City of Stuart

Sustainability Action Plan

Prepared

September 2020



Executive Summary

The City of Stuart proclaimed the year 2020 as the "Year of Climate Action" whereas the City publicly announced that it will undertake a new sustainability initiative to address its environmental vulnerability and any opportunities to mitigate such vulnerabilities through adaptation and resiliency measures.

In October 2019, an interim Sustainability Committee was formed for the purpose of evaluating short and long-term strategic goals and objectives relating to (environmental) sustainability. This committee was comprised of a voluntary, multi-discipline and multi-role group of staff from several City departments. The group convened regularly to examine current environmental management practices while identifying opportunities for improving sustainability within the City. The committee's recommendations are summarized in this plan. A short-term target date of 2025 is reflected in the plan as a point in time when the recommended actions within the document should be fully reviewed and revised for the future, but ideally, progress reports would be conducted periodically in the interim.

While this plan primarily addresses municipal programs and policies, it is implied that a sustainable city is a product of the entire community, working collaboratively while coordinating its efforts with neighboring municipalities, regions, and the world at large.

Both the City's Strategic Plan and the Comprehensive Plan include broad goals and policy priorities related to sustainability. The Sustainability Action Plan (SAP) identifies achievable and timely objectives and specific actions to further those policies.



Historic Overview

The City of Stuart, encompassing less than 6.5 square miles of land and home to about 17,000 persons, is a small paradise on the Treasure Coast of Florida. Named *America's Most Beautiful City* in 2008 by America In Bloom, Stuart's charm is largely based on its quaint, historic downtown, and upon its natural beauty and peaceful urban environment. It is also a renowned boating and fishing haven with easy access to the Saint Lucie River and the Atlantic Ocean. Stuart is also treasured as the S*ailfish Capital of the World.* For these reasons and many more, the environment is a driving motivator in decision making on behalf of residents, businesses, and visitors.

Stuart has taken steps to become more sustainable and address energy efficiency over the last several years while still remaining America's Happiest Seaside City, an award bestowed by Coastal Living magazine in 2016. Large stormwater improvement and retrofit programs, wetlands projects for natural water filtration and water detention, *Florida Friendly* landscaping programs, a community garden, outdoor & indoor efficient LED lighting conversion, enhanced bicycle lanes, healthy walking trail, and a solar canopy with charging stations are all representative of ongoing efforts to cultivate a sustainable community.

Primary goals

The Sustainable Action Plan (SAP) is intended to function as a guide towards implementing proactive measures across seven focus areas which will enable the City of Stuart to operate without compromising its ability to meet the needs of future generations. Actions that incorporate economic stability, social progress, and environmental stewardship should be viewed as highly favorable for their triple bottom line impact.

This action plan has seven critical pillars of focus: climate resiliency, natural resources, renewable energy, pollution and waste reduction, the built environment, transportation, and local government. There are many synergies, including codependences and co-benefits between these seven areas of focus that form a comprehensive approach to sustainability. Adoption and adherence to this action plan will ultimately move the city in a direction that will: better protect our environment, ecology, and natural resources; eliminate sources of pollution while easing consumption of resources; address local vulnerability to impacts from climate change; reduce dependency on unsustainable sources of energy while expanding use of renewable energies; provide an environmentally sensitive economic growth strategy; and improve the quality of life for Stuart citizens.

Tangible actions across 7 focus areas include:

Climate Resiliency

1. Mitigate human-driven causes of climate change.
2. Adapt to future conditions.
3. Lessen heat impacts to the community.

Natural Resources

4. Maintain and improve air and water quality.
5. Enhance greenspace utilization.
6. Reduce consumption of potable water.
7. Retrofit municipal facilities.

Renewable Energy

8. Reduce electricity used by the City.
9. Reduce electricity used in the community.
10. Increase electricity sourced from clean renewable energy.

Pollution and Waste Reduction

11. Reduce plastic pollution.
12. Reduce the amount of waste produced.
13. Increase waste diversion.

Built Environment

14. Promote green building.
15. Reduce light pollution.
16. Adapt the built environment to future conditions.

Transportation

17. Reduce energy use and cost.
18. Create safe, affordable, mobility/transportation.
19. Improve infrastructure to adapt to growing innovation and need.

Local Government

20. Incorporate sustainability into future city policymaking decisions.
21. Improve staff awareness of sustainability.
22. Bolster city advocacy of sustainability issues.

Planning Framework

A successful long-term strategy for sustainable action, relies on the extent to which quality of life factors enhance our community in relation to other areas. Three principal approaches of plan implementation have been identified:

1. Regional collaboration.

   The City of Stuart is not currently a party to any regional or other multi-agency effort to address climate change and sea level rise. It is evident, however, that many of the issues concerning global climate change are dependent on global efforts to address the causal factors contributing to ocean levels rising. Some of these challenges are best solved at the highest levels of government, with the greatest degree of resource management and planning. In lieu of strategic federal or international efforts, there are regional organizations such as the Southeast Florida Regional Compact on Climate Change, which may benefit the city to join. Doing so would not only provide the city with professional and financial resources it would otherwise not have access to, but it may also ensure Stuart has a louder voice on issues of regional and statewide concern.

2. Local vulnerability mitigation.

   Although no vulnerability assessment has ever been conducted by the City, as part of its commitment to disaster mitigation, Martin County has recently finalized its own technical vulnerability analysis, which includes Stuart. The study is a first step in a collaborative process of understanding short, medium, and long-term goals for reducing flood risk both along coastlines and inland. The City should continue to engage community stakeholders in countywide efforts to address sea level rise and flooding. However, the City should also consider its own vulnerability mitigations in sustainability categories such as renewable energy and transportation.

3. Investment in sustainability.

   While mitigating future impacts from climate change is critical, the City must also capitalize on sustainable policies, programs, and infrastructure that include economic, environmental, and societal benefits. Impacts from capital investments are felt across various sectors, from renewable energy and climate change, to health, safety, and community development. Working together, the community can create a healthy, vibrant way of living that doesn't exhaust resources, makes no more than what is needed, and wastes nothing.

Adaptation Strategies

While sustainable action will require a high degree of community engagement, all modality towards desired goals will manifest as one of the following:

A) Policy

Example future policy changes are wide-ranging and may include amendments to land development or urban code limiting or inhibiting development along waterfront areas, absent new considerations for sea level rise and/or flood mitigation. Similarly, the City could incentivize more sustainable development and technology by lowering costs of certain fees and permits where feasible.

