2018
Community Action Plan

GREEN WORKS ORLANDO

Expanded more than 25 miles of sidewalks and built two new multi-use urban trails.

Facilitated more than 232 municipal and private buildings to meet green building standards, including 15 that achieved U.S Green Building Council's LEED certification.

Planted more than 20,000 trees on city right-of-way and private properties.

Recycled 6,779 gallons of used cooking oil into biodesiel.

Supported the growth of six farmers markets and more than 700 community garden plots across city neighborhoods.

Implemented single-stream and a weekly collection schedule for residential recycling.

Dear Community Member,

Since the release of the 2013 Green Works Orlando Community Action Plan, we have been hard at work to strategize and implement sustainability initiatives that would help us reach our established 2040 goals. Over the past five years, thanks to your support, we have made tremendous progress in advancing sustainability practices across the city.

I am excited to share the 2018 Green Works Orlando Community Action Plan. This update provides revisions to the original baseline assessments for more complete and accurate data collection; introduces new strategies and best practices to help us further advance toward the 2040 goals; and incorporates new overarching themes of social equity, climate resiliency and smart technology and innovation as a guiding framework for more advanced sustainability. Finally, this updated action plan is one of the first in America to both inform and align its strategies with United Nations Sustainable Development Goals in order to advance critical global efforts.

Thank you for your continued support and engagement in informing and implementing our Green Works Orlando initiative. Let's continue the momentum to build an even greener Orlando for generations to come.

Sincerely,

Buddy Dyer

Saved more than $2 million in annual energy savings through major retrofitting efforts at city facilities.

Converted more than 30 solid waste disposal trucks to Compressed Natural Gas and hydraulic hybrids, with commitments to 100% alternative fuels by 2030.

Exceeded 10% of our municipal operations with renewable electricity and are on track to achieve 100% renewable electricity by 2030.
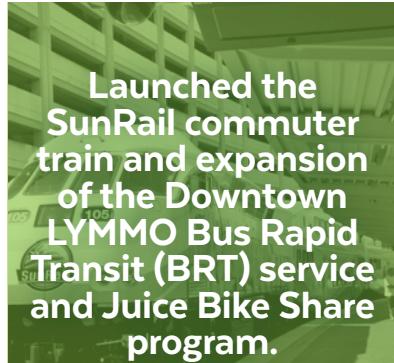
Distributed more than 6,500 backyard composters to city residents.

**Piloted urban garden programs on public land and homeowner yards.**
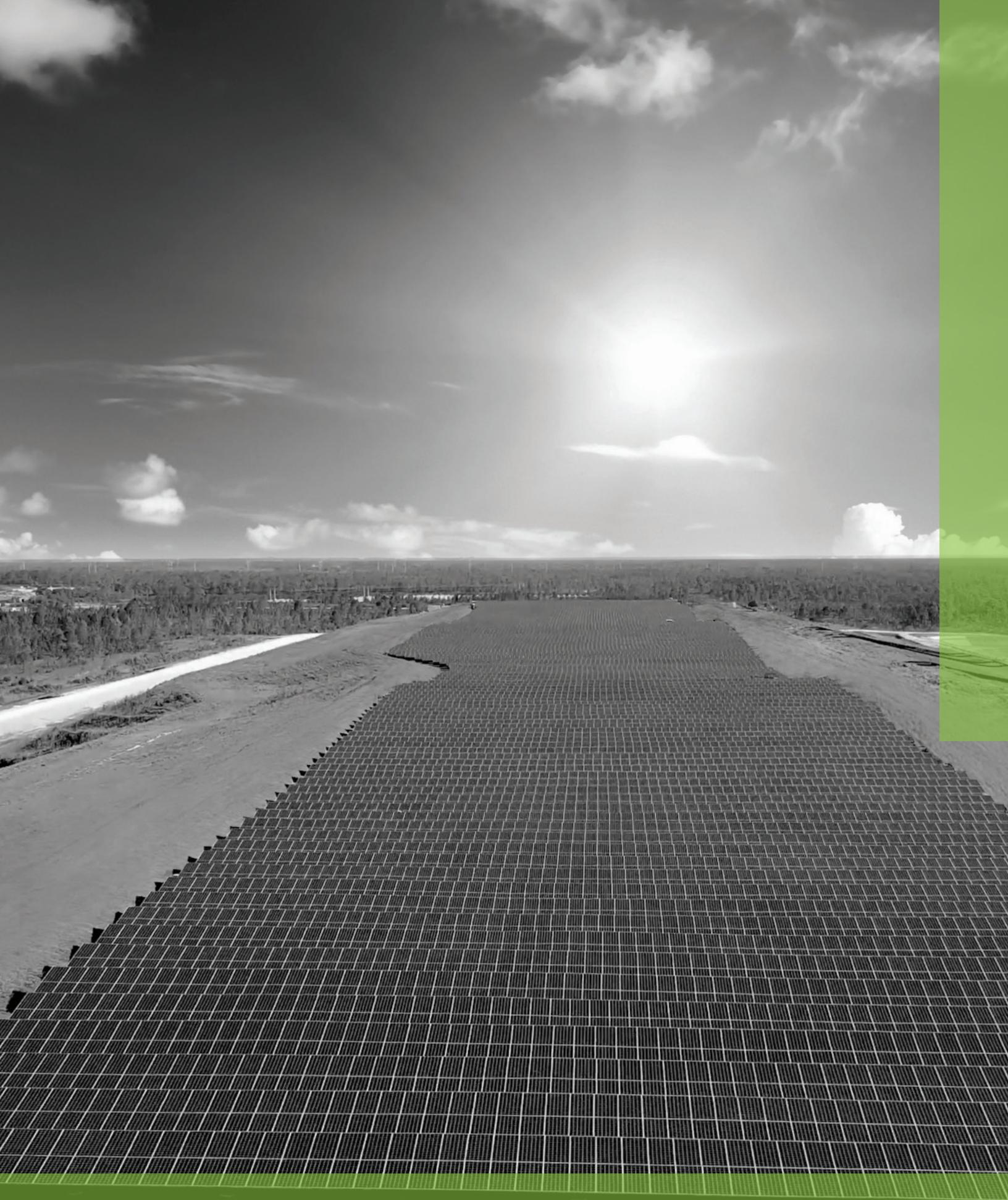
Diverted more than 2 million pounds of food waste through the Commercial Food Waste Collection program.

Launched the SunRail commuter train and expansion of the Downtown LYMMO Bus Rapid Transit (BRT) service and Juice Bike Share program.

Expanded more than 350 EV charging stations with OUC and community businesses.
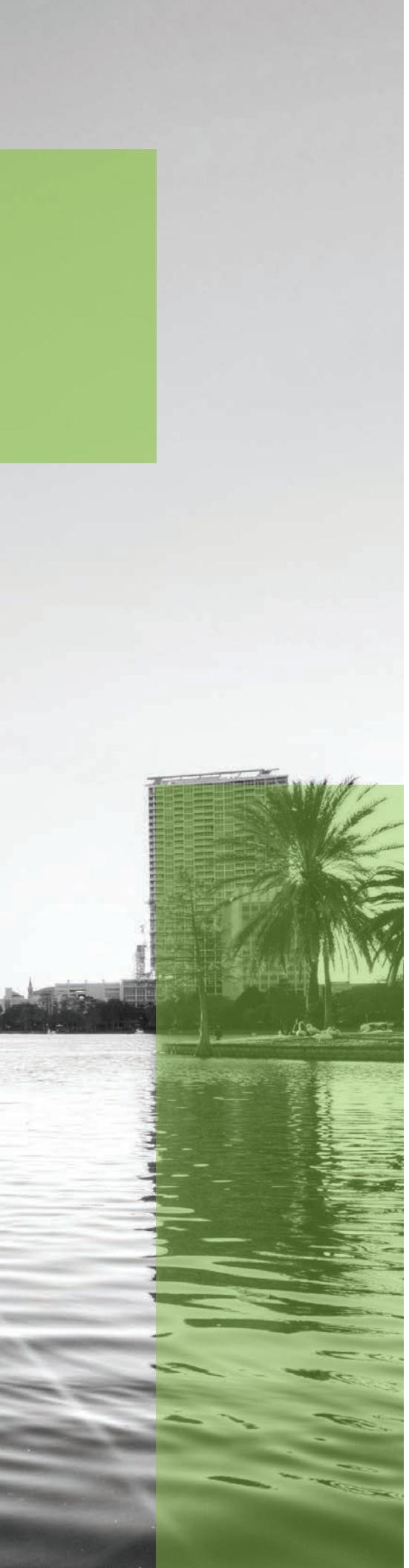
"Our vision is to transform Orlando into one of the most environmentally-friendly, economically and socially vibrant communities in the nation."
–Mayor Buddy Dyer

Overview of Green Works Orlando

Launched in 2007, the Green Works Orlando initiative reflects Mayor Buddy Dyer's commitment to sustainability and his goals to enhance quality of life and wellbeing, generate diverse economic growth, and create equitable access to resources and services for the entire Orlando community. Mayor Dyer also assembled the city's first Office of Sustainability & Resilience to implement the Green Works Orlando initiative by coordinating with city departments and community stakeholders to ensure the effectiveness of immediate and long-term sustainability planning efforts. Some of the earlier success of Green Works Orlando also included the development of a "Sustainability" chapter in the city's Municipal Code.

The Green Works Municipal Operations Sustainability Action Plan was adopted in 2012 and focused on municipal operation actions that the city and its employees could take to ensure that Orlando is leading by example across each key area of sustainability practices. The 2012 Municipal Plan identified 12 goals and more than 100 strategies for achieving them. In January 2017, we published a Municipal Plan Progress Report, which detailed the city's advancements toward its goals and the associated benchmarks, identified areas that need additional resources and also added a focus on resiliency.

Following the adoption of the Municipal Plan, the city prepared a Community Sustainability Action Plan in 2013. Through an extensive engagement and collaboration process with community representatives, the Community Sustainability Action Plan has served as a roadmap, with ambitious goals, strategies, and reporting targets and metrics, to help guide how Orlando will become one of the most sustainable U.S. cities by 2040.

About the 2018 Plan Update

The 2018 Community Sustainability Action Plan celebrates the progress Green Works Orlando has made in the community over the past five years, and provides an opportunity to evaluate and identify strategies to make even more impressive progress towards the established goals. The 2018 plan update focuses on aligning Orlando's sustainability goals and strategies with the United Nation's Sustainable Development Goals (SDGs), and also aims to better incorporate strategies and initiatives that address social equity, climate resiliency and smart technology and innovation.

The 2013 Community Sustainability Action Plan outlined ambitious goals, strategies and initiatives to be implemented under seven focus areas: Energy and Green Buildings, Food Systems, Green Economy, Livability, Water, Solid Waste and Transportation. Over the past five years, it became clear that implementation of strategies for all focus areas would ultimately contribute to a sustainable and healthy economy for the City of Orlando. Therefore, under the 2018 Green Works Orlando Community Sustainability Action Plan, goals and strategies previously identified for the "Green Economy " focus area have been integrated into the other seven focus areas, with an understanding that a green economy will drive and also be a result of the achievement of goals and strategies laid out under the remaining areas. Additionally, given the variety of efforts underway in the City of Orlando with regard to both clean energy advancement and making the built environment more sustainable, this new plan also separates the "Energy and Green Buildings" focus area into the two separate focus areas of "Clean Energy" and "Green Buildings". The new focus areas are:

• Clean Energy
• Green Buildings
• Local Food
• Livability
• Solid Waste
• Transportation
• Water

Guiding Themes for the 2018 Plan Update: Social Equity, Climate Resiliency and Smart Technology and Innovation

Three overarching themes were incorporated into the 2018 Plan Update: social equity, resiliency and smart technology and innovation. These themes serve as guiding considerations for the development of recommendations, in that all goals, strategies and initiatives laid out in this Plan Update should help mobilize sustainability efforts, but also ensure that:

• Social inequities and environmental justice are addressed, as it relates to any communities or individuals struggle to access affordable housing, healthy food, quality education, quality healthcare and economic opportunities.
• All communities, businesses and residents in Orlando are prepared for and are resilient to the potential impacts of a changing climate.
• The City of Orlando continues to be ahead of the curve in implementing innovative smart technology solutions that will further enhance the sustainability and resiliency of the community.

Aligning Local Actions with Global Efforts

Since 2015, the Sustainable Development Goals (SDGs), developed as part of the United Nations 2030 Agenda for Sustainable Development, have provided a global framework with goals and targets for all countries to adopt in building toward sustainable economic development, social inclusion and environmental protection by 2030. Recognizing that a nation's progress toward achieving these global goals ultimately depends on local actions, many cities across the world have also aligned or integrated the SDGs with their sustainability planning efforts. At the U.S. Conference of Mayors in January 2018, Mayor Dyer joined other city mayors, including New York, Baltimore and San Jose in reiterating his commitment to advancing SDGs in Orlando. The first opportunity to do so is through this 2018 Green Works Orlando Community Sustainability Action Plan, in which all identified goals and strategies—existing and new—have been assessed and modified for closer alignment with the goals and objectives of the 17 SDGs.

