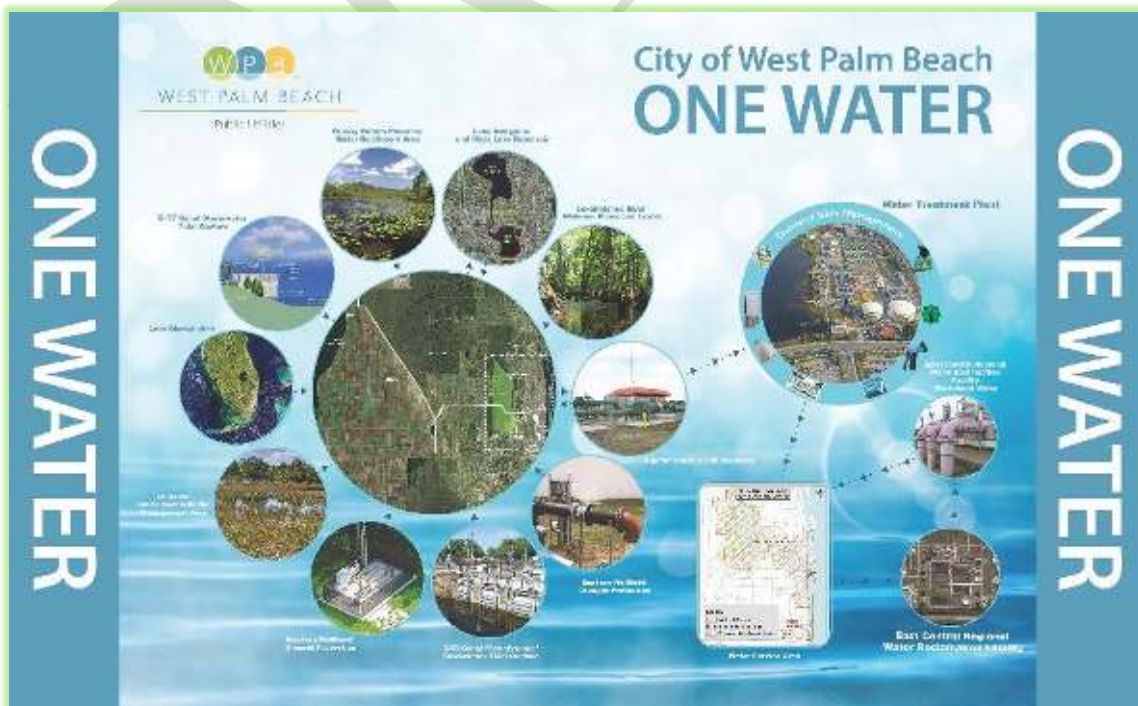
solution is a user-friendly and convenient mobile device application that allows residents to receive information on City and personal water usage and conservation as well as other educational and conservation messages. The DropCountr app is ADA compliant, available for use in both English and Spanish, and allows the City to send targeted emails to users.

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Water Access and Quality

West Palm Beach is ensuring that all residents have equitable access to clean drinking water. The City gets its water from rainfall captured and stored at the Grassy Waters Preserve, which feeds Lake Mangonia and Clear Lake. At times of water shortage, the City must supplement its water supply with water deliveries from Lake Okeechobee. “Source” water is turned into potable drinking water for City consumption at the City’s water treatment plant, where it undergoes conventional filtration and lime softening, and then is chlorinated for disinfection. The City’s water treatment plant can produce up to a maximum of 47 million gallons of drinking water per day.



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The City annually reports on the state of its water quality both for regulatory purposes and to educate the public. The 2019 Water Quality Report, published in June 2020, provides that there were no water-related health or safety issues in the City. The City's drinking water continues to receive high marks from monitoring agencies. In 2019, the Florida Department of Environmental Protection performed a Source Water Assessment on the City's system to provide information on any potential sources of contamination in the vicinity of its wells and source water intake. This investigation indicated that there are no potential sources of contamination, and that water system intake has a low level of concern.

The City designed and implemented several innovative and cost-effective projects to increase its water conservation efforts and provide alternative sources of water in times of drought. Efforts include the Renaissance Storm Water Project, Aquifer Storage and Recovery, the C-17 canal pump station, and wellfield management. The City acquired 21 million gallons of unfinished drinking water from the Palm Beach County public water system in 2019. The City also recently completed construction on a new ultraviolet disinfection and powder-activated carbon treatment systems at its water treatment plant. The graphic on the previous page provides an illustrative explanation of the City's drinking water system.

- C. **Objective C: Quality of Life- Improve the elements of our City's quality of life including our health, safety and economy, expanding opportunities for education, culture and civic engagement.**

LEED for Cities requires a "Demographic Assessment" as a prerequisite for this performance measurement category.

Currently a work in progress, the demographic assessment will capture cultural, linguistic, educational, economic, housing, and other characteristics about the City's residents to better inform resilience planning and ensure equity in the process. The City is developing a robust series of geographic information systems ("GIS") maps based on the demographic assessment data that will serve as the foundational resource for all of



the LEED for Cities Quality of Life requirements. Overlay maps and interactive layers will highlight the demographic indicators, as well as residential densities within the City, highlighting accommodations and services.

There are eight recommendations in this RPP under the "Quality of Life" objective, all of which are aimed at expanding cultural, linguistic, economic, and social equity opportunities citywide. These

recommendations target relieving the “stressors” on the City’s ability to combat the effects of climate change. A stressor is any existing condition in a community that can have negative impacts on emergency and disaster response: access to health care, poverty, and crippling traffic are some examples. The City is focused on protecting socially and economically vulnerable populations, and will work to develop programs for the specific protection of these groups. This is likely to occur through the broader application of resilience hubs or zones that address multiple stressors of a changing climate in a more defined, specific geographic area. Reducing exposure to extreme heat by opening “cooling centers” at public libraries, pools, and other facilities is a specific example; forging grassroots partnerships at the neighborhood level is a more general one.