B) Programs

By establishing programmatic strategies as support for larger policy change, the City may further advance its sustainable initiatives while encouraging greater community buy-in. Programs that include financial or professional resource assistance could be collaborative in nature, with multi-agency and public-private partnerships alike. The City has already experienced successful joint ventures within its Community Redevelopment Area, which may also be a vehicle for sustainability initiatives in the future.

C) Infrastructure

The hardening of existing infrastructure as a form of wind mitigation has been largely successful across the State in recent decades. Similarly, retrofitting buildings downtown or along the local waterfront will go a long way in ensuring the city remains resilient to rising sea levels and increased flood risk well into the future. In addition, the City may look to enhance its renewable energy footprint and reduce its dependency on fossil fuels by investing in solar energy (for example) on publicly owned property and structures. As technology and innovation improve, the City should position itself to invest in capital infrastructure projects as identified by staff or the commission.

Each solution to an existing vulnerability or as a means of sustainable investment will include unique challenges, requiring both short and long-term adaptive strategies. New policies will need to be reviewed periodically for efficacy, while infrastructure and programmatic solutions will require a higher degree of organizational planning and capital investment. The risks associated with each decision will vary from the simple to the complex, depending on initial community buy-in and available resources. For strategies to remain adaptive, they must first be measured by their risk, and then prioritized by urgency and feasibility. It will fall within the purview of city officials to identify and quantify risks, weighing such risk against the expected positive outcomes that a policy or project may generate.

Implementation & Accountability

Overall, the Sustainable Action Plan is intended to be an adaptive document. Identified goals are broad where actions may be taken at the policymaking level while programs and projects can be advanced at the staff level. This strategy allows for the City to be flexible in prioritizing actions based on new science, evolving technologies, best management practices, and overall feasibility. It is equally in the best interests of the City to prioritize those policies and actions that have the swiftest implementation and benefit, while coordinating and planning for costlier, long-term sustainable reforms.

After considering four approaches to monitoring the implementation and progress of suggested actions of the SAP, the committee recommends the formation of a green task force committee comprised of select city staff. The group would broaden the scope of the existing sustainability committee and would include periodic input from interested community individuals and environmental experts. The committee would operate in an *ad hoc* capacity (in perpetuity) and functionally serve as a "steering committee" for city management and the city commission on issues pertaining to sustainability.

The SAP would be fully reviewed in 2025 to evaluate the progress of implemented projects and to consider new information from assessments and advancements in technologies. It would be the ongoing responsibility of the green task force committee to evaluate policies, programs, and projects that could advance the city's sustainable interests, and provide those recommendations to city leadership.

Community Outreach and Engagement

The key to success of these initiatives will be providing outreach to the community about these opportunities and how they can and why they should participate. Additionally, there are policies and programs which could be necessary in mitigating future or existing vulnerabilities that may require buy-in and broad collaboration among businesses and persons.

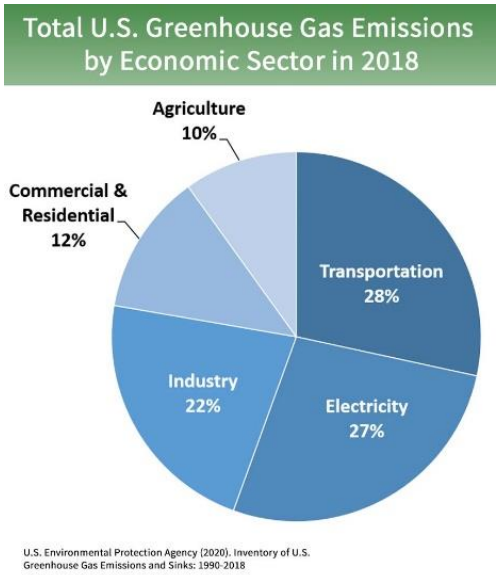
Focus Areas

This action plan focuses on seven areas: climate resiliency, natural resources, renewable energy, pollution and waste reduction, the built environment, transportation, and local government. Within each focus area, recommended baseline goals and targets have been identified to provide continuity between the development of this action plan, and a long-term working sustainability committee.

CHAPTER 1: CLIMATE RESILIENCY

An evolving world

Climate change describes a change in average climate conditions — such as temperature and rainfall — in a region or throughout a climate system over a period of at least thirty years or more. The most recent climatological science tells us that over the past 150 years we have witnessed a pattern of progressively warmer average global temperatures with a high rate of change indicating a causal link to human (anthropogenic) activities, and not simply geothermal or astronomical (natural) factors. Additionally, as climate conditions are expected to change over time, perhaps rapidly with an increased rate or velocity of change, we must adapt to meet future and existing vulnerabilities associated with sea level rise and potentially more extreme and violent weather.



In 1988, The Intergovernmental Panel on Climate Change (IPCC) was created by the World Meteorological Organization (WMO) and the United Nations Environment Programme (UNEP) to provide governments at all levels with the scientific information they can use to develop adaptive climate policies addressing human pollution. In October of 2018 the IPCC released a special report titled *Global Warming of 1.5°C*, comparing impacts at 1.5°C global average temperature increases above pre-industrial levels (1880-1910 baseline) to those at 2°C (the target of the 2016 Paris Agreement), and outlines the pathways to reach a warming limited to 1.5°C by the year 2100.

The report states with *high confidence* that human activities have already caused approximately 1°C of warming and that if these anthropogenic activities continue at their current rate, they will likely cause the average temperature to rise by 1.5°C between 2030 and 2052. Between 2005 and 2014 we have recorded the hottest decade on record globally and the last five years (2015-2019) have been the hottest consecutive since 1880, averaging 1.2°C higher than the pre-industrial level. The expected consequences of a global rise in temperature of 1.5°C or more include temperature extremes (hot and cold), droughts, heavy rains, sea level rise, biodiversity loss, changes in marine habitat, loss in ocean fishery yields, and heat and vector-borne disease related health risks.