The 17 SDGs are made up of 169 targets and 236 indicators that are broader in scope and go further than the Millennium Development Goals (MDGs) by addressing the root causes of poverty and the universal need for development that works for all people. The goals cover the three dimensions of sustainable development: economic growth, social inclusion and environmental protection. They explicitly recognize that ending poverty must go hand-in-hand with strategies that build economic growth and addresses a range of social needs including education, health, social protection and job opportunities, while tackling climate change and environmental protection.

To track and measure progress in advancing the SDGs, the City of Orlando will join the ISO 31720 standard data metrics for "Sustainable Cities and Communities", developed by the World Council on City Data (WCCD). This standard tracks 100 indicators for local governments that most closely align with the 17 SDG metrics and quantify the impact Orlando has on accelerating the SDGs in the United State and the World.

Community Engagement Process

Community engagement is key to the 2018 Green Works Orlando Community Sustainability Action Plan process. In making sure that a broad representation across Orlando sectors and neighborhoods could participate, and that all valuable community feedback would be incorporated into the Updated Plan, the city organized various engagement efforts. We invited key community and business representatives to participate on the Mayor's Green Works Orlando Task Force or focus area roundtables. We also hosted public workshops and solicited input through two online community-wide surveys.
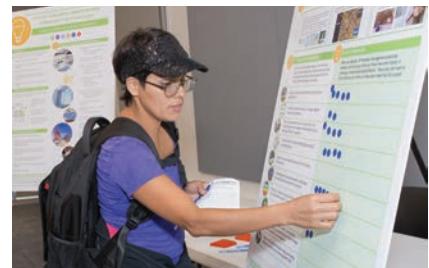
Green Works Task Force

For the 2018 Green Works Orlando Community Sustainability Action Plan, Mayor Dyer appointed 25 community leaders and representatives from Orlando businesses, institutions and non-profits to form a Community Task Force. From August 2017 to June 2018, the Task Force was convened three times to review goals and strategies for each focus area, identify additional best practices, and provide input for any new recommendations and best practices for the Updated Plan. The Task Force will also play a role in the implementation of the recommended strategies.

Focus Area Roundtables

A technical roundtable was held for each of the seven focus areas and consisted of subject matter experts and city representatives from the respective focus area. A total of 136 people participated in the roundtable meetings. At each roundtable meeting, participants were asked to give feedback on the progress of Green Works Orlando goals, strategies and initiatives implemented to date, and provide recommendations of additional strategies and best practices to be considered for the Updated Plan. Based on discussions and input from these roundtables, new strategies identified for each focus area were prioritized and shared with the Task Force for consideration.

Public Workshops and Surveys

Two public workshops and two public surveys were held in September 2017 and January 2018 to engage the broader community in the Updated Plan process. The first public workshop was held at the new Orlando Police Department Headquarters, a LEED Gold certified building in the Parramore community. The second public workshop was held at East End Market in the Audubon Park Garden District.

Both workshops were set up in open-house format, with work stations for each of the Green Works Orlando focus areas which included an information board listing key strategies on which participants could vote for the areas that they consider to be priorities. A presentation was also given at each workshop to provide community members with additional background information about the Plan Update as well as progress and next steps towards the completion of the 2018 Green Works Community Sustainability Action Plan.

Finally, two public online surveys were released to gather additional community input using NextDoor, Facebook and Survey Monkey. The focus was helping to prioritize the strategies that were gathered throughout the stakeholder engagement process. The city received more than 1,000 responses to the first survey and 877 responses to the second survey.

Clean Energy

OVERVIEW OF GOALS, OBJECTIVES AND TARGETS

With goals to reduce 25% of overall energy consumption and to increase the portion of city-wide electricity generated by renewable energy sources to 100% by 2050, the City of Orlando continues exploring opportunities to encourage more implementation of low-cost, renewable energy generation solutions. Given Orlando's climate and geographic location, there are tremendous economic opportunities and benefits for the city to become a leader in solar energy generation and consumption, as well as to position itself as a hub for clean technology industries and green jobs. In addition to economic benefits and job creation, Orlando's transition to more energy-efficient and clean, renewable energy resources will also help minimize direct and indirect environmental impacts, such as the reduction of greenhouse gas (GHG) emissions. It will also help Orlando progress towards its goal of reducing GHG emissions by 90% from 2007 levels by 2040.

In May 2017, Mayor Dyer joined the Sierra Club's Mayors for 100% Clean Energy Initiative and expressed his support for transitioning the City of Orlando to 100% clean and renewable energy by 2050 citywide. In addition, Mayor Dyer also signed the Under 2 MOU, a United Nations COP 21 commitment, to reduce GHG emissions toward net-zero by 2050 and implement strategies to mitigate a two-degree Celsius rise in global temperature from pre-industrial levels. This commitment aligns with Orlando's commitment to the Paris Climate Agreement for Cities (to reduce GHG emissions 80% by 2050), as well as the city's already aggressive GHG emissions reduction goal and strategies for 2040.

GOALS
• Reduce greenhouse gas emissions by 90% from 2007 levels by 2040.
• Obtain 100% of electricity from clean, renewable sources city wide by 2050.

SUSTAINABLE DEVELOPMENT GOALS ADDRESSED:
3 - Good Health and Well-Being
7 - Affordable and Clean Energy
8 - Decent Work and Economic Growth
9 - Industry, Innovation and Infrastructure
11 - Sustainable Cities and Communities
13 - Climate Action
17 - Partnerships for the Goals

PROGRESS HIGHLIGHTS

To date, the city has implemented several actions to support residents and businesses in transitioning toward clean, renewable energy. Highlighted programs and policies include:

- **10% of Municipal Electricity Demand Powered by Solar Energy**
  Over the last five years, the City of Orlando has worked to increase renewable energy to power municipal operations, including a 420 KW solar array on top of the Fleet & Facilities Headquarters, 12 KW solar array at Lake Eola Park, 114 KW on top of the Inspection Services Building and purchased 5.2 MW of solar energy from the Orlando Utilities Commission (OUC) Community Solar Farm, which is enough to offset the energy consumption of Orlando City Hall, Orlando Police Headquarters and 17 Orlando Fire Stations.

- **Designated SolSmart GOLD Certified City**
  In 2017, the U.S. Department of Energy and the Solar Foundation developed a new designation for cities to determine their efforts in reducing the "soft costs" for solar energy. After working on changes to our LDC, training permitting and inspectors and developing streamlined solar permitting guides, the City of Orlando was designated as a SolSmart GOLD City, the highest level of recognition.

- **Launched the Solar and Energy Loan Fund (SELF)**
  Since 2015, the city has been partnering with the non-profit SELF and OUC to expand the home energy improvement program, providing Orlando residents, especially those in low-income communities, with tools and resources to reduce their energy bills.

Through our partnership with OUC, the city has expanded its solar footprint to include more than 20 MW of solar PV, including the development new 13 MW Community Solar Farm in the fall of 2017.

It is no surprise that the City of Orlando has received recognition for being a clean energy leader. In 2017, Orlando was recognized as the most energy improved city, and ranked #20 for its energy efficiency policy and programs in the American Council for an Energy Efficient Economy (ACEEE) City Scorecard.

NEW STRATEGIES

The following strategies were prioritized by the community as the next steps to achieving our clean energy goals:

- **Develop 100% Renewable Energy Study with OUC and UCF**
  Collaborating with OUC and the University of Central Florida (UCF) to conduct a feasibility study on transitioning Orlando to using 100% renewable energy will be critical for the city to better understand potential challenges and opportunities in achieving this goal. The study will help examine the City of Orlando's current and future energy demands in different sectors (i.e., residential, commercial, industrial, transportation, etc.) and develop a roadmap for the city to support the transition, including potential generation capacity on existing sites, exploration of solar plus storage to support our climate resiliency goals and creating a community engagement plan to ensure public awareness of clean energy goals and opportunities and obtain stakeholder input for these efforts.

- **Devise and Implement a "Clean Energy for Low-Income Communities Accelerator" (CELICA) Plan**
  The city will partner with OUC to develop a policy to enhance clean energy production and consumption within low-income communities. This policy will aim to expand financing options; increase availability, awareness and connections to resources and programs; reduce the energy burden on local households through improved energy efficiency; provide solutions to enable the use of clean energy at different types of properties (rentals, multifamily, etc.); and create quality technical jobs in the process of supporting and expanding the clean energy industry. To increase success of this program, the city will hold forums within involved communities to establish a positive and reciprocal line of communication and trust. These forums will also foster the participation of residents and community leaders, as well as create green jobs for residents within these communities.

- **Implement a Smart Microgrid Demonstration Project**
  A microgrid, as its name suggests, is an energy system that utilizes distributed energy generation and storage as well as demand management technology to operate with or independently from the main power grid. A smart microgrid takes this concept a step further by incorporating metering and software components to manage energy demand and which sources/components are to be utilized depending on demand or other conditions. Smart microgrids are valuable in campus settings, neighborhood scales and particularly when supporting critical facilities. They are also part of a more robust strategy for increased distributed generation, renewable energy sourcing and smart demand management. The city will partner with OUC to implement a smart microgrid demonstration project to pilot technologies and determine best practices for future deployment. Related to this, the city and OUC will focus efforts on implementing backup solar PV generation with energy storage at critical facilities, including district hurricane shelters.

- **Launch the 'GreenPrint' Workforce Development and Job Training Program**
  Orlando is in a great location to position itself as a hub for clean energy and technology industries. At the same time, the City of Orlando also needs to equip a capable workforce with the skills needed to support these businesses and industries. In addition to preparing Orlando residents with the knowledge and skills necessary to adapt to these new industries, partnerships with local technical education or higher education institutions, as well as businesses (for internships and/or apprenticeships) will be key to encourage local employment opportunities. These job training programs should address the lack of accessibility that marginalized communities have in acquiring green jobs. Programs should be designed to accommodate different skill sets and appeal to a diverse workforce (inclusion of minorities, women, veterans, students, young professionals, etc.) in order to ensure job opportunities would be fairly distributed.

- **Expand Floating Solar (FPV) and Other Renewable Energy Applications at the Orlando International Airport**
  With many retention ponds across the City of Orlando, there is ample opportunity for the deployment of this exciting technology, which has been piloted on sites at both OUC's Gardenia Facility as well as the University of Central Florida's Main Campus. A similar installation at the Orlando International Airport would showcase our commitment to clean energy from the moment that visitors arrive, as well as provide a "return on visibility" providing a reminder of this technology's potential to those who live, work and play in Orlando.

- **Provide Solar Permitting Education**
  As more home and business owners pursue solar installations, contractors must navigate the unique permitting requirements and processes for each jurisdiction, many of which are currently transitioning to new digital platforms. In order to ensure a streamlined, efficient and expedient process that is easily understood by all parties, the city will work with the solar industry to address concerns relating to building and electrical permits and the associated processes.
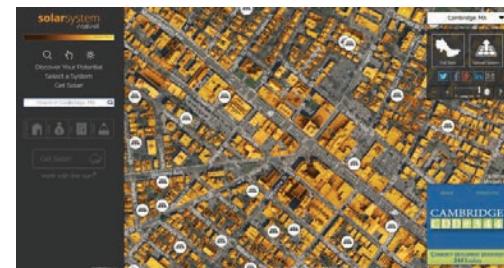
BEST PRACTICES

The city has researched case studies of best practices from our peer cities around the globe. These successes serve to inform and inspire our work locally, as well as contribute to scaling efforts to achieve a more significant, collective impact.

- **Using Online Solar Mapping as a Communications and Community Engagement Tool**
  In partnership with Mapdwell®, the City of Boston launched an online solar mapping tool as a resource for community members to better understand their property's renewable energy potential. This initiative aims to raise awareness and provide data-driven information to community members to encourage them to take collective actions that contribute towards the city's sustainability goals. Through this online, interactive mapping tool, home and business owners, as well as developers, can perform a preliminary assessment of their rooftop solar capacity and conduct a cost-benefit analysis to inform their decision making. Boston is one of the eight cities across the U.S., along with New York City, Washington D.C., and San Francisco, to currently offer Mapdwell Solar System at no cost to their community members.

Green Buildings

OVERVIEW OF GOALS, OBJECTIVES AND TARGETS

As buildings are currently responsible for 80% of greenhouse gas (GHG) emissions in the City of Orlando, green building standards will be critical to minimizing direct and indirect environmental impacts, as well as ensuring more efficient use of energy, water and other valuable environmental resources. Furthermore, since green building standards incorporate design elements that provide enhanced climate resiliency for a building, these spaces will be better equipped to withstand the potential impacts as a result of global climate change. As a result, Orlando has also set a goal to ensure that 100% of city-owned buildings will be retrofitted and/or built to green building design and construction standards.