The City is pursuing a goal of developing resilience hubs to foster strength and well-being in vulnerable communities. Resilience hubs at first glance appear to be typical community centers, where neighbors host events, meals, and meetings. Although resilience hubs will function in “normal” mode most of the time, they are intended to also act as centers for preparedness, response, and recovery. In the event of a disruption, hubs transform into emergency support centers, reacting and responding to the disruption and enhancing operations to better support immediate community needs. With enhanced systems and capacity, resilience hubs can ideally help reduce the need of emergency services and better connect residents and businesses with supplies, information and support during a disruption. This type of facility can play a critical role in post-disruption recovery and ongoing community needs.

IV. **Goal 2: Resource Management: Protect our natural resources for future generations and grow the seeds of environmental stewardship across the community**

The Office of Sustainability works closely with City administration, community groups, business leaders, residents, and other stakeholders to develop and implement policies and programs that support resource conservation, environmental stewardship, and a green economy. The following sections detail the City’s work across a number of focus areas, from assessing its resilience to extreme weather events, recycling and reducing waste, and developing a strategic plan for drastically lowering emissions.

A. **Objective A: Natural Systems and Ecology- Enhance opportunities for the community to experience and appreciate nature and its importance to our wellbeing.**

Protecting the City’s natural assets, including but not limited to the Grassy Waters Preserve, is an important part of this vision, as it fosters awareness of the impacts of climate change on those precious areas. The City’s Comprehensive Plan serves as the foundation for its policies on ecosystem preservation. There are three existing elements in the Comprehensive Plan that address these issues: the Coastal Management Element, the Conservation Element, and the Recreation and Open Space Element. In the near term, the City will consider a new element in its Comprehensive Plan, the “Climate and Resilience” Element further discussed below.

1. **Comprehensive Plan “Climate and Resilience” Element**

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The City has also undertaken the process of developing a Climate and Resilience Element of the Comprehensive Plan to better organize sustainability and climate issues into one consolidated section of the Comprehensive Plan. During the 2020 update of this Plan, part of the scope of work was to begin that process of drafting a separate Comprehensive Plan Element. While the City has not moved beyond the drafting stage as this point, the drafted element provides a starting point of discussion to initiate the amendment process should the City chose to do so.

2. 2019 Climate Resilience Assessment

Beginning in 2017, the City worked closely with a team of external partners on a comprehensive, qualitative Climate Resilience Assessment guided by the “US Climate Resilience Toolkit”. The NEMAC+FernLeaf Collaborative is a public-private partnership between the University of North Carolina at Asheville’s National Environmental Modeling and Analysis Center (NEMAC) and FernLeaf Interactive, a company that builds software for understanding and visualizing the complex relationships between climate, the environment, and valued assets. To better prepare for climate change and its associated risks, this resilience planning process considered specific threats and hazards with the goal of preparing for all scenarios. Report focus areas include the local economy, water, transportation options, natural spaces, energy, and proactive resilience planning. This quantified assessment followed the nationally-recognized “Steps to Resilience” framework from the Climate Resilience Toolkit.

Step 1 is “Understanding climate trends.”

Step 2 is “Quantifying impacts.”

Steps 3 and 4 are “Developing and prioritizing actions and strategies.”

Each strategy addresses vulnerability and risk by: (1) reducing exposure by removing assets from harm’s way, (2) increasing asset adaptive capacity to cope with impacts, or (3) supporting response and recovery when the first two strategies are not viable. Actions were prioritized using several criteria:

- (1) their ability to increase resilience;
- (2) whether they provide co-benefits by addressing multiple challenges;
- (3) if they are socially equitable to provide benefits for all West Palm Beach residents; and
- (4) if they are feasible to implement, both politically and financially.

The report outlines specific climate threats and provides actions the City is taking to defend against them. Threats evaluated include rainfall-induced flooding, storm surge and rising seas, climate impacts on water supply, extreme heat, and wildfire. The following five (5) project goals were used to guide West Palm Beach throughout the process:

1. Identify relevant climate and non-climate stressors and related hazards and threats and quantify the impact on regional assets;
2. Perform a detailed vulnerability and risk assessment based on the national standard risk framework to understand the comparative magnitude of impacts;



3. Develop options and strategies to address the most critical issues and build resilience;
4. Prioritize and list the options that should be implemented to effectively build resilience;
5. Identify key resources and stakeholders to implement the prioritized strategies.

A Climate Vulnerability Assessment was completed with NEMAC+FernLeaf, which quantified climate vulnerabilities to major City-owned assets, helping West Palm Beach to consider the most effective adaptation actions. The project team engaged all City departments – a process which resulted in targeted and equitable projects and strategies to prepare West Palm Beach for current and future climate impacts. Some of the City’s climate resilience actions include assisting in wildfire prevention west of Military Trail, implementing a range of flood solutions to the east, and improving seawalls along the Lake Worth Lagoon. The City is increasing the resilience of its award-winning water treatment and supply systems to avoid disruptions from drought and algal blooms. The City is also seeking funding to assist in developing strategies in areas that are vulnerable to climate threats. To address the impact of extreme heat on socially vulnerable populations, the City aims to designate resilience hubs as well as find ways to provide financial assistance to low-income residents – particularly renters – for air conditioning. West Palm Beach is working with developers to build adaptive capacity design into all future projects.

3. Urban Tree Management Plan and Urban Forestry Program

The City has maintained an urban forestry program for several decades: its mission is to protect and expand West Palm Beach’s urban forest through planting, conservation, and education. The program’s consistent efforts and accomplishments have qualified the City to maintain its *Tree City USA* certification from the Arbor Day Foundation for 27 years. The urban forestry program significantly contributes to achieving the goals of reducing GHGE and creating attractive public spaces, and the Urban Tree Management Plan advises the City as to how it can maintain the canopy to maximize carbon sequestration through tree selection, planting, and maintenance. The program recognizes the fact that trees are an important part of the City’s



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infrastructure: the urban forest includes City-managed trees, but most trees are on private property. Accordingly, the urban forestry program emphasizes enforcing City codes to encourage the retention, protection, and proper management of trees on private property, as well as tree maintenance and protection education for property owners.

The Urban Tree Management Plan created for the City in 2019 describes how the current urban forestry program operates and the benefits it provides, and proposes recommendations to enhance the program's effectiveness. It also instructs City staff and residents about how the City manages trees on public property. While the City does not have an urban forestry department, interdisciplinary City staff comprise an Urban Forestry Committee to actively support each other's efforts and develop initiatives to improve the City's urban forest. The Urban Tree Management Plan complements and supports many of the City's sustainability programs, such as the Bicycle Master Plan, the City Mobility Plan, and the City's GHGe reductions targets.