Adapting to future conditions and increasing the City's resiliency is necessary. Resiliency can come in the form of finding solutions for living comfortably with the changes. Increased heat may require resiliency in the form of actions to reduce or mitigate the urban heat island, such as increasing tree cover. Resiliency to sea level rise may come in the form of infrastructure changes, some designed to keep the water out and others designed to let the water in, or changes in future building and road design criteria. In addition, resiliency can look at the changing face and needs of the City, whether that is mobility for a commuting population, job transitions for a clean energy future, greener buildings, or maintaining healthy waterbodies and local sustainable food systems.

Regional Resiliency Study

The City is not yet a part of any formal regional group dedicated to assessing the effects of climate change, however, it has received some preliminary information from Martin County as the result of a Regional Resiliency Study (RRS) completed earlier this summer. This study was commissioned to identify areas that are vulnerable to sea level rise, establish planning horizons, and inventory infrastructural capacity to accommodate projected sea level rise. The County has shared the findings of this study as a series of maps including a directory of considerations requiring further analysis by city departments. Stuart can use the study findings to identify vulnerable assets and populations in the City and prioritize potential actions to mitigate and adapt to the identified hazards. In the meantime, the sustainable action plan assumes general risks of climate change including higher storm surge, heavier rainfall, tidal flooding, stormwater flooding, and increased heat possibly contributing to drought and increasing the risk of wildfires.

Goals and Targets

1. Mitigate human-driven causes of climate change.
   - Complete a greenhouse gas emissions study for city operations by 2023.
   - Join as a party to a Regional Climate Compact.
2. Adapt to future conditions.
   - Develop a vulnerability mitigation plan by 2023.
3. Lessen heat impacts on the community.
   - Adopt a Green Roof Ordinance by 2023.

Accomplishments

Projects and Programs Previously Completed by the City:

- The City adopted a Resolution supporting US HR 763 relating to Energy Innovation and Carbon Divided Act of 2019 in 2019.
- The City adopted a Resolution in support of US House Bill 1369 relating to the Florida Climate and Resiliency Research Program in 2019.

Actions

1. Mitigate human-driven causes of climate change.

Measure and reduce greenhouse gas emissions.

According to the IPCC to limit average global temperatures from rising, greenhouse gases like carbon dioxide, methane, and nitrous oxide must be substantially reduced. Until a GHG baseline study can be undertaken by the city, this plan will consider data from a regional inventory which is more representative than emissions data for the entire United States.

Greenhouse gas inventories from the Southeast Florida region and from similar sized communities shows a relatively consistent split of emissions sources. The largest source is transportation, the second largest being building energy use split between commercial and residential. Waste and industry are smaller portions. The City can expect a similar result and can identify actions which reduce transportation emissions and emissions from buildings. In order to measure progress, however, an individual GHG inventory is necessary.



NASA earth satellite image

The Environmental Protection Agency (EPA) has a tool to calculate and compile a greenhouse gas (GHG) inventory for the entire community or for local government operations. A greenhouse gas inventory would help the City to best understand where emissions are originating, develop specific strategies to reduce emissions and track progress in emission reduction. Repeat the inventory annually or as frequently as possible.

Without a greenhouse gas (GHG) inventory, setting specific achievable reduction targets for GHG emissions is challenging. For the purpose of this initial plan, targets for community-wide and city operations greenhouse emission reductions are based on the IPCC Special Report Global Warming of 1.5°C described earlier. The City's target would be to halve existing emissions by 2030, or at least achieve a reduction of 10% by 2025. Once the GHG inventory is complete, more specific and ambitious targets should be set.

2. Adapt to future conditions.

Floodplain analysis.
We are taking a moderate approach in preparing now for unknown future conditions and hazards. The results shared with the City from the Martin County Vulnerability study need to be unpacked and analyzed. Recommendations will then be made for existing infrastructure to account current groundwater levels and potential future groundwater and rainfall conditions with projected sea level rise.

Adopt building requirements in the zoning code that increase resiliency.
Resiliency of a coastal property may come from infrastructure investments or from building design of the structures on the property. Identify opportunities to change requirements to increase the resiliency of the property. This is applicable to several city-owned properties. Possible areas to focus is on seawall height, allowing higher finished floor elevations before calculating height, designing parking on ground floor, and other resilient designs.

3. Lessen heat impacts to the community.

Incentivize green and living roof development.
All new construction, city facilities, and renovations should include some sustainable features to maximize the benefits of underutilized roof space. Cooling costs for residents and businesses in the sunshine state can be quite expensive and significantly higher than spending by the rest of the country. This also triggers higher greenhouse gas emissions from electricity use.

The color of a roof or pavement can significantly impact energy costs because dark surfaces absorb the light and radiate heat. A green roof or living roof is a roof of a building that is partially or completely covered with vegetation and a growing medium, or are comprised of light colored or reflective surfaces to prevent heat gain. A blue roof is also cool stores rainwater for use in and around the building rather than the traditional roof contributing to stormwater runoff and pollution. Solar roofs not only shade the roof structure with PV panels, reducing heat gain for the building, but also offset building electricity used.

Promote shade trees.
There are a great number of environmental benefits that we directly experience by having trees planted throughout our city. Address the land development code and the requirements for trees in new development to ensure that trees added are increasing canopy cover and strategically placed to cool buildings and pavement. Other benefits of trees include: the removal of pollutants from the air, soil and water; Interception of rainfall and reduction of storm water runoff (and thus, reducing the costs related to infrastructure required to manage it); carbon sequestration; and increased property values.

CHAPTER 2: NATURAL RESOURCES

Water quality

The City receives an average of 60 inches of rain each year. Rain can percolate into the ground, evaporate back into the atmosphere, or become stormwater runoff. Historically, the City's stormwater runoff was directed to the St. Lucie River (SLR) as fast as possible via ditches and underground pipes, to obtain good drainage at the least cost. By the 1970's, scientists began to recognize stormwater runoff was a significant source of pollution in watersheds and river basins. The accumulation of nutrients, sediments, oil, grease, trash, etc. in stormwater, all of which is flushed into the surrounding river as runoff, is identified as "non-point source" pollution to distinguish it from "point sources" of pollution such as sewage treatment plants, factories, and agricultural land.



Saint Lucie River with rainbow

As early as the 1990's, the condition of the Saint Lucie River had experienced a serious decline due to a combination of point source (Lake Okeechobee discharges) and non-point source pollution. While the City has long advocated for the elimination of disastrous freshwater discharges, in 1994, Stuart adopted a Stormwater Utility to fund local efforts in mitigating non-point source pollution - one of the first such programs in the State of Florida.