The City of Orlando continues to explore opportunities to implement energy-efficiency upgrades and solutions for existing building stock and infrastructure, while also establishing policies and incentives for sustainable design in new buildings. By effecting change across the built environment, the city will be able to conserve energy and water, while minimizing waste, and creating healthy and resilient environments for businesses, residents and visitors. The implementation of green building practices will also keep utility and maintenance costs down, which is particularly important for low-income residents and small businesses. Finally, these efforts will help Orlando progress toward its goal of reducing GHG emissions by 90% from 2007 levels by 2040.

2040 GOALS
• Ensure 100% of new and existing buildings meet green building standards.
• Reduce total electricity consumption by 20% from 2010 levels.

SUSTAINABLE DEVELOPMENT GOALS ADDRESSED:
3 - Good Health and Well-Being
8 - Decent Work and Economic Growth
10 - Reduced Inequalities
11 - Sustainable Cities and Communities
12 - Responsible Consumption and Production
13 - Climate Action
17 - Partnerships for the Goals

PROGRESS HIGHLIGHTS

To date, the city has implemented several actions to support residents and businesses in improved energy performance. Highlighted programs and policies include:

- **$17.5 Million Green Bond Energy-Efficiency Project**
  In 2016, the City of Orlando approved a green bond to implement energy efficiency retrofits to 55 city buildings - including the Amway Center, City Hall, community centers, fire stations and more - in an effort to lower utility bills and achieve our clean energy goals. Since then, the city is saving more than $1.6 million in annual utility spending.

- **Property Assessed Clean Energy (PACE)**
  Since March 2016, with unanimous approval from the Orlando City Council, the city has enabled more than $500 million for PACE, an innovative program that provides financing for energy efficiency upgrades and solar installations. PACE helps remove the barriers of high upfront costs and offers low-interest financing to help city residents and business owners modernize the features of their building, mitigate weather-related damages, and improve the energy and water efficiency of their properties.

- **Building Energy and Water Efficiency Strategy (BEWES) Ordinance**
  In December 2016, the City of Orlando was the first city in Florida to pass a BEWES Ordinance - a core component of the city's participation in the City Energy Project. This ordinance, designed to drive energy and water efficiency in the city's largest buildings, was modeled after the best practices already implemented across more than 20 peer cities. In the first year of implementation, more than 200 buildings benchmarked energy use with the city, accounting for 16% of buildings citywide, and achieving a first year compliance rate of 30%.

- **Energy Management & Controls Technology (EMCT) degree at Valencia College**
  Since 2015, the City of Orlando participated in a taskforce led by Valencia College to develop a new Associates of Science (AS) degree, focused on fostering the next generation of building and energy efficiency professionals. Starting in fall 2018, students will be trained to go directly into a specialized career in energy management, automation and controls technology.

With these innovative programs and policies in place, the city has elevated its existing sustainability efforts aiming to reduce energy consumption and minimize environmental consequences. They also ensure equitable access for all residents to cleaner energy resources, better air quality, healthier living conditions, and economic opportunities through energy cost savings. To date, the City of Orlando has saved more than $2 million in annual energy savings, through major retrofitting efforts done to community centers, fire stations and administration buildings.

There are also 232 buildings in the Greater Orlando area meeting green building standards, and 15 new construction buildings within Orlando that have achieved U.S Green Building Council's LEED certification, including the Amway Center, Orlando Police Headquarters and several fire stations.

NEW STRATEGIES

The following strategies were prioritized by the community as the next steps to achieve our green building goals:

- **Implement Green Affordable Housing Standard**
  The city will coordinate with developers and funders of affordable housing to develop a policy requiring the integration of green building principles into affordable housing development. Green building principles promote energy and water efficiency, which is critical to keeping utilities, and thus homeownership/rentals affordable. Standards also address indoor air quality, healthy building materials and durability, all important to occupants who traditionally are disproportionately burdened by respiratory and other illnesses. Standards should also include siting decisions that will encourage improved mobility and access to community resources. The Enterprise Green Communities standards could serve as a useful foundation of Orlando-specific green affordable housing standards.

- **Establish a Green Building Incentive Program for New Construction to Meet High-Performance Standards**
  The city should encourage new construction projects to incorporate high-energy and water performance construction and design standards by setting up a "feebate" program or tax rebate policy as a financial incentive mechanism. The feebate program can be structured so that developers would earn various amounts of credits based on the levels of improvement over standard building code. This system would provide developers with flexibility to incorporate green building elements as they see feasible and economically viable. The city should also identify critical needs and key opportunities that are specific to individual neighborhoods or areas (such as improved stormwater management systems, heat island mitigation, onsite renewable energy installation, etc.), so that proposed green building elements for buildings in each of these areas prioritize those needs and opportunities, potentially enabling developers to receive larger incentives for addressing them.

- **Develop Standards and Pilot a "Green Works Orlando Eco-District"**
  Eco-districts support sustainability assessment and investments at the neighborhood level that will help meet broader sustainability policy and economic development. Piloting an eco-district framework in one of the city's neighborhoods will provide a better understanding of the challenges and opportunities for deploying district-scale sustainability projects.

- **Create a Green Building Toolkit for New Construction and Existing Properties**
  As green building practices continue to grow, building owners and operators of existing buildings are increasingly interested in exploring the various options available. By providing a toolkit of current requirements (such as the BEWES policy and commercial recycling ordinance, for example), voluntary programs (such as the Central Florida Battle of the Buildings Competition and the city's commercial food waste program), a menu of other options available across the community and relevant financing mechanisms for conducting retrofits (such as PACE financing and OUC's rebates and incentives programs), building owners will have a helpful framework from which to determine the building elements and potential improvements that would be most applicable to their particular property.

- **Provide Energy Efficiency Training for Building Owners, Managers and Operators**
  Building on the success from community outreach over the last three years, the city, in partnership with the Florida Chapter of the U.S. Green Building Council, will provide training workshops that are free of charge to building owners and managers and cover topics such as building energy, water and waste benchmarking in the ENERGY STAR Portfolio Manager, building tours to illustrate the application of this data toward improved energy management, as well as exploring new technologies in the realm of building performance and relevant financing mechanisms.

BEST PRACTICES

The city has researched case studies of best practices implemented across the country and abroad because we believe in learning from the successes of our peer cities.

- **Grand Rapids 2030 District**
  Established as a public-private partnership, the Grand Rapids 2030 District is a strategic initiative that convenes government agencies, businesses, downtown property owners and managers and other community representatives together for the common goal of creating efficient, sustainable buildings and a thriving downtown. Since its formal launch in 2015, the group has been collaborating on innovative technologies and solutions, leveraging financing opportunities and sharing resources to achieve the following targets across its nearly 10 million square feet of interior downtown space:

  - A 50% reduction in energy and water use in existing buildings, as well as emissions from transportation in the District by 2030 (as compared to the 2003 baseline).

  - Achieve net-zero energy use for new buildings and major renovations by 2030.

  To support these ambitious goals and targets, the District works with the City of Grand Rapids to develop and implement various initiatives, such as adopting their own PACE program, participating in the Zero Cities Project and exploring tax incentives as well as policy to engage building owners and managers in thinking beyond the existing energy code.

Local Food

OVERVIEW OF GOALS, OBJECTIVES AND TARGETS

A mild Central Florida climate, cultural heritage of agriculture and passionate residents and business owners position the City of Orlando as a leading local food destination. Locally grown and produced products will help reduce the distance food has to travel and provide equitable access to healthy, affordable food options for all residents of the city. Through increasing opportunities for urban farming and working with local private organizations to increase community garden access, we are working to connect Orlando residents and businesses to food options that are grown closer to home.

Private and public organizations work together to foster "foodpreneurs" and local food companies to support the local economy and create a sustainable model for food production, processing, distribution, consumption and disposal. Supporting small business growth through catalyzing local markets, food hubs and home food occupation such as the Cottage Food Law, makes Orlando residents and small businesses better positioned to find entrepreneurial opportunities in the local food system.

2040 GOALS

- Ensure access to affordable, healthy food options (community gardens, grocery stores or farmers markets) within ½ mile of every resident.
- Increase local food assets (local food hubs, food production or distribution facilities, household gardens, community garden plots) by at least a factor of ten.

SUSTAINABLE DEVELOPMENT GOALS ADDRESSED:
1 - No Poverty
2 - Zero Hunger
3 - Good Health and Well-Being
10 - Reduced Inequalities
11 - Sustainable Cities and Communities
13 - Climate Action
17 - Partnerships for the Goals

PROGRESS HIGHLIGHTS

To date, the city has implemented several actions to support the access of residents and businesses to local food options. Highlighted programs and policies include:

- **Created the Good Food Central Florida Food Policy Council**
  The Council created ambitious goals to provide community outreach and education, decrease food waste, expand the local distribution system, all the while expanding urban food production. Utilizing a Food Policy Audit (FPA) as a tool, they are engaged in the ongoing assessment of the local food economy, creating a baseline inventory of assets and interventions to address the gaps in the current local food system.

- **Increasing Food Assets, Including Six Farmers Markets, 149 Grocery Stores, and More Than 700 Community Garden Plots Within the City Limits**
  The number of garden plots In the City of Orlando continues to grow in innovative ways. Under the motto "grow food, not lawns", a local nonprofit, IDEAS For Us, started the nationally recognized Fleet Farming urban farming program. In strategic neighborhoods throughout the City of Orlando, local volunteers plant and maintain garden beds in participating residents' front lawns. Produce grown in these lawns is harvested and sold at local farmers markets and restaurants, as well as donated to the hosting home. In what has been termed a "swarm ride," volunteers meet at the different farm plots via bicycle, creating a sustainable model for the transport of food. This model of urban agriculture spurred the city to review and amend the Land Development Code to allow more local food production in resident's front lawns, creating a showcase for the local food movement. Both Fleet Farming and the City of Orlando are in the process of promoting and expanding the number of garden plots – both in the form of these farmlettes at individual homes and at community gardens installed on public land.

- **Piloted Urban Agriculture on Public Land**
  The city also partnered with Growing Orlando to pilot an urban garden program on public land in the Parramore neighborhood – another means of educating Orlando's residents about the opportunities available to them in a model for sustainable food production. Today, this plot is managed by IDEAS For Us through the Fleet Farming Parramore program.

- **Established an Urban Chicken Policy**
  In the fall of 2016, the Orlando City Council passed an ordinance allowing chicken permits on single-family residence sites within Orlando city limits. The permit allows for up to four hens to be kept on the premises in well-maintained backyard chicken coops. This is an important outcome to help expand individual property owners' access to local food; the city also offers educational sessions to community members regarding proper care of the chickens.

- **Implemented the West Orlando Food Project**
  The city also launched the West Orlando Food Project in the summer of 2017 to support local food access and education programs in some of the city's identified food deserts. The $250,000 FMPP grant allowed for the opening of the Parramore Farmers Market at the Orlando City Soccer Stadium in the spring of 2018 and the organization of semi-annual Cooking & Nutrition classes provided by Hebni Nutrition, which is open to all residents to learn about healthy cooking and eating. The grant also allows the city to partner with Fleet Farming to develop up to 15 new urban farmlettes, with produce to be sold at the Parramore Farmers Market. A crucial element to this model of Community Supported Agriculture (CSA) is that the farmers market accepts the USDA Supplemental Nutrition Assistance Program (SNAP), enhancing the ability for local residents to acquire affordable and healthy food options.

NEW STRATEGIES

The following strategies were prioritized by the community as the next steps to achieve our local food system goals:

- **Establish a Comprehensive Urban Agriculture Ordinance with Zoning Amendments**
  By amending our zoning code, the city can create an ordinance for urban agriculture to provide standards for the siting, design, maintenance and modification of urban agriculture activities that the

city can regulate to support the local food economy while and minimizing potential public health and safety concerns. Urban agriculture helps promote food access to Orlando's underserved communities, provide growth for local businesses, as well as develop education opportunities around healthy eating. Having an urban agriculture ordinance can help reduce excessive permitting and the administrative review processes that may deter small businesses from becoming involved. Urban agriculture activities can vary, including the classic ground-level vegetable farm, rooftop greenhouses, hydroponics, aquaponics and freight container farming.

- **Develop a "Green Carts" Program Issuing Permits to Sell Fresh Produce at Transit/Bus Stops and in Underserved Neighborhoods**
Creating a Green Cart permit program will help boost the availability of fresh fruits and produce across City of Orlando neighborhoods. The permits would allow for the operation of food carts selling fresh fruit and produce in designated areas of the city, particularly at transit stations and/or bus stops as well as in underserved neighborhoods that have been identified as food deserts. These Green Cart permits should be granted to local food producers from within the city limits or to nearby farms within the 50-mile vicinity of the city.

- **Create an Urban Incubator Farm on City Property**
Incubators provide food entrepreneurs with an affordable option to test out different growing techniques and approaches, such as fruit forests, permaculture, pollinators, in order to begin selling new food products and services. Given Orlando's diversity, incubator farms will enable farmers to apply innovative farming techniques to determine which might work best to grow fruits and vegetables that are indigenous to one's country of origin or culturally relevant to the individual. These incubators can exist as privately-owned businesses, or modeled as nonprofit ventures that are supported by public and private funds, as well as subject to fees for service and rental use.