West Palm Beach made a substantial investment in its urban forestry program with the purchase and development of its TreePlotter Inventory software. The program enables the City to build a



database of all its trees, their location, type, and the ecosystem services and economic benefits provided. The TreePlotter Inventory (pictured above) is available to residents and business owners online, and shows key facts in an easy to understand dashboard on its homepage. The dashboard reports eco-benefits such as energy savings (\$84,245), carbon avoided (1,057,980 pounds), stormwater runoff managed (16,078,200 gallons), and air quality improvements (\$24,424) as of 2018: this snapshot provides a clear picture of the value of West Palm Beach's urban forest.

The Urban Tree Management Plan will serve as the basis for implementing additional management strategies and will be updated to meet future urban forestry challenges. Some specific recommendations include the creation of new staff positions, increased funding for urban forestry management, clarification of operational policies, improvement of the organizational structure of the urban forestry program, and increased citizen engagement in the program.

- B. **Objective B: Materials and Resources-** *Prioritize options for access to healthy nutritious food within our community while minimizing waste and its impact on our air, water and natural resources.*

1. **Trash and Recycling**

In 2019, the City generated over 90,000 tons of landfill waste. By working with its partners at the Palm Beach County Solid Waste Authority ("SWA") effectively and efficiently managing waste and implementing strategies for solid waste diversion, the City can vastly expand its existing recycling

program. As part of the LEED for Cities program, West Palm Beach will first confirm that all of its residents and businesses are connected to waste management services and then develop a solid waste management plan in partnership with SWA. The City will measure waste generation and diversion, identify goals, and begin to explore new programs both independently, and with SWA, that further reduce waste.

West Palm Beach has a robust recycling program today. The City's website features a "A-Z Guide to Waste Disposal and Recycling" that includes over 100 items and provides detailed instructions for how to discard them. Commonly recycled items in the City include paper goods such as magazines, newspapers, paper bags, cardboard boxes, and discarded mail, glass bottles and jars, aluminum and steel cans, and plastic containers. Last year, West Palm Beach recycled 6,426 tons of discarded materials.

2. Environmental Innovation at SWA

SWA has an award-winning integrated system of facilities that combines recycling, renewable energy, and landfilling to effectively manage Palm Beach County's waste. SWA's system includes two waste-to-energy facilities, landfills, a materials recycling facility, a biosolids processing facility, seven household hazardous waste collection facilities, and a network of six transfer stations. The SWA Recovered Materials Processing Facility recycled nearly 2 million tons of paper, plastic, aluminum and glass. At Renewable Energy Facility 1 and 2, the SWA recovers metals, such as iron and aluminum. Manufacturing new products from recovered materials consumes less energy and significantly reduces GHGE generation compared to mining and production of metals from raw materials. At the Renewable Energy Facilities, the SWA reduces GHGE by producing electricity that otherwise would have been generated by burning fossil fuels. This system also decreases the volume of waste that goes to the landfill, limiting methane generation, which is 21 times more potent than carbon dioxide as a greenhouse gas. The SWA landfills generate gases that are collected through a landfill gas management system to effectively prevent emissions into the atmosphere. These gases are harnessed to produce energy to help run the Biosolids Pelletization Facility. This landfill gas to energy project helps reduce reliance on fossil fuels.



3. Eliminating Single-Use Plastics

Finally, the City is committed to environmental stewardship and leadership, and reduces litter and pollutants on the lands and waters within the City. Discarded plastic straws and other single-use plastic items threaten wildlife and marine life, negatively impact the City's stormwater management system and waterways, and litter the waterfront and waters within the City. Accordingly, West Palm Beach passed a "Single-Use Plastic" ordinance banning the distribution, sale, and use of single-use plastic straws and stirrers. The ordinance went into effect on October

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1, 2019. The City has ongoing education and outreach efforts to assist consumers and businesses with the transition away from plastic straws: metal straws and tabletop information are available for restaurants and bars to educate customers through a program sponsored by the City. The “Plastic-Free Pledge” is one example of the City’s many campaigns to spread awareness about environmental stewardship.

While the City hopes to expand its prohibitions on harmful and wasteful single-use items, it is protecting its waterways in creative ways. A “Water Goat” (pictured below) is a large, submerged net that traps bottles, containers, and other material pollutants such that they are easily collected and removed from the water.



- C. *Objective C: Energy and Greenhouse Gas Emissions- track, monitor and reduce energy use and resulting GHGE to improve air quality and reduce the impacts of climate change.*

The City participates in a host of challenges, partnerships, and programs that increase accountability for resilience and provide guidance on specific topics. Most significantly, as part of

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its commitment to the Global Covenant of Mayors for Climate & Energy, the City pledges to have net zero GHGE by 2050.

As part of the US Department of Energy Better Buildings [Challenge](#), West Palm Beach is on track to meet the following goals:

- 20% reduction in portfolio energy intensity from 2010 baseline by 2022 (completed in 2015)
- 20% reduction in portfolio water energy intensity from a 2010 baseline by 2022 (in progress)
- 15% reduction in portfolio energy intensity from a 2015 baseline by 2025 (in progress)

To meet these goals, the City is employing and regularly evaluating strategies to reduce its energy intensity and dependence on nonrenewable energy. One example is at the East Central Regional Wastewater Treatment Plant, the most energy-intensive complex in the City's portfolio, which is investing in a new biosolids building and an anaerobic digestion process, which will lessen its energy load.

1. 2018 Community and Municipal Greenhouse Gas Emissions Inventory

In 2016, West Palm Beach updated its GHGE inventory and established a long-range net zero GHGE reduction target for community emissions in 2050. In 2018, the City began the process of identifying a short-term GHGE reduction target for 2025 and conducted a best-practices review of reduction targets and strategies implemented by other communities in Florida and across the United States. Using the baseline year of 2013, the City outlined six specific strategies to assess the potential for GHG reductions. The reduction potential analysis was based on best available data and potential scenarios. Since 2013, total emissions have dropped by 168,257 metric tons of carbon dioxide equivalent ("mtCO_{2e}"): this is the same as the emissions from 20,000 average American homes. The full report detailing that research and analysis is attached as Appendix "B."