The City later commissioned a watershed study and adopted a Watershed Map in 2000, which identified opportunities for improvement of stormwater management within city boundaries. This program became the City Watersheds Project. The Watersheds Map details where stormwater is drained through each watershed to one or more points of discharge to tide (either via local creeks to the River, or via pipes directly to the River itself).

Stuart, in collaboration with three surrounding communities, also enacted a seasonal fertilizer ban, which was recently extended by 60 days each year (through the months of October and November) to further negate potential nutrient runoff during the wet season months. This policy was championed by the City once science evidenced that runoff of nutrients from improper landscaping techniques, including excessive fertilization practices, contributes to nitrogen and phosphorus pollution in the City's stormwater and drainage conveyances, the ground water, and the St. Lucie River and its tributaries.

Water treatment

The City of Stuart's drinking water supply comes from the Surficial Aquifer, a source of limited supply and ever-increasing challenges. Unfortunately, a long period of unmitigated industrial pollution, stemming from the 20th Century in particular, yielded damaging results for surface and groundwater across the nation. In 2016, one such source of contamination was discovered within a sizeable area in the City of Stuart.

Perfluorinated chemicals and compounds (PFC) are organic compounds that were used ubiquitously throughout modern history in the manufacturing of common household items such as clothing, stain-resistant materials, fire-fighting foam, and even in the manufacturing of Teflon. New science has indicated that these chemicals are harmful to human health over a period of prolonged exposure and are now a major focus for drinking water regulation.



City of Stuart PFC Pre-Treatment Facility

However, a combination of environmental policies, practices, and innovation has paved the way for adaptation and advancements in the treatment of potable water – including the removal of dangerous contaminants like PFCs. The City has recently invested in one such innovation with the commissioning and construction of a state-of-the-art PFC pre-treatment facility; the first and largest of its kind in the State of Florida. The more than $2 million facility effectively and efficiently removes PFCs from raw water and thereby also the local environment.

Irrespective of these enormous strides by the City, the discovery of other emerging contaminants throughout the world linked to historic industries has only further solidified the urgency and need in transitioning potable water supply from the surficial aquifer to alternative sources. In the spirit of this endeavor, the City has begun to invest in a new Alternative Water Supply and Reverse Osmosis water treatment system, which will ensure that city residents and utility customers are provided the best and safest drinking water for decades to come.

Trees and green spaces

Trees serve a multipurpose function within urban environments limiting the erosion of topsoil by wind and water, reducing heating and cooling costs, moderating the temperature, cleaning the air, producing oxygen, and providing habitat for wildlife. Tree canopies have been demonstrated to make neighborhoods safer and increase property values.

Municipal code protecting trees and specimen trees require a substantial conservation and/or replacement provision within planned developments. No historic or specimen trees may be removed without a tree removal permit.

Scientists continue to discover the ways that time spent in nature, even urban versions, improves health, productivity, mood, and creativity. The City boasts more than 100 acres of green spaces comprised of active, passive, pocket, dog, and waterfront parks. For example, an existing butterfly garden within Kiwanis Park, and other native landscape choices throughout local greenspaces increase local biodiversity and enhance public opportunities to view butterflies, bees, wading and migratory birds.

Goals and Targets

4. Maintain and improve air and water quality.	➢ Increase tree canopy coverage by one tree per parcel citywide.
5. Enhance greenspace utilization.	➢ Develop a greenspace environmental guide by 2023.
6. Reduce consumption of potable water.	➢ By 2025 reduce per capita water consumption to 160 GPD. ➢ Increase AquaHawk registrations to 25% of all utility customers by 2025.
7. Retrofit municipal facilities.	➢ Ensure all public facilities are converted to energy efficient technologies by 2025.

Accomplishments

Projects and Programs Previously Completed by the City:

- Completion of multiyear septic-to-sewer conversion infrastructure project.
- Creation of a "River Advocate" position within the City.
- Construction of the first and largest Perfluorinated Chemical (PFC) pre-treatment facility within the State of Florida.
- Adopted and extended a seasonal fertilizer prohibition ordinance.
- Received Florida Rural Water Association's "Best Tasting Drinking Water" award for the third time (2019).
- Identified as a "Tree City USA" by Arbor Day Foundation.

Actions

4. Maintain and improve air and water quality.

Community Partnerships.

As part of the Florida Oceanographic Society shell recycling program, shells necessary for the creation of these reefs are collected weekly from local restaurants, who would otherwise discard them. Then, with the aid of volunteers, oyster habitats are restored through reef reconstruction with bagged shells. The restoration of new oyster reefs along the floor of the Saint Lucie Estuary bolster the reemergence of oyster populations, which provide critically important water quality benefits. The City should continue to partner with local agencies (like Keep Martin Beautiful, Marine Industries Association of the Treasure Coast, Students4H2O, etc.) and organize cleanups and litter removal.



Waterway cleanup event

5. Enhance greenspace utilization.

Plant more trees.

Opportunities for planting more trees within city-owned parks and property, and along public rights of way should be pursued. One such consideration could be the planting of fruit trees in the community garden.

Install new butterfly garden.
In addition to Kiwanis Park, Memorial Park would be an ideal location for another butterfly habitat. An annual butterfly release event already occurs in Memorial Park and having a butterfly garden there will ensure that the they remain. As the City replaces existing plants and vegetation, it could also prioritize native plants that will offer food and shade for future butterflies.

Offer workshops.
The City should continue its partnership with University of Florida Institute of Food & Agricultural Services (IFAS) extension in Martin County to offer local education of best urban landscaping practices.

6. Reduce consumption of potable water.

Promote AquaHawk registration.
Empower residents with the tools to recognize their monthly water consumption by comparison to temperature and rainfall data through the online portal. Utility customers will also be able to monitor their water usage, receive timely leak alerts, and learn new ways to conserve their water use.