- **Expand Four More Community Gardens, Targeting Low-to-Moderate Income Communities**
The city should strategically support the development of community gardens in four or more identified low-to-moderate income communities. These community gardens can also serve as centers for classes and tutorials on healthy eating and lifestyles, with the addition of a community calendar listing these events. Similar to the Urban Incubator Farm, this space could also serve as a testbed for various techniques to determine which work best for growing produce that is native to other regions.

- **Promote Urban Agriculture on City-Owned Property through the 'Grow-A-Lot' Program**
This program would allow the city to utilize vacant and/or underserved city-owned property for the purpose of growing more food and highlighting a variety of agricultural practices. The 'Grow-A-Lot' program would emphasize strategic locations on city property where agricultural activities could help to reduce the amount of food deserts located throughout the city.

- **Host the Annual AgLando Summit**
City staff would work to coordinate a series of workshops and/or presentations known as the AgLando summit in which the community can gather to share their expertise in support of urban agriculture programs. At AgLando, the city would invite experts in the field from other nationally renowned programs (such as AgLanta in Atlanta, GA) to share ideas to create a sustainable and holistic local food movement in Orlando.

BEST PRACTICE

- **Detroit Kitchen Connect**
Detroit Kitchen Connect provides local food entrepreneurs with access to underutilized licensed kitchen facilities throughout the city. Many of these existing facilities include local churches that are only being used two to three hours a week. In addition to providing kitchen facilities, Detroit Kitchen Connect provides technical assistance, workshops and other startup services to help mitigate the potential barriers to starting a food business.

- **Nashville Grown**
Nashville Grown is a nonprofit social enterprise that advocates for local farmers within 100 miles of the city. It focuses on five pillars to allow small, sustainable local farms to thrive: Sustainable Farming Education; Land Availability; Production Coordination; Food Distribution; and Branding and Marketing. Nashville Grown maintains a listing of featured farms and restaurants that use locally-grown ingredients, and also fulfills produce orders through its website.

Livability

OVERVIEW OF GOALS, OBJECTIVES AND TARGETS

Known as "The City Beautiful," Orlando strives to protect its natural environment, attract and retain businesses, as well as provide equal access to resources and high quality of life for all residents. Planning efforts to enhance the city's livability takes place at various scales and involve a collaborative approach among community stakeholders. It includes establishing compact, dense development, not only to efficiently conserve land but also to strengthen connectivity among neighborhoods as well as improve access to community resources (schools, parks and recreational green spaces, commercial centers, public transit networks, etc.).

Providing equitable access to community resources and establishing social cohesiveness are important components to strengthening the resiliency of Orlando's neighborhoods. This type of planning also encourages infill development and retrofitting of previously developed spaces, reducing the environmental impact of taking over pristine or environmentally sensitive lands. More connected neighborhoods and communities will inspire more business opportunities and community-oriented programs, thus promoting social interaction and investments which foster a sense of place that the community can embrace.

2040 GOALS

- Develop and enhance 25 quality walkable villages inside the city.
- Ensure that 95% of residential addresses are located within ½ mile of a park or open space.
- Increase tree canopy to 40%.
- Reduce obesity and diabetes rates.

SUSTAINABLE DEVELOPMENT GOALS ADDRESSED:
3 - Good Health and Well-Being
11 - Sustainable Cities and Communities
13 - Climate Action
15 - Life on Land
17 - Partnerships for the Goals

PROGRESS HIGHLIGHTS

To date, the city has implemented several actions to improve our collective quality of life and make Orlando a more livable community. Highlighted programs and policies include:

- **Added More Than 50 miles of Sidewalks and Urban Trails**
  The city continues to expand pedestrian and bicycle opportunities for all residents. To date, the city has successfully expanded more than 25 miles of sidewalks and the Orlando Urban Trail network with two new trails, Bumby Avenue and Westmoreland Drive. The city has also participated in several complete street studies to increase the variety of healthy transportation alternatives along some of our major corridors, including Robinson Street, Corrine Drive and Curry Ford Drive. The first pedestrian bridge in Orlando—the Colonial Pedestrian Bridge—is also expected to be complete in the fall of 2018 to expand and connect the Orlando Urban Trail to downtown Orlando and the South Downtown District (SoDo).

- **Expanded Orlando Main Streets Program**
  The city's Economic Development Department has continued to expand the successful Main Streets Program. Since 2008, public and private investment in the city's Main Streets Program has surpassed $1 billion. Each year, the city recognizes the main street businesses and residents with awards for their contributions to the community and overall economic vitality. Additionally, the Audubon Park Garden District received the 2016 Great American Main Street Award for their continued support of local businesses and vibrant programming opportunities.

- **Launched the One Person, One Tree Initiative**
  The city also implemented several tree programs to increase the overall tree canopy in Orlando. Orlando has been a Tree City USA since 1976, was named a Sterling Tree City USA in 2011 and has received a Tree Growth Award every year since 1990. Our street tree trust fund was established in 1991 to supplement a long-standing street tree program. Additionally, the city provides trees to residents through the Energy Savings Tree Program, which allows residents to order trees through an innovative online platform and decide where to plant them based on Right Tree, Right Place criteria. These trees are free for residents and are shipped directly to their homes. To date, 7,800 trees were planted by individuals through the Energy Saving Tree Program.

- **Expanded Park Impact Fee, New Parks and Green Space**
  The city's Family, Parks and Recreation (FPR) Department has also expanded the amount of green space and park space within diverse neighborhoods. In addition to the expansion of community garden plots, the opening of Lake Druid Park offers an off-road bike trail, popular dog park and other recreational opportunities. The city also purchased Constitution Green, saving several magnificent centuries-old live oaks from destruction, and revitalized Songbird Park.

NEW STRATEGIES

The following strategies were prioritized by the community as the next steps to achieve our livability goals:

- **Join the Mayor's Monarch Pledge and Achieve the National Wildlife Federation (NWF) Community Habitat Certification**
  Through the NWF, Orlando has the opportunity to participate in several national initiatives to support and protect local wildlife and natural resources. One initiative the city has launched is the Mayor's Monarch Pledge to protect the monarch butterfly, an iconic species whose populations have declined by 90% in last two decades. In addition to creating habitats for the monarch butterfly and other pollinators, pledge participants also develop an educational outreach program to engage the community and encourage residents and business owners to take part as well. Another opportunity

is the NWF Wildlife Certification, which certifies public parks and other garden spaces as a welcoming haven for local wildlife. To meet the goals of this effort, the city will examine mowing, fertilizing and pest control practices on city properties to ensure that we are aligning with the mission of the certification, planting demonstration gardens and establishing specific public property as "no-mow zones" for habitat development and extensive community outreach. Additionally, residents can also participate by turning their yards or gardens into a Certified Wildlife Habitat®.

• **Establish a Voluntary Carbon-Offset for Visitors to Orlando**
Orlando welcomes more than 72 million visitors annually. Not only do these visitors contribute enormously to Orlando's economy, but every choice a visitor makes can also leave behind environmental impacts. By establishing an offset program, visitors can voluntarily contribute to offset the footprint they leave behind. The financial contributions to this program can help fund various sustainability initiatives and projects to mitigate local climate change impacts, such as planting more trees, installing air quality monitors, expanding energy efficiency programs for low-income communities, supporting infrastructure improvement projects (especially to promote bike and pedestrian uses) and develop educational outreach and emergency response programs to help local residents prepare for and recover from future climate change impacts. If each visitor contributed just one dollar to the fund, Orlando would have a substantial financial resource for funding many hard-to-fund sustainability initiatives. Additionally, the city and its partners, such as the Greater Orlando Aviation Authority and Visit Orlando, could market this program in a way that makes visitors feel like they are contributing to important programs in a destination that they love.

• **Amend the City of Orlando Land Development Code to Strengthen Protections and Policies for Trees, Wetlands and Natural Lands**
As we create new opportunities for planting trees throughout our city, it is also vitally important to protect the longstanding trees we already have. The permitting process creates a catalog of the trees removed, which provides an opportunity to track and manage the city's overall tree canopy, wetlands and natural lands. The city will create stricter regulations which require the planting of a new tree where one is removed when the property owner is responsible for the removal of the tree. This starts with inter-departmental communication between the city's permitting division and the Office of Sustainability & Resilience to ensure that once a tree is removed, another is planted as a replacement to increase the quantity and quality of trees planted in the city. To mitigate environmental losses and increased heat levels due to tree removal, high priorities must be set on addressing low-income areas with low canopy coverage by making sure trees are equitability planted in areas with greatest air pollution and new development.

• **Develop Permanent Supportive Housing for Homeless Families, Veterans and Climate Refugees**
Like other Central Florida cities as well as urban areas throughout the country, Orlando is experiencing a rise in population, yet the housing stock is struggling to keep up. Affordability has become a significant issue for many. Furthermore, Orlando has already taken in a large number of refugees from the hurricanes that devastated the Caribbean in the fall of 2017 – specifically Puerto Ricans after Hurricane Maria devastated many of their homes and livelihoods and had to move in with friends or relatives already residing in the Orlando area. It is likely that Orlando will continue to take in climate refugees as more people living along coastal Florida communities (as well as in neighboring states and nearby islands) are at higher risk of climate change impacts. Developing an affordable, permanent supportive housing community, could be a solution for homeless veterans, refugees, or low-income earners who struggle to keep up with the rising cost of living. One option may be to establish tiny-house villages, built sustainably and efficiently and more affordable. Within the village, there can also be a common house, garden plots, playgrounds and other resources to support residents connecting them with each other and resources to assist them with poverty. Being a member of a tiny-house village may create a sense of community for these vulnerable residents, while also offering them their own private space (versus living in tents, shelters, or in traditional dorm-style public housing).

- **Increase Urban Tree Canopy and Green Space to Mitigate Urban Heat Island, Improve Public Health and Enhance Community Resiliency**
  To achieve our goal of 40% tree canopy coverage, the city will continue to build on its successful tree-planting initiatives to increase Orlando's tree canopy. Lower income neighborhoods and communities have a disproportionately lower percentage of tree canopy coverage. Increasing our tree canopy where needed will contribute to enhancing livability of all neighborhoods and communities by adding shade that will invite more walking and biking rather than driving, even on hot days. Tree shade also helps to reduce urban heat island impacts. Increasing shade enhances neighborhood livability and draws people to local businesses. Trees and green space also provide for GHG reduction and air quality benefits and are critical to stormwater management during rain events, which are likely to be more significant under changing climate conditions.

- **Monitor Citywide Air Quality Using New Smart City Technology**
  While air quality is a regional issue largely driven by transportation emissions, certain areas of the city are disproportionately affected. By partnering with OUC or another vendor to install "smart poles", the city can monitor air quality. Smart poles can contain an array of communication technology, dynamic LED lighting and a variety of environmental sensors. The sensors monitor and detect changes in air quality, which would allow the city to identify specific areas of concern and develop mitigation measures to address air pollution.

BEST PRACTICE/CASE STUDY

- **Barcelona's Superblocks**
  The City of Barcelona is experimenting with the development of "Superblocks", or mini-neighborhoods that limit traffic and increase green and recreational spaces for citizens. The program involves limiting through-traffic to perimeter streets and reserving inner streets for pedestrians and cyclists. Through the creation of four pilot neighborhoods, the program expects to achieve CO_2 emission reductions between 20 - 75%.
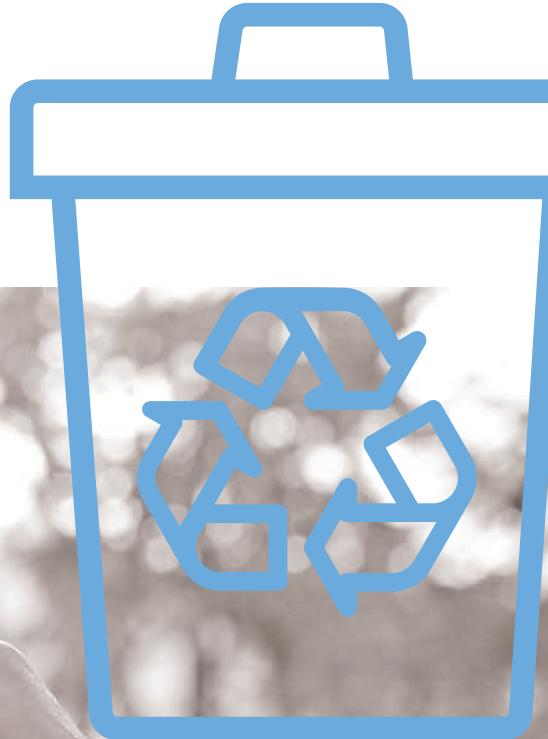
- **Green Area Ratio, Washington DC**
  The Green Area Ratio (GAR) is an environmental sustainability zoning regulation that sets standards for landscape and site design. All new buildings requiring a certificate of occupancy must comply with the GAR standards. Additions or interior renovations to existing buildings must comply with GAR when the cost to construct exceeds 100% of the assessed building value. This regulation will reduce stormwater runoff, improve air quality, increase habitat and ecosystem and keep the city cooler, while increasing the quantity and quality of the environmental performance of the urban landscape.