Based on the best practices review, the analysis of reduction strategies, and conversations with City staff, West Palm Beach is adopting a communitywide 25% GHGE reduction goal from its 2013 baseline year by 2025.

The municipal operations GHGE represents the amount of GHGE from electricity, natural gas and petroleum for municipal government operations in 2018. Baseline GHGE data compiled from 2016 serves as a means of comparison. For this purpose, electricity usage (in kilowatts/hour), as well as natural gas, propane, and petroleum consumption (in therms and gallons, respectively), from municipal operations is converted to mtCO_{2e} as a unit of measurement. Since this measure does not reflect the type of fuel used to produce electricity (e.g. coal vs. natural gas) and is also using the amount of petroleum purchased, not consumed (as that data was not available), the actual data is an estimated value of mtCO_{2e}. This measure will be reported annually to track the progress of GHGE reduction, with a target goal of net zero emissions by 2050.

- **2008:** City Operations Target only: 19% reduction in GHGE by 2018, 32% by 2025, and 37% by 2035.

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- **2016:** City Operations and Communitywide Target = net zero by 2050
- **2018:** Community net zero by 2050 (25% reduction of 2013 Baseline by 2025)

2. Emission Reduction Strategy

Many of the recommendations adopted in this Plan are included as part of an overall GHG reduction strategy. The following six reduction strategies were identified based on the City’s 2018 GHGE inventory, conversations with City staff, and best practices research, but these will warrant updating and further review. A high-level analysis incorporated various assumptions and three specific scenarios to each of the identified strategies. GHGE are not the only driving factor to implement the strategies: each brings with it a host of benefits to the City.

Strategy	Estimated GHG Reduction (mtCO _{2e})	% Reduction Below 2013 Levels
Buildings		
Building Benchmarking & Disclosure	106,985	7.21%
Green Building Feebate	27,448	1.85%
Solar Incentives	74,100	4.81%
Transportation		
Transportation Demand Management Strategies	99,835	6.72%
CAFE & Other Vehicle Standards	133,486	8.99%
Waste		
Mandatory Commercial Recycling	31,599	1.44%

The reduction strategies are as follows:

- 1) Building Benchmarking and Disclosure. Require buildings to assess energy and water use and other measurable performance indicators, and compare that information against their peers.
- 2) Green Building Feebate Policy. This is a developer incentive for new buildings to meet specific green building thresholds through the mechanism of a fee, followed by a rebate of that fee for achieving specific levels of green building certification during permitting and construction.
- 3) Solar Incentives. There are many examples of financial incentives models to spur solar energy installations: rebates, tax credits, and the availability of revolving loan funds or other financing options such as PACE (Property Assessed Clean Energy), which is already established for all properties in the City.
- 4) Transportation Demand Management (TDM). This strategy is focused on minimizing the number of single occupancy vehicle trips into downtown.

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- 5) CAFE and Other Vehicle Standards. Corporate Average Fuel Economy (CAFE) standards have resulted in more efficient passenger vehicles on the road over time, saving Floridian families over \$2.2 billion on gas since 2010.³
- 6) Mandatory Commercial Recycling. Section 403.7032, Florida Statutes establishes a statewide recycling goal of 75% by 2020.

As stated, these six strategies are a starting point for further discussions on an overall framework to meet the City's GHG reduction goals.

3. Current City Programs

a. Global Covenant of Mayors for Climate and Energy

West Palm Beach was an early signatory to what was at the time called the Global Compact of Mayors, the largest global alliance for city climate leadership, joining over 10,000 cities and local governments from six continents and 138 countries. The Global Compact of Mayors became the Global Covenant of Mayors for Climate & Energy when it merged with the European Union's Covenant of Mayors to become the world's primary initiative of cities and local governments fighting climate change. The organization advances city-level transitions to low emission and climate resilient economies, and demonstrates the global impact of local action.

As part of its commitment to the Global Compact of Mayors for Climate & Energy, the City has committed to implementing and monitoring strategic actions for reducing GHGs and adapting to climate change. The City's Greenhouse Gas Emissions Inventory and reduction targets are part of this commitment. In the future, the City will develop an adaptation plan and energy access plan to further its interests in climate resilience and to maintain compliance with its commitment to the Global Compact of Mayors for Climate & Energy.

b. Reporting through CDP

West Palm Beach reports its GHGe reductions and other climate-related efforts through CDP (Carbon Disclosure Program), the global environmental disclosure system. The City is recognized as one of only 34 cities in United States and 105 cities around the world to achieve a highest score of "A" in 2019 and 2020 for transparency and actions on climate change. To score an "A," a city must have a city-wide emissions inventory, have set an emissions reduction target, published a climate action plan, and completed a climate adaptation plan to demonstrate how it will tackle climate hazards now and in the future.

c. Florida Power & Light

³ The Union of Concerned Scientists published state-specific fact sheets reporting on the benefits of vehicle efficiency standards in 2017. The link to the Florida fact sheet is here:
<https://www.ucsusa.org/sites/default/files/images/reports/vehicles/cv-factsheet-mpg-benefits-florida.pdf>.

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West Palm Beach works with Florida Power & Light (“FPL”) on several initiatives. [SolarTogether](#) is FPL’s “shared solar program” that was recently approved by the Florida Public Service Commission. The City has pre-registered to purchase 12,305 kilowatts of energy, which would power most City accounts. As of 2019, the City had installed 1,473 kilowatts of solar energy installations communitywide.

In addition, FPL installed three solar trees at *no cost to the City* at Howard Park. The solar trees are educational because they promote clean energy, useful because they provide USB charging stations, and valuable because they stimulate use of the park, promoting economic development and recreational opportunities for residents citywide. 1,807 FPL-owned and maintained streetlights controlled by West Palm Beach were retrofitted with LED bulbs: annually, this will save the City an estimated \$10,892 and reduce approximately 607 metric tons of CO₂. The City also partners with FPL on an innovative electric bus program more thoroughly discussed below.

d. Transportation-Related Emissions

Reducing transportation-related emissions is a high priority for the City. The City incentivizes carpooling, and a pilot program related to parking “cash outs” is being designed to help reduce single-passenger VMT by City employees commuting to and from work. This would encourage multi-modal transportation, while potentially reducing the use of parking spaces in City garages.