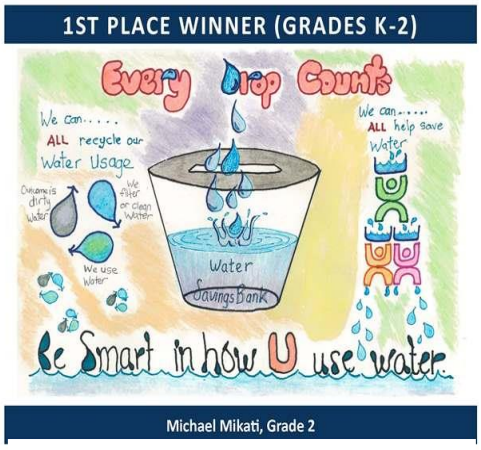
Turf replacement program.
Extend the pilot-program that rebates residents for the replacement of turf grass for drought resistant plants, mulch, and permeable hardscape.

Energy efficiency programs.
Continue the distribution of free conservation kits to new customers, which includes a new showerhead, kitchen and bathroom faucet aerators, a hose nozzle, toilet leak detection tablets, and a home water conservation guide.

7. Retrofit municipal facilities.

Water efficient products and practices.
Work with local home improvement stores to copromote water efficient projects and products such as WaterSense.

City facility retrofits.
The City should be a conservation leader in retrofitting its public facilities with the best standardized, water efficient technologies (such as water sensing faucets and low flow aerators).



Water conservation art contest

CHAPTER 3: RENEWABLE ENERGY

Growing with innovation



Residential Tesla solar power system

Since 1980, the average global temperature (surface & water) has increased by a rate of more than double the previous 100 years. Global surface temperatures are now more than 0.5 degrees centigrade (0.9F) warmer than they were in 2005. The rate of change has compounded through the many decades since the Industrial Revolution.

Historically, the burning of fossil fuels such as natural gas, oil and coal have been the main source of power for buildings (commercial and residential), transportation, and industry. About 66% of electricity in the USA is produced by Fossil Fuels. Fossil Fuels are resources that will eventually run out, they are non-renewable, and it is estimated that the earth will run out of fossil fuels within the next century. In order to obtain Fossil fuels, you must drill and mine vast ranges of land for them. This process destroys landscapes, eco-systems, and human health as a result. Water is often polluted by acid and heavy metal run-off during mining as well, putting the health of surrounding communities and wildlife at risk.

Once Fossil fuels are collected, they are sent to facilities to be burnt and the heat that they produce from burning is captured and used for energy to power homes, businesses, and vehicles. The combustion of fossil fuels creates pollution in the form of Carbon Dioxide, Carbon Monoxide, Sulfur, Nitrogen Dioxide and Hydrocarbons. Once Carbon Dioxide and Carbon Monoxide are released into the atmosphere they act as an insulator and cause the average seasonal temperatures of Earth to rise causing “Global Warming.” These chemicals are also absorbed into the world’s ocean contributing to the acidification of these waterbodies. The option for Renewable energy sources and technological advances has helped the USA cut its Carbon Dioxide Emissions by 480 million Metric Tons since 2006. Renewable energy sources such as solar, wind, tidal, and geothermal are options available as an alternative to Fossil Fuels. Renewable

energy is often able to be obtained without drilling or mining operations and they create minimal biproducts. In Florida, some of the more common renewable energy sources are solar, tidal, and wind. The acceptance of renewable energy is seen in South Florida with Florida Power and Light (FPL), the major electricity provider of South East Florida offering initiatives that allow residents to buy into expanding FPL's solar energy production and lower their energy bills. Credits are also provided to residents that have opted to install solar photovoltaic panels on their homes.

The City of Stuart is dedicated to reducing its carbon footprint and using renewable energy sources on future projects. The City has already completed several Capital Improvement Projects that help reduce the City's emissions and take advantage of clean, renewable energy sources. Moving away from fossil fuels is encouraged throughout the City for its residents as well as its own operations.

Goals and Targets

8. Reduce electricity consumed by the City.	➢ 10% reduction of electricity use (kWh/sqft.) by 2023.
9. Reduce electricity consumption in the community.	➢ Develop a greenspace guide and citywide performance standards by 2023. ➢ Identify financial opportunities for private investment in alternative energy solutions.
10. Increase electricity sourced from clean renewable energy.	➢ Become designated as a SolSmart city by 2022. ➢ Improve SolSmart designation to Silver (at least) by 2025.

Accomplishments

Projects and Programs Previously Completed by the City:

- FPL Solar Canopy at Kiwanis Park (part of the SolarNow Initiative).
- Handheld device Solar Charging Stations throughout the City of Stuart.
- EV charging infrastructure collaboration with Tesla at Kiwanis Park.
- Streetlight replacement to LED through FPL program.

Actions

8. Reduce electricity consumed by the City.

Energy efficient conversions.
Going forward as light bulbs burn out throughout the City the bulbs are replaced by LED light bulbs. Energy Star rated LED light bulbs use 75% less electricity and last 25% longer than incandescent lighting. (energy.gov) Systematically, the city has been replacing Air Conditioning units with Energy Star rated Air Conditioning units. Energy Star HVAC equipment is 6% more efficient than standard equipment. (energy.gov) Over the past year, the City of Stuart worked with FPL to replace incandescent streetlights with LED street lighting throughout the City. The replacement of these streetlights alone will provide the City with a reduction of between 25% - 50% in energy costs.

Municipal energy policy.
Develop a formal energy management policy for city buildings and operations with the intent to reduce electricity intensity (kilowatt hours per square foot) an additional ten percent by 2023. Policy would set reduction targets, standardize operational practices (thermostat set points), identify more energy efficient equipment and purchase practices, and regulate maintenance of equipment at regular intervals to optimize performance of energy and equipment.

9. Reduce electricity consumption in the community.

Energy financing program.
Assist residents and businesses to obtain capital for the upfront energy costs to invest in energy efficient and renewable energy improvements. Consider partnering with public-private organizations to establish an energy finance program that provides owners with long-term, low-interest loans for energy improvements. Prioritizing retrofits of older and inefficient buildings that yield a cost savings equivalent to or exceeding initial investment should be considered.

Energy audits and community assistance.
In concert with private companies and local educational institutions, develop and implement a program that performs comprehensive energy evaluations, recommends conservation practices, facilitates upgrades, and measures the environmental and economic benefits after implementation. Program partners, local vendors, and utilities could offer discounted alternatives.