Solid Waste

OVERVIEW OF GOALS, OBJECTIVES AND TARGETS

Recently selected as a pilot city for the Beyond 34: Recycling and Recovery for a New Economy project, which aims to improve upon the current 34% national average recycling rate, Orlando is poised to improve the quality of life for all, save money and lead by example in waste management best practices. A reduction in waste will be achieved in part by expanding curbside recycling collection; composting; implementing innovative waste technologies; and providing educational outreach programs to the community. To achieve the zero waste goal, there must be a citywide effort to shift perceptions of the entire community on how a person's daily lifestyle of resource use and trash production have an impact on the entire community. Orlando residents and businesses should understand that discarded materials are actually resources that can be put to productive use outside of a landfill.

Aside from the critical need to protect environmental resources and the well-being of Orlando residents, expanding support for local waste management businesses (such as commercial recycling and composting services) or pursuing advanced waste management techniques (such as anaerobic digester facilities that generate energy from both food waste and effluent) can also be economically beneficial, potentially creating new businesses and jobs. Furthermore, given the availability of nearby higher education institutions with research capabilities, the City of Orlando has the resources and research opportunities to explore innovative technologies and solutions to waste management.

2040 GOAL
• Orlando strives to become a "zero waste" community and aims to eliminate sending solid waste to landfills by 2040.

SUSTAINABLE DEVELOPMENT GOALS ADDRESSED:
3 - Good Health and Well-Being
9 - Industry, Innovation and Infrastructure
11 - Sustainable Cities and Communities
12 - Responsible Consumption and Production
13 - Climate Action
17 - Partnerships for the Goals

PROGRESS HIGHLIGHTS

To date, the city has implemented several actions to increase our waste diversion efforts by recycling more and focusing on food waste. Highlighted programs and policies include:

- **Implemented a Residential Backyard Composter Program**
  To date, more than 6,500 composters have been distributed to help residents divert their food waste and create healthy soil for their trees, shrubs and home gardens.

- **Implemented a Weekly Recycling Collection Schedule**
  In 2017, the city moved to once a week collection (trash, recycling, yard waste and bulk items). This shift in collection frequency is a model used in other municipalities throughout the U.S. and is well documented to show positive impacts on recycling participation as well as overall residential recycling rates.

- **Implemented a Commercial Food Waste Collection Program**
  With the Orlando area leading the U.S. in hospitality, the city decided to address the looming issue of food waste by implementing an innovative food waste collection service for commercial businesses, such as hotels, restaurants and food service industries. Since fall 2014, the city has diverted more than 2.25 million pounds of food waste from the landfill.

- **Launched Orlando Collects Mobile App and Website**
  As part of an effort to communicate and engage residents about the city's waste diversion and recycling goals, the city developed an innovative outreach strategy to share information and also familiarize residents through actual practice. The Orlando Collects website and phone application serve as "how-tos" that residents can easily access to understand the proper ways to dispose of or recycle an item they no longer need or want. Through this channel of communication, the city also connects with residents through reminders, occasional fun facts, and statistics of progress to keep the community engaged and excited, and continue to drive the momentum for responsible waste practices forward.

- **Expanded Recycling Bins in Downtown Orlando and Public Parks**
  The city also increased the number of recycling cans across both downtown Orlando and the city's public parks. Additionally, the city deployed smart solar-powered trash compactors to give us better data about the waste that is generated in the downtown area.

NEW STRATEGIES

The following strategies were prioritized by the community as the next steps to achieve our solid waste goals:

- **Develop and Implement the Beyond 34 Regional Sustainable Waste Management Plan**
  Committed as a pilot city for the Beyond 34 project by the U.S. Chamber of Commerce, a public-private partnership approach should be modeled to facilitate the development of a comprehensive waste management plan. The implementation of this plan will include strategies to improve local recycling infrastructure, develop regional communications campaigns to reduce contamination, explore organics recycling models and more.

- **Implement a Polystyrene, Plastic Bag and Plastic Straw Ban for All City Facilities, Parks and Affiliated Events**
  While polystyrene products, also known under the brand name Styrofoam, may provide some convenience to our life, such as keeping beverages hot or serving as takeout containers, they leave behind major issues to our environment as well as our health. Made of fossil fuels and synthetic chemicals, polystyrene is not biodegradable. In addition, polystyrene foam absorbs toxic chemicals from other contaminants, putting wildlife at risk if accidentally mistaken for food. To lead by example, the city should adopt a policy to ban the use of a polystyrene by its vendors at city facilities, parks and affiliated events.

- **Implement Recycling Requirements for Commercial and Multi-Family Buildings**
  Often, tenants of large commercial and multifamily buildings do not have the opportunity to recycle as building managers and owners are not required to provide adequate recycling containers for them to use. Requiring building owners to provide the opportunity for their tenants to recycle can help contribute significantly to the city's waste diversion goals. This requirement should be immediately applied to all new construction projects, ensuring that there is dedicated space to support recycling services. As it may be more challenging for existing buildings to accommodate adding new space to support recycling facilities and services, the city should consider offering technical support and flexibility to assist building owners and managers in setting up recycling programs, potentially over a phased in schedule.

- **Create Green Works Event Guide and Program**
  To lead by example, the city should create a policy and/or program to increase waste diversion and recycling rates at city-affiliated events. The policy or program should provide guidelines regarding how the city operates to curb waste and improve recycling practices, as well as RFP requirements for the selection process of companies and services with whom the city conducts business. This policy or program should include pre-event activity planning, coordination and protocol during the events, and post-event evaluation for future improvements.

- **Establish Construction and Demolition (C&D) Recycling Standards**
  Construction and demolition waste often end up in landfills, even though some of these materials, such as metal, wood, masonry and concrete may be recoverable and even recyclable. The city should consider developing standards for construction and demolition (C&D) recycling practices that would serve as a guideline for design and construction professionals to divert their projects' recoverable building materials and products from landfills. The C&D standards should encourage incorporation of construction waste management in the early planning phase and consideration of reusable and recyclable materials. Furthermore, it should include discussion about proper handling of hazardous wastes frequently encountered in demolition projects (such as asbestos, lead paint and mercury from fluorescent lamps). In addition to reducing the amount of waste that's being sent to landfills and minimizing the associated environmental impacts, the implementation of C&D recycling standards can also provide substantial financial benefits from the recycling of materials, elimination of tipping fees and reuse of certain materials for road base or landscaping mulch materials that the project would otherwise need to purchase.

BEST PRACTICES/CASE STUDIES

Transforming Waste From an Environmental Liability to a Valued Resource

- **Ripple Glass, Kansas City, Missouri**
  Ripple Glass is a glass recycling organization based in Kansas City, Missouri. The organization was founded by Boulevard Brewing Company, a local brewery that was frustrated that its empty bottles went to waste. Ripple Glass provides more than 100 drop-off locations to make glass recycling easy and convenient. They have partnered with local businesses to convert recycled glass into fiberglass insulation, as well as turn amber glass back into bottles that are used by Boulevard Brewing Company.

- **Universal Recycling Ordinance, Austin, Texas**
  The Universal Recycling Ordinance requires affected property owners to ensure that tenants and employees have access to convenient recycling. The ordinance used a phased approach to implement the requirements. In October 2013, only multifamily properties with 50 or more dwelling units and commercial non-residential properties greater than 75,000 square feet were required to meet the ordinance. Over the next four years, the respective thresholds were reduced, and as of October 1, 2017 all multifamily properties and commercial properties are required to comply with the ordinance, regardless of size. By October 1, 2018, all food services enterprises in the city will be required to participate in an organics diversion program.

Transportation

OVERVIEW OF GOALS, OBJECTIVES AND TARGETS

Our transportation system currently contributes to 20% of GHG emissions in the City of Orlando. The availability and accessibility of alternative modes of transportation beyond automobiles can also greatly contribute to the outcomes of community health, safety and livability across the city.

By creating an efficient and complete transportation system, individuals can more easily and safely get around Orlando, and therefore will strengthen the city's economic growth. In addition to spurring more business opportunities, these infrastructure improvement projects will also support broad-based economic development.

2040 GOALS

- Majority of trips made by foot, bike, carpooling, or transit.
- Achieve a Gold ranking for the League of American Bicyclists Bicycle Friendly Community Score.
- Increase miles of safe, sustainable transportation infrastructure (bike lanes and paths, transit lines and sidewalks).
- Double street miles within the city that meet "complete streets" criteria.
- Eliminate pedestrian and bike fatalities.
- Increase the use of electric vehicles (EVs) and alternative fuel vehicles throughout the city.
- Attain a "good" rating on the Air Quality Index (AQI) 365 days/year.

SUSTAINABLE DEVELOPMENT GOALS ADDRESSED:
3 - Good Health and Well-Being
8 - Decent Work and Economic Growth
9 - Industry, Innovation and Infrastructure
10 - Reduced Inequalities
11 - Sustainable Cities and Communities
13 - Climate Action
17 - Partnerships for the Goals

PROGRESS HIGHLIGHTS

To date, the city has implemented several actions to provide a variety of multi-model transportation. Highlighted programs and policies include

- **Adopted a Complete Streets Policy**
  The City of Orlando adopted Complete Streets policies through a Growth Management Plan amendment approved in 2015. The overall goal of the new policy is to provide safe, comfortable and convenient access for all users thereby enhancing overall livability and equitable access to destinations for all. An example of these policies at work is the City of Orlando's continued cooperation with LYNX in the expansion of the LYMMO Grapefruit and Lime lines throughout downtown Orlando in conjunction with on-street bike lanes. Efforts included the realignment of Terry Avenue and restriping of Livingston Street in the Creative Village and the Parramore neighborhood. This expansion created a safe connection for pedestrians, transit users and cyclists to the SunRail station and thus, the whole of Orlando. Between 2015 and 2016, LYNX saw a ridership of more than 2.4 million per month in the Greater Orlando region, or more than 1.7 million within city limits. SunRail served nearly 29,000 riders per month in 2016. Sidewalks also increased in length, from 946 miles in 2012 to 989 miles in 2016. In 2016, there was 26.7 miles of dedicated transit routes, an increase from 18.6 miles in 2012. The city is continuing to expand the number of complete streets with several studies underway.

- **Expanded Bicycling Infrastructure**
  The city is also focused on expanding bike infrastructure to promote ridership among Orlando residents. To date, 250.5 miles of on-street bike lanes and 36.2 off-street bike trails have been constructed throughout the City of Orlando. Approximately 53 miles of these routes have wayfinding signage to help guide cyclists to their destinations. City staff have monitored existing bicycle facilities and estimate approximately 232,000 trips per month take place on the trail network. They also expect the number of trips to continue rising. As a new resource for bicyclists, the city has also worked with local private enterprises to install six repair stations across our community. With these improvements, the city has acquired a Bike-Friendly Community Bronze level certification by the League of American Bicyclists.

- **Implemented Juice Bike Share Program**
  In 2016, the city implemented the Juice Bike Share membership program as a short-term bicycle rental program designed to provide citizens, tourists, and commuters with an additional transportation option that is affordable and environmentally-friendly. Since its first year of service, Juice Bike Share's more than 6,000 members have traveled roughly 49,500 miles and cataloged more than 24,000 trips between 28 stops located throughout the Orlando area. The program is anticipated to grow to 600 total bikes at 60 different stations throughout the city.

- **Improved City Fleet Vehicles to Alternative Fuels**
  The city maintains a fleet of approximately 2,389 vehicles (rolling stock) and pieces of motorized equipment. Since 2013, the city has worked to increase the percentage of fleet vehicles with some form of alternative fuel, including an all-electric city motor pool at City Hall and electric motorcycles for the Orlando Police Department. In addition, while making trips to the landfills or biogas incinerators is still the necessary reality at this time, the city took a step toward minimizing the environmental impacts associated with the waste disposal fleet by converting more than 30 trucks to Compressed Natural Gas (CNG) and hydraulic hybrid vehicles. As part of the Energy Secure Cities Coalition (ESCC), the City of Orlando has made a commitment to transition 100% of city fleet vehicles to alternative fuels by 2030.

NEW STRATEGIES

The following strategies were prioritized by the community as the next steps to achieve our transportation goals:

- **Develop Smart App Technology to Improve Ridership on Transit and Alternative Mobility Options**
  The integration of smart technology into public transportation services would not only help improve the reliability of the services, but also create a better user experience for riders. For instance, having real-time information, via a smart phone application, as well as onboard and at station platforms, would be helpful for transit riders to plan their trips more efficiently. A single mobile ticketing payment platform would allow for improved coordination of trips that involve riding on both LYNX and SunRail. Installing smart traffic lights to prioritize public transportation services (through coordination of bus and train schedules) may also entice people to use alternative transportation options rather than driving. However, when driving is inevitable, smart traffic lights and parking notification applications could help reduce traffic congestion and time circling blocks for parking spots. All of these innovative smart technology solutions will move people and goods more efficiently through various transportation channels and therefore help reduce traffic congestion and associated air pollution.