The City is actively transitioning to electric vehicle (“EV”) adoption for both its own fleet (public) and its citizens and businesses (private). To that end, it partnered with the Tesla Destination Charging Program in early 2019. At no cost to taxpayers, Tesla installed 38 EV charging stations in the City’s three main parking garages. The stations include both universal and Tesla-specific charging stations. The City is also working to replace the fuel for its fleet of diesel trucks with biofuels, and is exploring options for replacements in every vehicle category for which a suitable electric vehicle is commercially available by 2025. Options are being explored for electric trolleys.

The City recently partnered with FPL on a pilot program to jointly purchase five all-electric, zero-emissions activity buses that will be used for the City’s parks and recreation programming, including after school services, summer camps, senior activities, and more. Two large 72-passenger buses will be delivered by Summer 2020, and three smaller 31-passenger buses will be delivered by Fall 2020. As part of the pilot program, FPL will provide the charging infrastructure for the buses, and study how the bus batteries can be used as a grid resource and how bidirectional charging can allow energy stored in the bus batteries to flow back into the grid. This would encourage peak demand shaving, as the buses would be finished with their routes and parked while delivering energy to the grid during peak hours. The City is the first in Florida to add electric buses to its fleet, which will replace diesel buses and ultimately lower fleet emissions, while providing clean transportation.

West Palm Beach is also a member of the 10-city Energy Secure Cities [Coalition](#), partnering with Atlanta, Charlotte, Houston, Indianapolis, Oakland, Orlando, Rochester, Sacramento, and San Diego. The Energy Secure Cities Coalition facilitates a collaborative learning process, providing a network for cities to learn from each other before, during and after the renewable energy transition process. Overall project management is provided and ongoing fleet evaluations are coordinated, helping the City adapt quickly to new challenges and opportunities as its transitions its municipal fleet from petroleum fuels to alternative fuels like electricity and natural gas.

e. Trees, Parks, and Open Space

The \$1 Million Tree Project was established in 2018 to expand the tree canopy in the downtown and northwest parts of the City. The project funded large trees on the 300 block of Clematis Street and Howard Park, along with another four trees in Howard Park sponsored by FPL. The fund continues to support tree plantings for other projects. The City has given away over 6,000 trees in the past five years to residents and businesses to encourage tree canopy improvements. Native trees are distributed at public events, neighborhood meetings, and through local non-profit and religious organizations. Roughly ten percent of the trees WPB has given away are either Southern Live Oak, Mahogany, Slash Pine, or Wild Tamarind. Collectively, these four tree species alone could account for over 750,000 lbs. of CO₂ absorption per year when fully grown. This program is ongoing, with a target to plant 10,000 trees by 2025.

In addition to the \$1 Million Tree Fund, the City has a separate Mitigation Fund that targets areas not covered by the \$1 Million Tree Fund. The focus of the Mitigation Fund is on planting canopy shade trees, as they provide the most carbon sequestration and shade. A significant expansion of shade trees across the City would go far toward the City's goal of achieving net zero GHGE, as well as supporting the City's mobility and community engagement goals of increasing walking, biking, and activation of public outdoor spaces. A tree inventory was completed for the northwest area of the City and a landscape architect has been retained and is designing a planting plan that includes over 200 new tree planting locations. The City devised new planting standards to extend



the lifespan of urban trees, which include suspended pavement systems or structural soil to be implemented for all of the replacement trees. Twenty-seven locations for tree replacement were identified downtown.

The previously discussed Urban Tree Canopy Assessment includes tree canopy coverage captured using LiDAR to analyze heat islands and other factors. This assessment is GIS-based and is accessible to both City staff and the broader public. It will aid the City in

determining new planting areas with limited existing tree coverage. Additionally, the City's

investment in the TreePlotter software described on page 17 will help determine budget needs for maintenance, improvements, and for replacements following severe storms. Finally, the City is developing a Tree Management Plan to ensure the sustainability and health of existing trees.

V. **Goal 3 Vulnerability: Preparing for Impacts- Prepare for the impacts of climate change through proactive resilience planning, mitigation and adaptation.**

A. **Objective A: Innovation- Incorporate strategies into City decision-making to prepare for climate change, identify vulnerabilities, stimulate a green economy, have an informed community and create a capable work force to help the City become resilient.**

1. **Community Engagement**

West Palm Beach is engaging with residents and business owners on climate change in every way imaginable. In real life and across digital platforms, the City has ongoing content, programming, and activities that bring environmental stewardship into the public square. The City's sustainability [website](#) is ADA compliant, easy to access, and full of useful information. Events, challenges, and stunning images of the City's natural environments are promoted through the City's Instagram account for all aspects of resilience: @wpbgreen. The City's Office of Sustainability also sends a regular sustainability newsletter to opt-in subscribers with event information, useful tips, and program descriptions, in addition to posting content on the public platform "NextDoor" as well as its other social media channels such as Facebook and Twitter. Sustainability news is also communicated through the mayor's newsletters and through inserts in public utility bills titled "Turning Climate Awareness into Action.

The City inaugurated its annual "Green Business Challenge" in 2017. This friendly competition engages commercial property managers, office tenants and other business sectors in the environmental movement. The program strives to improve energy and water efficiency, reduce waste, and involve employees while saving money and receiving community-wide recognition. Businesses register with the City to compete for recognition in categories such as "Property Steward", "Energy Efficiency", and "Recycling and Waste". The City also publishes a regular

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“Green Business Challenge” newsletter, offers “lunch and learn” events with its private sector partners and sponsors, and programs continuous sustainability education offerings to its business community.