Performance standards.
Encourage developers to include green building practices and standards into design and construction, and maintenance operational plans such as solar ready homes and automotive charging infrastructure.

10. Increase electricity sourced from clean renewable energy.

SolSmart city designation.

The City of Stuart is actively working toward a SolSmart designation. This designation requires the City to evaluate the current Solar PV permitting process and development regulations. SolSmart is designed to provide a blueprint for Cities to create ordinances and permitting operations that ease the process of the installation of Solar PV systems for residents and businesses. The City of Stuart already has a 3-day permit approval turnaround time and permitting guide available for anyone interested in installing solar panels and solar hot water tanks.

Future construction projects in the City are planned to include roof top Solar PV installations to supplement electrical needs of the facilities. We will also have a better idea of zoning and permitting limitations on Solar installation from completing our SolSmart Audits. This will enable us to remove barriers that are preventing the community from utilizing solar power.

The permitting department is currently offering no cost permitting for Solar PV installations as an incentive to businesses and residents to go solar.



SolSmart.org graphic

CHAPTER 4: POLLUTION AND WASTE REDUCTION

Full-service government

The City of Stuart is a full-service municipality providing sanitation services for residential and commercial customers. Before launching single stream recycling in October 2008, the City conducted extensive research and then initiated a paradigm shift in the way our community would recycle. This approach transitioned from a system of managing waste collection to a system focused on resource recovery. Or in other words, changing how we feel about consumption and how we value the things we bring into our lives.

While the City's goal is to conserve our natural resources and reduce the amount of recyclable and nonrecyclable materials entering the waste stream, the residential and commercial recycling programs are ultimately designed to foster community partnerships while yielding a cost savings for those who participate.



Stuart public works residential waste collection

Much of the success of the recycling programs can be attributed to the City's recycling mascot, Sammy Sailfish. Sammy Sailfish helped generate interest in the program and champion the city's recycling efforts. Sammy is featured on the City's recycling trucks, recycling tote bags, educational materials, at in-school presentations and City sponsored events, appealing to all ages to promote recycling.

The commercial recycling program was established to allow businesses to recycle at a reasonable rate while reducing their overall sanitation cost. To qualify for this program, each business participates in a City-provided free recycling assessment/audit in which a business's specific needs are identified. Participants are incentivized; they receive a $1.00 reduction per cubic yard on their commercial garbage fees when they recycle.

In 2011, having the resource recovery mindset, the City dedicated a 15-foot-long roll-off closed container on Georgia Avenue for the purpose of collecting electronic products that had reached the end of their useful life. The drive-up, drop-off service is available exclusively for City residents and businesses during daylight hours. All e-waste is then transported and *demanufactured* down to the base grade materials and recycled.

Last year, this recycling center diverted 72,986 pounds of e-waste or 78 pallets worth of old electronics from landfill. Proper disposal is important because e-waste can be hazardous. Electronic devices form a complex mixture of materials and compounds, often containing hundreds of different substances, many of which are toxic and create serious pollution upon disposal. When electronics are discarded improperly, these environmentally persistent toxins can leach into the groundwater and adversely impact ecological and human life.



Downtown waste collection receptacles

Recycling is the last step of the "Reduce, Reuse, and Recycle" process. The first step is the reduction of waste by more environmentally conscious consumers in the consideration of the life, packaging and durability, and disposal of a necessary product. Reuse recommends that we find ways to repurpose or fix items rather than trading them for something new. Recycling is the act of taking the materials used and turning them in to something else. Serious consideration should be given to avoiding the purchase of materials which are unrecyclable or difficult to recycle when unable to be reused. This practice is often championed as part of the zero-waste lifestyle - a lifestyle dedicated to encouraging meaningful experiences and prioritizing environmental sustainability.

Recycling alone cannot solve the larger environmental and societal issue of excessive waste generation. The best example is plastic. Although the City's recycling program accepts an extensive list of material including plastics numbered 1-7, an estimated 91% of all plastic discarded since 1950 has not been recycled.

In addition to the climate impacts listed above, waste can provide a resiliency challenge by being a physical barrier to the movement of water when litter enters drainage systems. Reducing waste overall and particularly non-biodegradable waste should reduce the chance those materials become litter. The City contracts for waste removal from the City's canals and waterways, removing hundreds of pounds of litter weekly. While cleanup efforts are important, they do not get to the root of the issue; the generation of waste itself. Plastic bags, bottles, and other garbage can block the free flow of water or impair flood prevention structures.

Goals and Targets

11. Reduce plastic pollution.	➢ Achieve total compliance of plastic ordinances by 2023.
12. Reduce the amount of waste produced.	➢ Reduce paper waste in the city by 50% towards a paperless environment.
13. Increased waste diversion.	➢ Reduce contamination of recycled items to no more than 10% of total cart content.

Accomplishments

Projects and Programs Previously Completed by the City:

- Promotion of single-stream recycling to increase the amount of clean material collected and reduce contaminants.
- Collaboration with Students4H20, Publix, and Martin County School District to collect and recycle plastic bags.
- Adoption of Ordinance 2416-2019 regulating the City-wide distribution of single-use plastic straws by food service establishments.
- Adoption of Ordinance 2413-2019 creating regulations for the distribution of polystyrene and plastics on city-owned property and rights-of-ways.
- Introduced 95-gallon brown yard carts to residents for improving the containment of yard debris and expediting the collection by sanitation team members.
- Partnership with Students4H20 to install cigarette waste collection receptacles in the downtown area for recycling through TerraCycle.
- Encouraging digital transmission of documents such as invoices, permitting, and applications in the City to reduce paper use.
- Hosting an annual local water-way cleanup for city employees and their families and supporting additional litter removal campaigns across the city and county.
- Bimonthly Saturday neighborhood cleanups providing residents an extra pickup day to properly dispose of hazardous waste, e-waste, yard debris, household garbage and recycling.
- Streetlight replacement to LED through FPL program.

Actions

11. Reduce plastic pollution.

Proper event recycling.

The City of Stuart was the first government on the Treasure Coast to adopt ordinances regulating plastic straws citywide and single-use plastic on City owned property and rights-of-ways. In doing so, the City earned the "Trailblazer" Environmental Stewardship Award by Keep Martin Beautiful for the work it has done to pave a new path towards a greener community.