- **Develop a Car Sharing Program Targeted to Low-Income Communities**
  For low-income neighborhoods where public transit services are currently lacking, the city should implement a car sharing program to temporarily boost mobility options until public transit infrastructure is expanded to provide the level of service needed in these areas. To encourage the use of this program, the city should also consider providing subsidized rates for the program's membership options to ensure affordability for all users. This type of car sharing program will enable better access to economic opportunities without placing the burden of car ownership (such as maintenance costs, insurance, etc.) on those who many not have the financial means to afford it. Additionally, to lower GHG emissions and improve air quality, the city should also offer incentives to the car sharing company to prioritize infrastructure for eco-friendly and/or electric vehicle fleets.

- **Expand Drive Electric Orlando Program with 100 New Public EV Charging Stations**
  The expansion of electric vehicle (EV) charging infrastructure should be distributed evenly at the most popular locations and destinations in the city to ensure maximum usage of these stations. Strategic installation of EV charging stations will be critical, especially to maintain a momentum for EV adoption. The City of Orlando could create a partnership with major employers located in the city to allow for and encourage the installation of EV charging stations throughout the city and prioritize for EVs in employer parking lots or garages. This strategy will require partnerships and funding to support the expansion of EV infrastructure.

- **Deploy Electric Bus/Shuttle Technology on the LYMMO Via the Autonomous Vehicle Mobility Initiative (AVMI)**
  The City of Orlando is one of ten communities designated as Automated Vehicle Proving Grounds by the US Department of Transportation (USDOT) to encourage testing and information sharing of automated vehicle technologies. According to USDOT, the proving grounds are intended to "foster innovations that can safely transform personal and commercial mobility, expand capacity, and open new doors to disadvantaged people and communities." The city and LYNX are currently evaluating the use of electric driverless buses on the LYMMO Bus Rapid Transit (BRT) route in downtown. Future deployment of this service will demonstrate that Orlando is a leader in this field, while reducing fossil fuel emissions associated with a traditional diesel-powered bus. Use of solar-powered electric buses should also be evaluated.

- **Prioritize Funding for Healthy Transportation Options (Sidewalks, Urban Trails, Bicycle Lanes, Bike Infrastructure and Public Transit Service) Over Improvements for Vehicles**
  Encouraging alternative transportation choices other than driving will help reduce environmental impacts and also improve public health and safety. It will also strengthen Orlando's goal to enhance livability and connections among villages, established neighborhoods and popular destinations. Therefore, the city should prioritize funding for projects that support healthy, alternative transportation options over improvement projects for vehicles, primarily in low-income communities and neighborhoods lacking public transit. Examples of these preferred projects include more sidewalks and walking trails, separated bike lanes and bike storage facilities, expanded public transit services and any other projects with an emphasis on encouraging and allowing for convenient traveling from one destination to another without driving a private automobile.

- **Develop and Implement Vision Zero Plan**
  Vision Zero is a strategy to eliminate all traffic fatalities and severe injuries, while increasing safe, healthy, equitable mobility for all, whether in the streets, on sidewalks or on bikeways. First implemented in Sweden in the 1990s, Vision Zero has proven successful across Europe — and is now gaining momentum in major American cities including Boston, Chicago, San Francisco and Denver. In late 2017, Orlando joined these major American cities in the Vision Zero initiative. For effective implementation of the Vision Zero Action Plan, the city's Transportation Department will collaborate with external transportation agencies (Florida Department of Transportation, MetroPlan Orlando, Federal Highway Administration, LYNX) as well as major employers and community groups to provide input on challenges and opportunities and identify additional resources and needs to ensure social inclusivity and equitable outcomes. The Vision Zero Action Plan should include clear strategies, targets, measurable benchmarks and reliable performance data.

- **Expand Bike Share and Scooter Share**
  Bicycle and scooter sharing programs (such as those currently offered in Nashville and Dallas) offer inexpensive, easy and efficient alternatives to driving, particularly in dense urban environments. By using these modes of transportation, riders reduce congestion on our overburdened transportation network as well as the associated carbon monoxide and other ozone-depleting emissions. Over the next three years, the city will work to expand dockless bike share stations and explore other alternative vehicles.

BEST PRACTICE/CASE STUDY

- **Piloting Electric Car-Sharing Program in Disadvantaged Communities in Los Angeles**
  In a public-private partnership, the City of Los Angeles expanded BlueLA, the citywide electric car sharing program, to disadvantaged communities in coordinated efforts to improve environmental conditions and economic prospect in these areas. By introducing electric car sharing fleets in disadvantaged communities, the city hopes to reduce CO_2 emissions, while addressing pollution and transit injustice in historically underserved communities. Low-income members of the program may receive up to an 80% discount (off the $10 monthly membership fee), that will help ease the financial burden while offering them more access and mobility to resources around the city such as to schools and jobs. The BlueLA project is supported by $1.67 million in grant funds from the California Air Resources Board and $1.82 million in EV infrastructure rebates, fee waivers and in-kind support from the city. Bolloré Group, the car sharing program operator, will initially invest at least $10 million in the program's fleet and charging stations. The project is part of Los Angeles' Sustainable City Plan and will help the city achieve its aims of having 25% of all vehicles on the road be emissions free by 2035 and reducing greenhouse gas emissions by 45% below 1990 baseline levels by 2025.

Water

OVERVIEW OF GOALS, OBJECTIVES, TARGETS

The City of Orlando is home to more than 100 lakes and 10% of the city's area is made up of water. Many of Orlando's lakes are publicly-accessible and provide recreational opportunities for fishing, boating and swimming. While Orlando has been a leader in successfully managing water resources, the projected increases in extreme heat, drought and extreme storm events still pose major long-term concerns to the overall water supply and water quality.

2040 GOALS

- Enhance Orlando's reputation as "The City Beautiful" by promoting sustainable landscaping practices.
- Reduce gross potable water consumption per capita by 20%.
- Increase number of lakes meeting good water quality standard (Trophic State Index less than 61).
- Expand education and outreach efforts to increase understanding of how to manage water resources and pollution prevention.
- Ensure Orlando mitigates inland flooding during future extreme weather events.

SUSTAINABLE DEVELOPMENT GOALS ADDRESSED:
3 - Good Health and Well-Being
6 - Clean Water and Sanitation
11 - Sustainable Cities and Communities
12 - Responsible Consumption and Production
13 - Climate Action
14 - Life Below Water
17 - Partnerships for the Goals

PROGRESS HIGHLIGHTS

- Since the launch of Green Works Orlando, the city has made considerable progress in water conservation and pollution prevention. In 2017, the average Orlando resident used approximately 83 gallons of water per day, a decrease from the baseline of 92 gallons per day in 2012. To reduce disposable water bottle waste, the city and OUC have installed 25 hydration stations that provide purified water to refill reusable bottles and are located throughout the city, typically near public parks.

- Based on the 2016 Annual Water Quality Report, 83 out of 95 city lakes met the Good Water Quality standard (based on the Trophic State Index). This finding presents a positive increase over the 78 lakes meeting Good Water Quality standards in 2012.

- Educational outreach efforts for water conservation and pollution prevention continue to be a major emphasis of the city. Each year, thousands of individuals receive education regarding water reclamation, conservation and prevention of sanitary sewer overflows, either in the Conserv II Water Reclamation Education Center, within a classroom setting, or at external festivals and fairs in Central Florida. To reduce water pollution, the city created a "Grease Fighter" used cooking oil recycling outreach program, featuring more than 30 drop-off locations citywide. Since 2010, 6,779 gallons of used cooking oil have been recycled into biodiesel, which may have otherwise been washed down the drain. This program has also become a Girl Scouts of America Citrus Council activity, complete with a Water Badge.

NEW STRATEGIES

The following strategies were prioritized by the community as the next steps to achieve our water goals:

- **Build a Stormwater Management Demonstration Project at a City Park**
  The majority of the urban landscape is made up of impervious surfaces, which, rather than allowing stormwater to percolate into the ground, results in runoff that has collected pollutants and is deposited, unfiltered, into a local water body. Green infrastructure utilizes vegetation, soils and landscaping to reintroduce a pervious surface to help absorb and filter pollutants, therefore discharging cleaner water into nearby water bodies. The city should consider building a pilot low-impact stormwater infrastructure demonstration project at a city park to highlight the potential environmental and social benefits as well as the cost savings of the project.

- **Adopt an Ordinance Restricting the Use of Fertilizers, Herbicides and Pesticides**
  Fertilizers, pesticides and herbicides continue to be a major contributor to water pollution and eutrophication, or algal blooms, throughout the city. When improperly used, these pollutants are collected by stormwater runoff and are deposited into local lakes, rivers, wetlands and potentially underground sources of drinking water. Orange County recently adopted a Fertilizer Ordinance that regulates the proper use and application of fertilizer, training requirements and restricted application periods. Proof of training is required by both commercial applicators and homeowners. Retail businesses that sell fertilizer must display point-of-sale signage regarding the ordinance. While the city's current code is covers fertilizers, it is not as strong as Orange County's ordinance. The city should also evaluate means of banning the sale and use of certain fertilizers and pesticides identified as particularly harmful from stores and farms within city limits.

- **Launch Environmental Education Centers at Conserv II and Orlando Wetlands Park**
  The city should establish environmental education centers to encourage personal behaviors that will mitigate the damage to our most important and delicate resource and provide benefits for both our current and future Orlando community. These education centers can help inform residents about the water crisis spreading across both the country and the world, as well as highlight the precious natural resources around the Orlando area. The city will explore hands-on volunteer opportunities, ideas for communities to become more "water smart" and on-going citizen training for those who wish to participate in the conservation efforts. These centers can also serve as resources for schools and

community centers who want to integrate their traditional academic curriculum or their community norms with "real-world" environment-based experiences to stimulate the students' or community members' learning skills while making a tangible connection with the natural world around them.

- **Establish a Residential Rain Barrel Program**
  In prior years, the city offered rain barrels to residents to capture rainwater from gutters, but lack of funding ended the temporary programs. Rainfall captured in rain barrels can be saved and used for irrigation of lawns and gardens during dry periods, reducing the demand on potable water supplies. Rain barrels can also reduce erosion, pollution and the chance of flooding by reducing the total amount of stormwater runoff across the community, protecting Orlando's lakes and water bodies. The city will partner with the local UF/IFAS Extension office to provide education around rain barrel use. The city should continue to look for partnerships to create opportunities for free rain barrel giveaways to residents.

- **Amend the Land Development Code to Require Smart Irrigation Technologies for Both New Residential and Commercial Construction**
  The land development code should be amended to include a requirement for the installation of smart irrigation devices in new residential and commercial construction. This will allow the homeowner or property owner to monitor use of irrigation in real time, which is useful for conserving water, as well as identifying leaks or other usage issues. Finally, smart irrigation systems are more water efficient because they have additional sensors (such as soil moisture) and access microclimate data to determine the appropriate amount of water to utilize.

- **Provide Water Conservation Outreach and Initiatives in Communities With Older Plumbing and Infrastructure or Well Water**
  The serious health-related repercussions that can result from polluted or tainted potable water was made especially clear during the water crisis that was observed in the City of Flint, Michigan. Going forward, this has served as a lesson that, as we make strides toward environmental sustainability, we must also increase efforts to monitor water quality and avoid errors in monitoring efforts. In attempting to avoid a catastrophe similar to the one in Flint, Orlando will explore ways to implement programs and initiatives to provide water tests to find contaminants in our waters.

BEST PRACTICE/CASE STUDY

- **Building Neighborhood Resiliency in New Orleans**
  Through HUD's National Disaster Resiliency Competition (NDRC), the City of New Orleans was awarded $141 million to implement the Gentilly Resilience District Project, the city's first comprehensive planning efforts with resiliency measures incorporated to reduce flood risk, slow land subsidence and encourage Gentilly neighborhood revitalization. The Gentilly Resiliency District Project is a combination of various projects designed to reduce risk and slow land subsidence through infrastructure improvements, as well as revitalize the neighborhoods through the integration of recreational enhancement design elements to improve community health and safety. Some highlighted projects in the works include incorporating new standards for stormwater infrastructure; building permeable sidewalks, swales, and rain retention gardens; retrofitting existing woodlands; and expanding parks and open spaces for community recreation activities. Another key element of the project is that it helps strengthen the local workforce development, through providing training and creating job opportunities for local residents to participate in these improvements projects.

- **Mars Hill Stormwater Demonstration Project**
  This project was constructed at the Town Hall of Mars Hill in western North Carolina in an effort to reduce stormwater volume and improve stormwater quality leaving the site and restore water quality in the Ivy River watershed. It was also created as a demonstration project to educate and inspire the local community on the importance of stormwater management and low-impact design (LID) solutions. The demonstration project includes a number of LID solutions, including green roofs, bioretention basins ("rain gardens"), permeable pavement and vegetated swales. Interpretive signage and an interactive trail map are provided to educate the community.