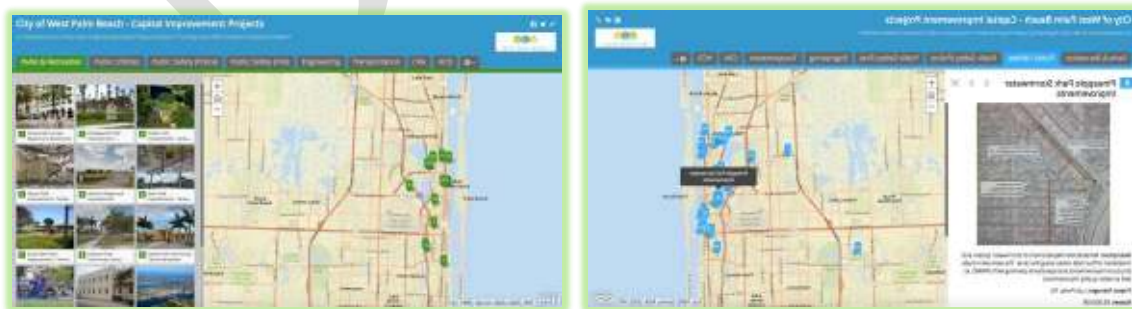
With 2020 being a year greatly impacted by the COVID-19 global pandemic, the City has had to respond to these conditions of workplace closures, event cancellations, and new approaches for public involvement in City activities. The City has responded in many ways, delivering beneficial information regarding its sustainability initiatives, with an eye towards accessibility and transparency. The City has increased its tools for the community related to sustainability and climate issues by:

- Adding chats and webinars to deliver content
- Timing events and programming over more times throughout the day including evenings
- Awareness initiatives around energy efficiency, eating plant-based diets and others

It is anticipated that at least with regard to sustainability and climate initiatives, these efforts will continue because the City has seen positive response and increased participation from the community, thus providing educational benefits to a broader audience.

2. Digital Excellence

The City’s investments are also extremely accessible to the public through an exemplary web [portal](#) that details each of nearly 200 Capital Improvement Projects that are either completed or in progress. From improvements at Hillcrest Playground to bike lanes on Lake Avenue and stormwater upgrades at Pineapple Park, each project entry includes a photograph, a brief description of the project, the budget and funding mechanism, project manager, consultant, and contractor information, location, and schedule. The City also provides useful maps that clearly show the locations of all projects with hyperlinks from the map to the project description. This interface gives residents and business owners unprecedented access and information about how their tax dollars are being spent. Two images of the City’s website are provided below for illustration.



B. Objective B: Regional Priority- Remain a regional leader collaborating with other local governments and creating new partnerships to rely on the best science and policy approaches for resilience.

1. The 2019 Unified Sea Level Rise Projection

The Southeast Florida Regional Climate Change Compact released an updated Unified Sea Level Rise Projection in December, 2019. Following a two-year process that incorporated user feedback and the best available data, the Compact presented new projections that show West Palm Beach will experience higher sea levels, faster in the future. The new projections were generated by a team of more than a dozen scientists, researchers and local government staffers from South Florida. Representatives from the National Oceanic and Atmospheric Administration and the U.S. Department of the Interior were included, as well.

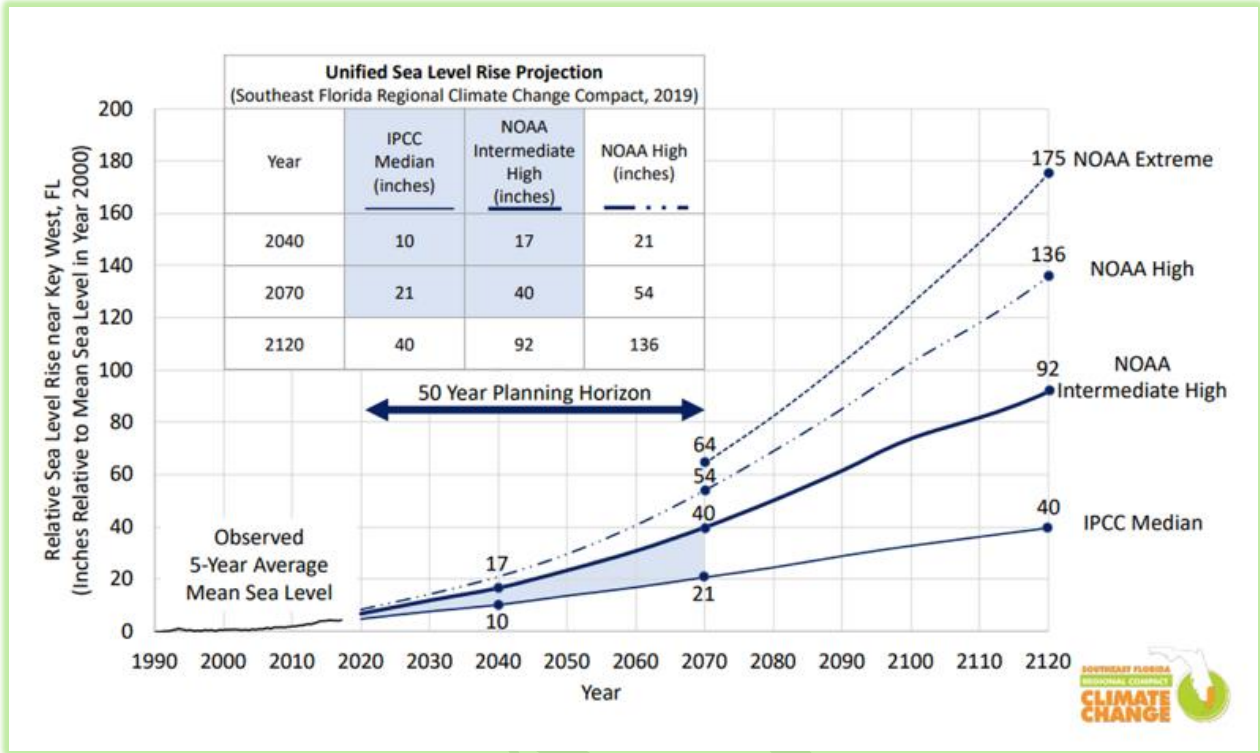
The 2019 projection curves show an increase of about three to five extra inches (above the last 2015 projections) by 2060, with the rate of rise increasing in later years. The curves predict up to the year 2120, incorporating estimates from the Intergovernmental Panel on Climate Change and the National Oceanic and Atmospheric Administration. The 2015 projection showed between 14 and 26 inches of sea level rise by 2060 — commonly shortened to two feet by 2060 by local leaders. The 2019 projection estimates 17 to 31 inches of sea level rise by 2060.