Stuart plastic ordinance information flyer

The City should continue to serve as a leader in environmental protection by promoting the abandonment of single-use plastics in the provision of food services, for reusable or biodegradable products, especially at special events. Staff should be empowered to work with event coordinators in ensuring all permitted recyclable single-serve beverage containers such as drink bottles and aluminum cans are properly collected for recycling.

Continue community education related to plastic pollution and waste.

Continue to utilize opportunities to educate residents, businesses, and students in the City about the new ordinances and develop strategies to reduce single-use plastic waste.

12. Reduce the amount of waste produced.

Waste reduction education.

Promotion of waste reduction campaigns such as Plastic Free July and Surfrider's Ocean Friendly Restaurant program are two campaigns that promote using more environmentally friendly materials. The City through website and social media platforms, should promote waste reduction goals and tips regularly.

Reduce paper use in the City.

The emergence of COVID-19 made it necessary to reduce the amount of paperwork handled between the public and among staff. Additionally, studying department process flows could identify ways to move to paperless or electronic systems. Signatures required for official records such as ordinances, resolutions, and RFPs should be electronically submitted when permissible to avoid excessive generation of paper waste. Commissioners and city staff could be provided tablet devices from which to view agenda materials thereby eliminating wasteful use of paper and printing for public meetings.

Improve the waste and recycling behaviors of City employees.

Developing consistent messaging to staff could educate them as to the benefits of recycling while ensuring that each office workstation has a recycle bin and garbage can. The City should also convert restroom paper towel dispensers to air dryers and promote the location of centralized plastic bag receptacles so that staff can fully participate in city programs.

13. Increase Waste Diversion.

Require space for recycling in new development.

Ensuring that new construction and redevelopment plans have areas dedicated for recycling collection will facilitate the ease of establishing a recycling program.

Adopt mandatory policies for commercial and multi-family recycling.

Requiring multifamily and commercial properties to include recycling programs available to tenants and customers will facilitate a citywide transformation to better management practices. In 2019, only 24 percent of commercial sanitation accounts recycled. A greater amount of the solid waste generated by the 76 percent of remaining commercial establishments could be diverted to the recycling stream with basic level of recycling service. Similarly, multifamily developments should be required to formulate a recycling plan within their community while educating and informing their residents of best recycling practices. For example, the replacement distribution of "Sammy Sacks" to residents could improve recycling collection as well as eliminate cross-contamination with other waste.



Stuart Public Works recycling infographic

The City could also consider establishing a minimum percentage of construction and demolition (C&D) waste recycling for construction projects. The Florida Department of Environmental Protection estimates that up to 44 percent of C&D waste is recyclable. If enacted, the contractor would have to furnish proof of compliance as part of the building permitting process.

Increase participation in residential recycling.

Identify neighborhoods and individual customers that are not utilizing the recycling service and target those homes and neighborhoods for outreach.

Reduce contamination in recycle carts.

Using cart audits, the city could to identify individual customers that have higher rates of recycling contamination and target those homes for corrective action. Meanwhile, educating property managers and homeowners associations about acceptable recycling practices, particularly after a transition of management or after resident turnover will further facilitate increased recycling compliance.

Encourage a pilot residential food composting program.

Home composting is an option to reduce food waste, the largest single source of waste in the U.S. More food ends up in landfills than plastic or paper. According to the U.S. Environmental Protection Agency, 20 percent of what goes into landfills is food. Instead of putting organic material into the waste stream, food scraps can be composted and used as soil amendments for gardens or potted plants. The city should educate the community on organic composting by partnering with University of Florida IFAS Martin County Extension through a workshop or by use at the community garden. The pilot program could be started in select residential neighborhoods and expanded in the future.

Establish a Municipal or Regional Composting Facility.

The city could establish a pilot program to compost materials at the old City landfill and investigate opportunities to create soil amendments using landscape materials as well as biosolids from the wastewater treatment plant.

Host an annual community event to swap reusable goods.

Investigate the possibility of an annual "Trash to Treasure" event to encourage recycling or swapping of reusable goods. This would divert reusable goods from the solid waste stream and could be combined with an educational and awareness campaign on waste management. An event could be held outdoors or indoors at the 10th Street Community Center or inside the Shuffleboard Building.

CHAPTER 5: BUILT ENVIRONMENT

Planning for the future

The City's built environment, which include existing and planned public infrastructure, shops, businesses and homes, is regulated by the local Land Development Code and the Florida Building Code. As our future obstacles and endeavors take shape, it is imperative that the City considers several resiliency and sustainability measures, either by adaptation of built structures, or sound planning of future development, to ensure the built environment endures.

Adaptation and increasing the City's resiliency is necessary and can come in the form of finding solutions for living comfortably with the changes. The adaptation and protection of historic infrastructure, development of infill or brownfield properties, and repurposing of abandoned or underutilized buildings prevent sprawl and underutilization of land. Infrastructure changes or changes in future building and road design criteria may be necessary to accommodate sea level rise. Finally, using smart growth principles such as compact development, mixed use, and walkability can limit human impact to the environment while enhancing overall quality of life.

Goals and Targets

14. Promote green building.	➢ Adopt a citywide standard for green buildings by 2023.
15. Reduce light pollution.	➢ Adopt new light pollution regulatory standards by 2023.
16. Adapt the built environment to future conditions.	➢ Review and amend land development code with adaptive measures by 2025.

Accomplishments

Projects and Programs Previously Completed by the City:

- Updated EAR and Comprehensive Plan while incorporating elements of sustainability into the language (2020).
- Electric vehicle charging station ordinance.
- Energy efficiency construction incentives.
- FPL program switching out light fixtures.

Actions

14. Promote green building.

Green buildings refer to the structure and the application of processes that are environmentally responsive and resource-efficient throughout a building's life cycle: from planning to design, construction, operation, maintenance, renovation and potentially, the demolition or re-use of the building. The city could expedite green building plan reviews, reduce parking minimums for green developments, and consider a mix of incentives that encourage more green building and access to workforce housing. Stuart could also use the National Green Building Standards, Florida Green Building Coalition, LEED, or other standards to maximize smart growth elements in our Land Development Code, and application of the Florida Building Code by either incentivizing or mandating the use of these standards.

Green building principle incorporates five (5) major elements encompassing each of these phases:

Energy Efficiency development standards would establish performance targets that account for intended uses, occupancy, and other energy operations for new construction and renovation.