ACKNOWLEDGMENTS

GLOSSARY

Bike share programs allows people to rent a bicycle from racks placed throughout the city, ride short distances to their destination and return the bicycle to other racks. Examples include Deco Bike in West Palm Beach and Capital Bike Share in Washington DC.

Car share programs allows people to rent a car for short term (hourly) use from designated parking spots located throughout the city. Examples include Zipcar in Miami and many other cities,and I-GO carsharing in Chicago, where one membership card works for carshare, bus and train trips.

Clean, renewable energy sources include wind, solar, biogas, biomass, geothermal, low-impact hydroelectric, waves or tidal.

Community garden is a piece of land gardened collectively by members of a neighborhood or other geographic community, typically with plots "rented" or assigned to individuals and families to grow food for their personal use.

Community Supported Agriculture (CSA) is provided by a network of local farmers to consumers. Each consumer pays for a subscription to the CSA,and receives a box of produce or other agricultural products on a regular basis. Local examples include Sundew Gardens, Crispy Farms, and Shaolin Gardens.

Complete Streets connect people with places in a safe and comfortable environment. They also accommodate people of various ages, abilities and modes of travel.

EcoDistrict is a systematic approach to implement sustainability at the neighborhood level. EcoDistricts combine community planning, sustainability and infrastructure investments to achieve economically and environmentally vibrant districts.

Enhanced transit includes bus rapid transit (BRT), rail (including SunRail) or buses with headways that are 10 minutes or less.

Food distributors are counted in the city's baseline indicators and include businesses classified as "confectionery merchant wholesalers," "dairy product except dried or canned merchant wholesalers," "fish and seafood merchant wholesalers," "fresh fruit and vegetable merchant wholesalers," "general line grocery merchant wholesalers," "meat & meat product merchant wholesalers," "other grocery and related products merchant wholesalers," "packaged frozen food merchant wholesalers" and "poultry and poultry product merchant wholesalers."

Food hub is an organization that creates a distribution network from local food providers to local restaurants, food stores and consumers. This can be done through on-site collection, storage, distribution and sales of products or through marketing and facilitation. Some food hubs are consumer-oriented, while others focus mainly on wholesale trade.

Food processors are counted in the city's baseline indicators and include businesses classified as "miscellaneous food manufacturing," "coffee and tea manufacturing," "commercial bakeries," "fluid milk manufacturing," "frozen fruit juice & vegetable manufacturing," "frozen specialty food manufacturing," "other snack food manufacturing" and "retail bakeries."

Food sources are counted in the city's baseline indicators and include businesses classified as a "fish & seafood market," "fruit and vegetable market," "meat market" or "supermarket/other grocery (excludes convenience) store." Liquor stores convenience stores, candy stores, or specialty stores like a coffee shop are not included.

Feebate is a program that collects fees from development projects that are built to conventional standards. Those that meet green building standards will not be assessed a fee. Those that exceed a certain green building threshold may receive a rebate from the program to offset the additional costs they may have incurred to meet the threshold.

Green building standards are established by various organizations to improve the environmental sustainability of buildings and the sites they are located on by establishing standards for water use, indoor air quality, energy use, re-use and reduction in materials, site planning and other characteristics. Examples include Leadership in Energy and Environmental Design (LEED), administered by the US Green Building Council; Energy Star, offered by the US Environmental Protection Agency and Green Globes, operated by the Green Buildings Initiative.

Green business programs are designed to recognize and promote businesses that follow a set of best practices for energy efficiency, water use, or other environmental initiatives. A local example is Orlando's Think Blue program, which promotes businesses that prevent water pollution in industries such as lawn care, restaurants, vehicle maintenance or pet grooming.

Green jobs are generated by businesses in the fields of public transit, waste management, environmental services, energy saving building materials, conservation, regulation and compliance and renewable energy research and production. Cleantech jobs are also included in this definition.

Greenfields is a term given to undeveloped areas that are typically farms, grasslands, wetlands or forests.

Greenhouse gas emissions are caused by the burning of fossil fuel for electricity and transportation, as well as from agricultural activities. The four main greenhouse gases are carbon dioxide, methane, nitrous oxide and fluorinated gases. When released into the atmosphere, greenhouse gases build up over time and contribute to global warming.

Lake water quality is measured by the city using the Trophic State Index. The maximum value is 100, and any value over 61 is considered "good." The TSI measures the amount of nitrogen, phosphorous and other nutrients. A low TSI indicates that high concentrations of nutrients are present, which generates growth of algae and aquatic plants that can impair the lake's clarity and reduce oxygen levels. A high TSI indicates clear water that has oxygen levels high enough to support fish species.

Orlando Utilities Commission (OUC) is the city's municipal utility operator and partner in sustainability programs. OUC provides water and electricity services to most city residents and businesses. Its territory also extends outside city limits. Small portions of the city are not in OUC's service area for water and/or electricity.

Property Assessed Clean Energy Financing (PACE) is a program that allows companies and/or residents to obtain a loan to pay for energy improvements. The loan is paid back through a special assessment on the property tax bill that remains in place even if the property is sold to a new owner.

Recyclable materials are determined by the agency collecting the material. Orlando's curbside pickup for residential includes most types of plastic containers, paper, cardboard, aluminum cans and glass. Other items such as computers, plastic bags, Styrofoam or mattresses may be collected by specialized recyclers.

Road diet is a term for reducing the number of vehicle travel lanes on a road. Typically, the additional space is used for improvements to other modes, such as adding bicycle lanes, increasing sidewalk and parkway width or adding transit lanes.

Smart Grid is an electrical grid that uses digital technology to gather information about demand, network capabilities and supply sources. The smart grid can improve reliability by detecting faults and deploying fixes. It allows for new sources to provide energy by offering two-way information from small suppliers (such as solar) to feed into the network. The smart grid also provides real time demand information that allows a utility to create a dynamic pricing system to reduce peak demand, which is typically the most expensive electricity to produce.

Solar photovoltaic panels convert sunlight into electricity that can be used, stored in batteries or distributed back into the electric grid.

A **complete village** has a mix of land uses, enhanced transit, complete streets and a built form that addresses the street. Residential density supports transit and includes mixed-use and multifamily residential units in addition to single family.

Walkable community score was developed by the website walkscore.com. A score out of 100 is determined based on a formula that accounts for the distance to various types of amenities, such as schools, shops and restaurants. A score of 100 is a walker's paradise. Scores less than 50 are largely car-dependent neighborhoods.

SUSTAINABLE DEVELOPMENT GOAL ALIGNMENT

The table below demonstrates a preliminary assessment done by the city regarding the level of alignment of the SDGs with Green Works Orlando efforts based on goals and strategies identified and implemented to date. This exercise has helped the city to better understand existing gaps and potential opportunities to further advance the SDGs.

UN Sustainable Development Goal	Level of Alignment with Orlando Green Works Orlando Efforts (based on goals and strategies implemented to date)	Green Works Goals and Targets (2040) that are Relevant	Green Works Orlando Initiatives Relevant (based on 2017 progress updates and new strategies identified)
1 NO POVERTY	While there are no explicit goals, policies, or initiatives related to this SDG, each of the identified Green Works Orlando goals, strategies and initiatives established and/or implemented with a focus on affordability will contribute directly and indirectly, to reducing poverty issues in Orlando.	• Increase green job count by 35,000	• Implement several food initiatives that have addressed aspects of poverty • Establish green building standards for affordable housing • Implement Clean Energy for Low-Income Communities Accelerator (CELCA) plan • Launched workforce development and job training for the green economy
2 ZERO HUNGER	While there is only one Green Works Orlando goal identified, extensive initiatives have been established and/or implemented to ensure access for all people to healthy and nutritious food and to promote sustainable food production systems and practices.	• Increase local food assets 10x. • Ensure access to healthy food within 1/2 mile of every resident.	• Created "Good Food CFL" Food Policy Council • Established 700 community garden plots in the city (up from 159 in 2012), and 149 grocery stores within city limits (up from 83 in 2012). • Passed the Urban Chicken Policy • Supported 5 farmers markets within city limits • Piloted an urban garden program on public land with Growing Orlando • Implemented the West Orlando Food Project in 2017 • Establish urban agriculture ordinance • Implement "green carts" program to sell fresh produce at transit/bus stops and in underserved neighborhoods • Expanded community gardens – targeting low/moderate income communities
3 GOOD HEALTH AND WELL-BEING	Several goals and initiatives have been established that contribute to healthy lives and promote well being for all ages. In addition, an entire focus area of the Green Works Orlando program is Livability.	• Ensure 95% of residents within 1/2 mile of a park or open space • Reduce obesity and diabetes rates. • Increase tree canopy to 40%. • Ensure access to healthy food within 1/2 mile of every resident • Increase miles of safe, sustainable transportation infrastructure (bike lanes/paths, transit lines, sidewalks). • Eliminate pedestrian and bike fatalities • Attain a "good" rating on the AQI	• Expanded more than 25 miles of sidewalks • Built new multi-use urban trails (Bumby and Westmoreland) and Colonial Pedestrian Bridge • Implemented food-related programs described above • Implemented urban heat island reduction through urban tree canopy, green space and cool roofs/pavement • Expand bicycle connectivity and infrastructure throughout Orlando neighborhoods • Establish and implement Vision Zero plan

SDG	Description	Goals	Actions
4 QUALITY EDUCATION	While there are no explicit goals or policies directly tied to this SDG, education has been an underlying component of the Green Works Orlando initiative and numerous strategies include educational outreach efforts.	The city will take significant strides to engage the entire Orlando community in the implementation of the Community Action Plan through a comprehensive three step process: marketing, training, celebrating.	• Launch Environmental Education Centers • Launch workforce development and job training for the green economy
5 GENDER EQUALITY	While there are no explicit goals, policies or initiatives related to this SDG, equity is one of the three key overarching themes for the 2018 Community Action Plan Update. Some of the Green Works Orlando goals and strategies will provide direct and/or indirect benefits that promote greater gender equality.		
6 CLEAN WATER AND SANITATION	Some goals and initiatives have been established related to this SDG	• 20% potable water reduction • Increase number of lakes meeting good water quality standards • Ensure Orlando has sufficient storage for water during extreme events	• Decreased residential water use per capita from 92 gallons per day in 2012 to 83 gallons per day in 2017 • Establish green affordable housing standards (inclusive of water conservation) • Build a demonstration green stormwater management infrastructure project • Adopt an ordinance restricting use of fertilizers, herbicides and pesticides • Establish rain barrel and storm water management program
7 AFFORDABLE AND CLEAN ENERGY	Some goals and initiatives have been established related to this SDG	• Obtain 50% of electricity from renewables • Increase the uses of EVs and CNG vehicles • Reduce the dependence of the local economy on energy	• Established a Solar Energy Loan Program • Became a "Solar America City" and received "SolSmart" designation. • Built a 13MW Community Solar Farm in Fall 2017 • Research, demonstrate, and deploy electric and autonomous bus/shuttle technology on Lymmo • Develop a 100% renewable energy study with OUC and UCF • Devise a Clean Energy for Low-Income Communities Accelerator (CELCA) plan • Implement solar plus storage demonstration on critical infrastructure for grid resilience
8 DECENT WORK AND ECONOMIC GROWTH	The 2013 Green Works Orlando Community Action Plan included an entire Green Economy focus area with an emphasis on economic growth and green job development. This focus area's goals and intent have been integrated throughout all areas of the Green Works Orlando Community Action Plan update.	• Increase green job count by 35,000	• Launch workforce development and job training for the green economy