2. Regional Climate Action Plan 2.0

The Regional Climate Action Plan (RCAP), first created by the Southeast Florida Regional Climate Change Compact in 2012, is a tool created use by local governments to encourage coordinated climate action with the goals of reducing GHGE and building climate resilience. The Compact issued RCAP 2.0 in December, 2017. RCAP 2.0 is a digital tool that offers technical and peer support, and that provides 142 recommendations to local governments across 12 key focus areas. The RCAP 2.0 is the result of a year-long process to refresh the tool and its recommendations based on user and stakeholder input.

West Palm Beach reviewed the updated list of recommendations from RCAP 2.0 and incorporated many of them into this Plan. Many of the recommendations from RCAP 2.0 have already been completed by the City, or are part of its ongoing institutionalized efforts to reduce GHGE and build climate resilience. The 12 key focus areas of RCAP 2.0 are as follows, and the recommendations adopted by the City are included in Appendix “A”: 1) Agriculture, 2) Compact Coordination, 3) Energy and Fuel, 4) Natural Systems, 5) Public Health, 6) Public Outreach and Engagement, 7) Public Policy Advocacy, 8) Regional Economic Resilience, 9) Risk Reduction and Emergency Management, 10) Social Equity, 11) Sustainable Communities and Transportation, and 12) Water.

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Year	IPCC Median (inches)		Upper Short Term (inches)		Long Term Curve (inches)	
	2015	2019	2015	2019	2015	2019
2030	6	8	10	12	12	14
2060	14	17	26	31	34	41
2100	31	33	61	74	81	103

Note: The NOAA Extreme curve values are not included in the table because there was not a comparable curve in the 2015 projection.

C. *Objective C: Integrative Process- Include climate change decision-making into the daily operations of the City to lead by example and increase community engagement and support.*

SolSmart is a national designation program that recognizes cities fostering the development of mature local solar markets. In 2018, the City earned the designation of being a [SolSmart](#) Gold Community with special recognition for permitting and inspection requirements. The City achieved this by providing clear guidance for solar installation in historic and special use districts and by implementing a Property Assessed Clean Energy (“PACE”) program to allow special financing for solar and other energy efficient features for commercial and residential buildings.

PACE is a financing mechanism that enables low-cost, long-term funding for energy efficiency, renewable energy, wind hardening, and water conservation projects: PACE financing is repaid as an assessment on a property’s regular tax bill. West Palm Beach passed its Commercial PACE ordinance in 2012 and its Residential PACE ordinance in 2016; the existing ordinance, which includes consumer protections, is codified as Article VI of Chapter 34 “Environment” in the City Code. West Palm Beach continues to expand its list of PACE providers to offer more options for residents and businesses.

All municipal buildings are periodically assessed for energy efficiency and energy conservation measures will be identified, with improvements prioritized for implementation. Energy usage at City-owned buildings are monitored through cost-free technology provided through FPL. Simply by observing energy usage, West Palm Beach can reduce consumption. The City uses the US Department of Energy’s Portfolio Manager as part of its participation in the Better Buildings Challenge. Finally, West Palm Beach streamlined its solar permitting process to allow for same day approval for 10KW or less solar systems. It was the first city in the state to do so.

VI. Recommendations

As stated previously, the Recommendations for the Plan update have been developed with two key goals in mind:

1. Align the County’s effort around the LEED for Cities format to improve tracking, reporting and accountability; and
2. Create a framework with a manageable set of recommendations for implementation.

While the organizational structure of the Recommendations was previously summarized, a summary of the Recommendations is included in this document as Appendix A, but a longer form of the Recommendations exists in a spreadsheet format with more detailed descriptions of how the Recommendation is to be implemented. The timeframe for the Recommendations has been developed in draft form for the City’s review and input from other Departments and Divisions, so upon completion of the decided upon timeframes, Appendix A should be updated to reflect those within this document.

VII. Conclusion

The City of West Palm Beach is extremely proactive in addressing the *mitigation side* of climate change through its sustainability initiatives that assist in lowering the City’s energy use, GHGE’s

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and the overall cost of its operations. These initiatives combine to create an overall lower carbon footprint which assists in mitigating the effects of global warming caused by GHGs. The City has been a leader regionally in these initiatives with extensive data collection, measurement, analysis, planning and outreach activities that have helped continue its presence as a nationally recognizable sustainable community.

The City is also preparing for climate change (*adaptation planning*) with integrity, transparency, and foresight. Significant investments in parks and recreation, public utilities, public safety, engineering, transportation, and information technology are ongoing and more will be needed in the future. Most, of the City's Capital Improvement Projects pay a resilience dividend to residents. Examples such as planting trees, repaving roadways, adding bike lanes, replacing inefficient HVAC systems in City buildings, and rehabilitating stormwater outfalls are just a handful of project examples that make the City more resilient. In as many instances as possible, City projects are designed to achieve multiple resilience goals, adding to their overall value. The image below shows the Gregory Road Green Streets Initiative, a \$1 million public utilities bond-funded project that included the rehabilitation and replacement of the stormwater system on Gregory Road. The installation of swales, bioretention areas in bulb-outs, and an exfiltration trench will keep the road dry as well as facilitate low-density development.

These dual efforts continue to highlight the City's leadership role both regionally and nationally to make proactive decisions now that create a sustainable future that is inclusive of all the residents and business owners throughout the City. These efforts must continue and expand through this planning process and remain a high priority in the decades to come.

Additionally, the City continues its participation in the "We Are Still In" coalition. Mayors, governors, and business leaders first began signing the We Are Still In declaration in June 2017 as a promise to world leaders that Americans would not retreat from the global pact to reduce emissions and stem the causes of climate change. West Palm Beach was one of the first cities in America to sign the "We Are Still In" declaration. The coalition includes over 3,500 representatives from all 50 states, spanning large and small businesses, mayors and governors, university presidents, faith leaders, tribal leaders, and cultural institutions. The City reports its climate action commitments to the We Are Still In coalition and collaborates on EV infrastructure and expansion, as well as increasing public utility efficiency.

**APPENDIX A:
RETHINK PARADISE PLAN RECOMMENDATIONS**

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Goal 1: Sustainability – Become a more sustainable community by enhancing our City’s environment and economy, equitable for all.		
<i>Objective A: <u>Transportation & Land Use</u> – Improve the linkages between the City’s transportation and land use to become a more connected community with alternative modes of transportation and efficient, diverse land use patterns.</i>		
No.	Recommendation	Year
1	Leverage existing policies and programs to reduce flood risk and economic loss.	
2	Invest in infrastructure adaptation.	
3	Incorporate best available climate data into City maps.	
4	Implement green building standards and expand green-grey infrastructure.	
5	Specifically plan for the protection and preservation of historic and natural resources.	
6	Reduce cars on the road through transit-oriented development, improved transit, shared vehicles, and parking standards.	
7	Improve walkability, protect pedestrians and cyclists, and improve access to transit through Complete Streets and other programs that enable multi-modal transportation.	
8	Encourage adaptive reuse of structures.	
9	Transform under-utilized properties to meet resilience goals and better serve neighborhoods.	
10	Improve access to green, affordable housing.	
11	Create incentives for local employers and City staff to participate in the parking cash-out program.	
<i>Objective B: <u>Water Efficiency</u> – Prioritize a water conservation ethic for the community and the City that emphasizes a high quality, economical, and sustainable future water supply.</i>		
12	Make smart investments in water and wastewater infrastructure.	
13	Gather better water management data through an integrated water management process.	
14	Improve stormwater management through improved flood incident data.	
15	Expand implementation of green stormwater infrastructure.	
16	Protect water quality through improved metrics and data.	
<i>Objective C: <u>Quality of Life</u> – Improve the elements of our City’s quality of life including our health, safety, and economy, expanding opportunities for education, culture, and civic engagement.</i>		
17	Engage in equitable community outreach with an emphasis on cultural sensitivity and low-income residents.	
18	Meaningfully integrate social vulnerability data into City processes.	
19	Forge grassroots partnerships at the neighborhood level.	
20	Secure and analyze data related to socioeconomics, housing, income and rental trends to track various social metrics in furtherance of securing various sustainability certifications, including: demographics, education, rent and housing as portion of household income, unemployment, crime and other specific quality of life indicators.	

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21	Address environmental justice issues.	
22	Secure and analyze data related to homelessness, housing and transportation costs, neighborhood cohesion, climate equity, discrimination and community engagement in furtherance of securing various sustainability certifications.	
23	Reduce extreme heat exposure to promote public health.	
24	Integrate climate vulnerability analysis into local mitigation strategies and threat and hazard identification and risk assessment tools.	
25	Develop a program for the specific protection of socially and economically vulnerable populations.	
26	Ensure beneficial social equity outcomes by considering the impacts of land use policy and infrastructure on high-vulnerability populations.	
Goal 2: Resource Management – Protect our natural resources for future generations and grow the seeds of environmental stewardship across the community.		
<i>Objective A: <u>Natural Systems & Ecology</u> – Enhance opportunities for the community to experience and appreciate nature and its importance to our well being.</i>		
27	Protect the Everglades and the Grassy Waters Preserve.	
28	Foster public awareness of the impacts of climate change on natural systems and the City's efforts to combat same.	
29	Examine and propose revisions to environmental regulations and other ordinances to account for the effects of climate change and improve water quality.	
30	Reduce light pollution.	
31	Encourage green infrastructure and alternative strategies.	
<i>Objective B: <u>Materials & Resources</u> – Prioritize options for access to healthy nutritious food within our community while minimizing waste and its impact on our air, water, and natural resources.</i>		
32	Increase food security.	
33	Plan for and protect against drought and wildfire.	
34	Increase sustainable solid waste management and improve waste performance including waste stream and waste diversion.	
35	Expand recycling and composting programs across the city.	
36	Develop and formalize a fats, oils, and grease program.	
37	Create a comprehensive construction and demolition recycling plan.	
<i>Objective C: <u>Energy & Greenhouse Gas Emissions</u> – Track, monitor, and reduce energy use and resulting greenhouse gas emissions to improve air quality and reduce the impacts of climate change.</i>		
38	Reduce greenhouse gas (GHG) emissions from City operations and overall.	
39	Increase accessibility to energy efficiency solutions for limited-income families.	
40	Utilize renewable and distributed energy technologies for emergency management and disaster recovery.	
41	Reduce energy costs and build capacity for distributed renewable energy and storage technologies.	
42	Reduce the City's contribution to GHG emissions from vehicles and overall transportation-related emissions.	

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43	Increase adoption of energy efficiency and monitoring technologies in new buildings.	
44	Improve the efficiency of the City's water and wastewater systems.	
45	Expand the City's renewable energy use.	
46	Monitor and track electricity consumption in the City.	
47	Institute a grid harmonization program.	
Goal 3: Vulnerability – Prepare for the impacts of climate change through proactive resilience planning, mitigation, and adaptation.		
<i>Objective A: Innovation – Incorporate strategies into City decision-making to prepare for climate change, identify vulnerabilities, stimulate a green economy, have an informed community and create a capable workforce to help the City become resilient.</i>		
48	Empower and incentivize business, home and property owners to develop adaptation plans.	
49	Increase the purchase of environmentally-preferred municipal products and services.	
50	Grow green jobs locally.	
51	Communicate in multiple languages to reach vulnerable populations.	
52	Work closely with socially vulnerable communities and small businesses on disaster preparedness and emergency management planning.	
53	Continuously improve communication, outreach, and engagement with the public on climate change, sustainability and resilience.	
54	Achieve LEED Gold Certification.	
<i>Objective B: Regional Priority – Remain a regional leader collaborating with other local governments and creating new partnerships to rely on the best science and policy approaches for resilience.</i>		
55	Incorporate the Unified Sea Level Rise Projection into infrastructure design standards through the code.	
56	Strengthen working relationships and partnerships with all relevant local, state, and federal agencies on climate issues.	
57	Ensure consistency in water resources scenarios used for planning.	
58	Continue to adopt and update consistent plans at all levels of government in the region that address and integrate hazard mitigation, sea level rise, and climate change adaptation.	
<i>Objective C: Integrative Process – Include climate change decision-making into the daily operations of the City to lead by example and increase community engagement and support.</i>		
59	Create a comprehensive culture of sustainability by integrating goals across City departments.	
60	Use vulnerability and risk assessment analyses and tools to identify priorities for resilience investments.	