SDG	Status	Goals/Targets	Actions
9 INDUSTRY INNOVATION AND INFRASTRUCTURE	Extensive goals and initiatives have been established related to this SDG. Becoming a Smart City is also a key overarching theme for the 2018 Community Action Plan Update. Orlando has also been selected by the US Department of Transportation as 1 of 10 proving ground destinations for new vehicle technologies (electric, autonomous, connected vehicles).	• Encourage residents to make the majority of their trips by foot, bike, car-pool, or transit • 100% of buildings meet green building standards • Increase street miles meeting Complete Street standards • Increase the uses of EVs and CNG vehicles	• Passed a historic Building Benchmarking, Energy Audits & Transparency (BEWES) policy. • Implemented more than 350 public electric vehicle charging stations in 2016 (up from 33 stations in 2012) • Expanded Downtown LYMMO BRT service for Grapefruit and Lime lines • Added more than 6,000 Juice Bike Share members in 2016; also piloting LYMMO Electric Bus • Expanded SunRail • Implemented more than 30 CNG and hydraulic hybrid solid waste trucks • Implement a smart microgrid demonstration project • Implement solar plus storage demonstration on critical infrastructure • Develop, adopt standards and pilot a Green Works Orlando eco-district • Amend development code to require smart irrigation technologies • Implement smart tech to improve multi-modal transportation options • Add 100 public EV charging infrastructures • Implement autonomous bus/shuttle technology on the Lymmo (AVMI)
10 REDUCED INEQUALITIES	While there are no explicit goals, policies or initiatives related to this SDG, equality is one of the three key overarching themes for the 2018 Community Action Plan Update. All Green Works Orlando goals and strategies will provide direct and/or indirect components to promote greater social, economic and environmental equality opportunities within Orlando.		• Establish green affordable housing standards • Launch workforce development and job training program for the green economy • Develop "green carts" program to sell fresh produce at transit/bus stops and in underserved neighborhoods • Expand community gardens targeting low/moderate income communities • Develop a tiny home or other permanent supportive housing community for homeless veterans and/or climate refugees • Develop low-cost car share program targeted to low-income communities
11 SUSTAINABLE CITIES AND COMMUNITIES	All Green Works Orlando goals/targets contribute to sustainable cities and communities.		
12 RESPONSIBLE CONSUMPTION AND PRODUCTION	Extensive goals and strategies have been established related to this SDG. The city has also been recognized as most energy improved city in 2017 and ranked 20th for energy efficiency policy and programs. The city has also saved more than $2M in annual energy savings since 2010.	• 20% reduction in energy use • No waste to landfills or incinerators • Reduce the dependence of the local economy on energy • Increase local food assets	• Offering SELF + PACE energy financing solutions with more than $500M in capital available • Implemented several programs to address food waste including: free backyard composters for residents, with more than 5,000 distributed to date; Commercial Food Waste Collection service that has diverted nearly 2 million pounds of food waste to date (since 2014) • Expanded recycling in Downtown Orlando through installation of Big Belly Solar Trash Compactors • Develop the Beyond 34 comprehensive waste management plan

SDG	Summary	Goals / Initiatives
13 CLIMATE ACTION	Many Green Works Orlando goals and strategies have climate change mitigation (GHG reduction) as an intent. In addition, resiliency is a key overarching theme for the Community Action Plan Update.	• Establish a "feebate" or tax abatement policy for new construction to meet high-performance standards • Develop 100% Renewable Energy study with OUC and UCF • Devise a Clean Energy for Low-Income Communities Accelerator (CELCA) plan • Establish a carbon-offset for visitors to Orlando • Implement a smart microgrid demonstration project with OUC • Implement solar plus storage demonstration on critical infrastructure for grid resilience • Establish green affordable housing standards • Reduce urban heat island • Implement smart tech to improve multi-modal options • Expand bicycle connectivity and infrastructure throughout Orlando neighborhoods • Develop the Beyond 34 comprehensive waste management plan
	• Reduce GHG 90% • Ensure 100% of new and existing buildings meet green building standards. • Obtain 50% of electricity from renewables • Reduce the dependency of the local economy on energy • No waste to landfills or incinerators • Increase the use of electric vehicles/alternative fuel vehicles throughout the city • Increase to majority of trips by foot, bike, carpooling, transit	
14 LIFE BELOW WATER	Some goals and initiatives have been identified and established related to this SDG • 100% of Orlando lakes meet good water quality standards • Enhance Orlando's reputation as "The City Beautiful" by promoting sustainable landscaping practices	• 83 out of 95 city lakes meet the Good Water Quality standards (up from 78 lakes in 2012) • Adopt an ordinance restricting the use of fertilizers, herbicides and pesticides
15 LIFE ON LAND	Some goals and initiatives have been identified and established related to this SDG • 40% tree canopy coverage • Enhance Orlando's reputation as "The City Beautiful" by promoting sustainable landscaping practices	• Implemented the Energy Saving Trees program which has led to the planting of more than 6,000 trees since November 2015. • Adopt an ordinance restricting the use of fertilizers, herbicides and pesticides • Joined the Mayor's Monarch Pledge and NWF Wildlife Certification
16 PEACE, JUSTICE AND STRONG INSTITUTIONS	No explicit goals, policies, or initiatives related to this SDG. No explicit goals, policies or initiatives related to this SDG. The city partners with a number of community organizations to inform the various strategies outlined in this plan and ensure an inclusive, equitable and environmentally just approach.	
17 PARTNERSHIPS FOR THE GOALS	No explicit goals, policies, or initiatives related to this SDG. Nothing explicit, but could be argued that Orlando's effort to align the Green Works Orlando Community Action Plan with the UN SDGs is in and of itself an important contribution to "strengthening the means of implementation...for sustainable development". Cities are critical partners in reaching global goals.	

FOCUS AREA GOALS AND BASELINES

Focus Area	2040 Goals	Indicators	2012 Baseline	2018 Data	Sources
Clean Energy	Obtain 100% of electricity from clean, renewable sources city wide (2050).	CE.1 Greenhouse gas emissions measured (Scope 1 and 2, in tonnes)	7,408,100 metric tons	7,384,473 metric tons	GPC-compliant GHG inventory, using BASIC reporting, generated using CIRIS (City Inventory Reporting and Information System) tool.
	Reduce greenhouse gas emissions by 90% from 2007 levels.	CE.2 The percentage of total energy derived from renewable sources for city operations	0	10	City data 2018
		CE.3 The percentage of total energy derived from renewable sources of the city's total energy consumption	0.8	0.8	OUC 2017 annual report
		CE.4 Total residential electrical energy use per capita (kWh/year)	11,192	11,999	OUC 2011, 2017 annual report
		CE.5 Fine particulate matter (PM2.5) concentration	N/A	18 ug/m3	gispub.epa.gov/air/trendsreport/2018
		CE.6 Particulate matter (PM10) concentration	N/A	59 ug/m3	gispub.epa.gov/air/trendsreport/2018
		CE.7 NO_2 (nitrogen dioxide) concentration	N/A	30 ppb	gispub.epa.gov/air/trendsreport/2018
		CE.8 SO_2 (sulphur dioxide) concentration	N/A	5 ppb	gispub.epa.gov/air/trendsreport/2018
		CE.9 O_3 (Ozone) concentration	N/A	68 ppb	gispub.epa.gov/air/trendsreport/2018
Green Buildings	Ensure 100% of new and existing buildings meet green building standards.	GB.1 Percentage of city population with authorized electrical service	100	100	OUC 2016 annual report
	Reduce total electricity consumption by 20% from 2010 levels.	GB.2 Total energy consumption of municipal buildings per year (kWh/yr)	224,200,102 kWh	112,944,214 kWh	Municipal Operations Sustainability Plan Progress Report
		GB.3 Total citywide electrical energy use per capita (kWh/year)	29,551	27,864	OUC 2011, 2017 annual report
		GB.4 Total residential electrical energy use per capita (kWh/year)	11,192	11,999	OUC 2011, 2017 annual report
		GB.5 Electricity consumption per household per day	33.4	32.4	OUC 2016 annual report
		GB.6 Number of Buildings meeting green building standards	107	232	City Inventory, Energy Star, USGBC

Category	Goal	Indicator			Source
Local Food	Ensure access to affordable, healthy food options (community gardens, grocery stores or farmers markets) within ½ mile of every resident. Increase local food assets (local food hubs, food production or distribution facilities, household gardens, community garden plots) by at least a factor of ten.	LF.1 Number of Community garden plots	300	704	City Data 2018
		LF.2 Acreage of Food-producing land in Orange County	132,480	142,000	East Central Florida Regional Planning Council GIS Data. Includes Citrus Land, Other Crops and Other Animals (excludes pasture land)
		LF.3 Number of Food hubs within city limits	1	4	City Data 2018
		LF.4 Number of Distributors and processing plants in city limit	71	55	ECRPC Orange County Food Production Strategic Plan
		LF.5 Number of Farmer's markets within city limits	7	6	City data 2018
		LF.6 Number of Grocery stores within city limits	83	149	ECFRPC from InfoGroup/Reference USA as of 6/30/2017
		LF.7 Percentage of Residents within 1/2 mile of a grocery store, fruit and vegetable market, meat market, seafood market or farmer's market	52%	53.51%	ECFRPC from InfoGroup/Reference USA as of 6/30/2017, compared with TAZ data and City GIS
Solid Waste	Zero Waste. Eliminate waste going to landfills.	SW.1 Percentage of the city's solid waste that is recycled	27%	31.52%	City data 2017 – This is single family residential only, and includes all yard waste
		SW.2 Solid waste collected per capita per year	438 lbs	990 lbs	Updated methodology from the original plan to more accurately account.
		SW.3 Percentage of residential customers eligible for curbside recycling collection who participate	Unknown	Unknown	City data 2018
		SW.4 Pounds of commercial food waste collected	0	2,250,000	City data 2018
		SW.5 Number of residential households participating in backyard composting program	0	6,500	City data 2018
		SW.6 Tons of yard waste collected per year	13,671	13,620	City data 2013, City data 2018
Livability	Develop and enhance 25 quality walkable villages inside the city. Ensure that 95% of residential addresses are located within ½ mile of a park or open space. Increase tree canopy to 40%. Reduce obesity and diabetes rates.	LV.1 Acreage of park land per 1,000 residents	7.43	6.875	City data – Indicators Report (GMP) January 2017
		LV.2 Percentage of tree canopy coverage	23%	32%	City data 2018. Change in methodology to more accurately capture tree canopy in residential and commercial areas. Canopy assessment using iTree.
		LV.3 Acreage of conservation land	11,408 acres	12,687 acres	City data – Indicators Report (GMP) January 2017
		LV.4 Percentage of conservation land	16	16.7	City data – Indicators Report (GMP) January 2017
		LV.5 Number of street trees per linear mile of road	88	68	City data – Parks from Tree Keeper
		LV.6 Percentage of obesity vs. city population	27.8%	25%	FL Health Dept., Orange County 2013
		LV.7 Percentage of diabetes vs. city population	9.9	10.3	FL Health Dept., Orange County 2013
		LV.8 Number of completed villages	1	2	City data 2018

Category	Goal / Objective	Metric	Value	Value	Source
			Bronze	Bronze	
Transportation	Ensure the majority of trips are made by foot, bike, carpooling or transit.	T.1 Bicycle Friendly Community Score	Bronze	Bronze	City data 2018
		T.2 Percentage of Residents in neighborhoods with a Walkable Community Score of 60 or more	19.1%	14.1%	walkscore.com
	Achieve a Gold ranking for the League of American Bicyclists Bicycle Friendly Community Score.	T.3 Percentage of residents that live within 1/2 mile of park space	82%	91%	City data 2018
	Increase miles of safe, sustainable transportation infrastructure.	T.4 Number of publicly available electric vehicle charging stations	33	350	http://pluginperks.com/find-a-charging-station/
		T.5 Miles of On-street bike lanes	184.42 miles	319 miles	City data 2018
		T.6 Miles of Off-street bike trails	16.52 miles	42 miles	City data 2018
	Double street miles within the city that meet complete streets criteria.	T.7 Miles of sidewalks	946 miles	1,100 miles	City data 2018
	Eliminate pedestrian and bike fatalities.	T.8 Transportation fatalities per 100,000 population	12.55	12.67	Orange County figures from Florida's Integrated Report Exchange System (FIRES) from 2012 & 2016; U.S.
	Increase the use of electric vehicles/ alternative fuel vehicles throughout the city	T.9 Number of electric vehicles (EV) in city fleet (2,100 vehicles)	1	79	City Municipal Sustainability Plan 2017
		T.10 Percentage of vehicles in city fleet (2,100 vehicles) using alternative fuels	0%	13%	City Municipal Sustainability Plan 2017
	Attain a "good" rating on the Air Quality Index (AQI) 365 days/year.	T.11 Transit ridership per month	2,335,265 passenger trips	2,167,610 passenger trips	LYNX Facts at a Glance, 2017
		T.12 Pedestrian and bike casualties	168 pedestrian crashes, 5 pedestrian fatalities, 55 cyclist crashes	442 pedestrian crashes, 41 pedestrian fatalities, 314 cyclist crashes	Florida Department of Highway Safety and Motor Vehicles
		T.13 Bike or car share program members	0	6,000	Juice Bike Share, 2016
Water	Enhance Orlando's reputation as "The City Beautiful" by promoting sustainable landscaping practices	W.1 Percentage of city population with potable water supply service	100%	100%	Assumption
		W.2 Total domestic water consumption per capita (gallons/day)	92 gallons	83 gallons	OUC
	Reduce gross potable water consumption per capita by 20%	W.3 Total water consumption per capita (gallons/day)	166 gallons	175 gallons	OUC
		W.4 Percentage of the city's wastewater receiving tertiary treatment	99%	99.26%	City data 2018
	Increase number of lakes meeting good water quality standard (Trophic State Index less than 61)	W.5 Ranking on FEMA's Community Rating System	6 of 10	6 of 10	FEMA data
		W.6 Lakes with Good Water Quality (Trophic State Index less than 61)	78	79	City data 2017

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COMMUNITY PARTNERS AND COMMITMENTS

Non-profits, academia, governments and corporations who have worked to advance Orlando's sustainability initiatives through partnerships and collaborations.