Water efficiency would limit and/or reduce demand for potable water through optimized landscaping and the use of reclaimed water, and installation of efficient plumbing fixtures.

Green building materials composed of renewable sources should be incentivized and potentially required for development to mitigate impacts to the environment from nonrenewable construction.

Environmental Quality applies to improvements in building ventilation, thermal mitigation, moisture control, daylighting, and the protection of air quality during construction.

Sustainable siting optimizes land use to reduce adverse impacts and minimize a developments ecological footprint. Encouraging transportation options near high impact development may reduce potential auto traffic generated by the development, saves money and resources by using existing transportation infrastructure, and preserves more natural and open areas outside the transportation corridors. A location-efficient site that is well connected to surroundings, allows property users to share facilities with each other. Building within previous developed sites also reduces the need for new infrastructure, and spurs revitalization and renovation. Historic buildings, vacant properties, brownfields, and greyfields can be transformed into green development that supports the local economy and strengthens the community's character.

15. Reduce light pollution.

Artificial lighting that is unnecessary, obtrusive, or excessive can be harmful to wildlife, undermine the enjoyment of the outdoors, and can is costly and energy inefficient. Planning guidelines should ensure adequate light levels to address safety and security while minimizing harmful and detrimental effects.



Downtown Stuart Osceola Street lighting

Controlling light pollution is a primary focus including light intrusion when the light spills beyond the boundary of the area that is desired to be lit. Harmful glare can cause sleep impairment, vehicle distraction and adversely impact wildlife migratory habits, which can be avoided using careful lamp and luminaire selection and positioning.

16. Adapt the built environment to future conditions.

Strengthen low impact development practices or green infrastructure by encouraging landscape driven design approach with onsite natural features to conserve, treat, and manage stormwater runoff. Some examples of green infrastructure are rain gardens, bioswales, and permeable pavement.

Adapt to storm and flood resiliency and vulnerability concerns by incentivizing redevelopment outside the areas prone to flooding, building more resilient structures, and retrofitting buildings for increased flood risk. Reducing vulnerability to storm events could come in the form of designing infrastructure that can withstand higher water levels, raising seawalls, installing tidal valves, implementing natural drainage features such as bioswales and stormwater buffers, construction standards that reduce vulnerability to storm events.

The City should review the Perils of Flood Act and develop strategies to move development out of flood prone areas and make citing of public facilities in flood prone areas a factor in the citing decisions of public infrastructure.

The City may also consider creating an Adaption Action Area to prioritize areas for adaption planning and infrastructure needs assessment to proactively encourage the relocation of buildings in flood and disaster-prone areas. This prioritization should include the protection of historic buildings and infrastructure.

Integrated urban spaces which are designed to bring people, activities, buildings, and public space together with an easy walking and cycling connection among them and positioned near transit service interconnected with the remainder of the city. Incentives could be offered for mixed-use development to encourage existing commercial properties to create walkable mixed-use districts with an interconnected residential component.

Mitigate heat impacts to improve resilience to the impact of rising heat cities can incorporate heat island reduction strategies such as green or cool roofs, cool pavements, or increased vegetation and tree cover, into our land development code and comprehensive plan. The City can and should promote and incentivize these measures during the planning and construction of the public and private built environment. Additionally, city roads, bridges and on-site infrastructure can be made more resilient by using materials that are heat tolerant and provide energy efficient solar powered energy.



Living boardwalk example

Living shorelines and boardwalks would improve air quality and offer protection from erosion and storm surge. A living shoreline is a broad term that encompasses a range of shoreline stabilization techniques along estuaries, bays, tributaries and other shorelines that attempt to recreate the natural coastal barrier. Additional benefits of living shorelines are increased water quality and shore nutrients, protection of aquatic and other shoreline dependent habitat, increased upland stability, a higher quality of life, and can outperform hardened structures during a storm event.



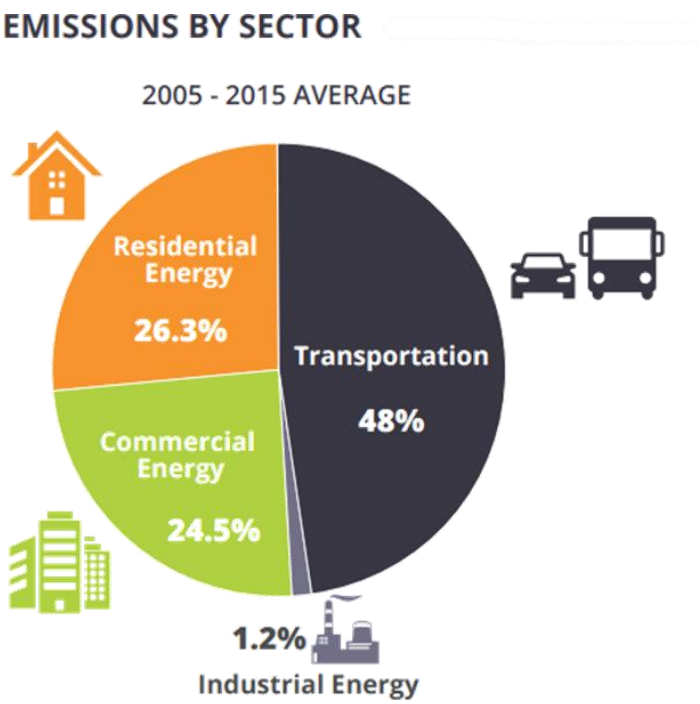
Living shoreline example

According to the National Oceanic and Atmospheric Administration (NOAA), a living shoreline has a footprint that is made of mostly native plant material. It incorporates native vegetation or other living, natural elements in combination with other harder natural shoreline protection eco-systems, like oyster reefs, rock sills, or anchored large wood for stability.

CHAPTER 6: TRANSPORTATION

Improving connections

The transportation system in the United States is overwhelmingly powered by fossil fuels. Nationwide, emissions from transportation account for 33% of all greenhouse gas emissions. In Southeast Florida, transportation represents 48% of energy use. By changing the types of vehicles and fuels as well as reducing vehicle miles travelled, the city can reduce the associated greenhouse gas emissions and criteria air pollutants impacts to this sector.



Southeast Florida Regional Climate Change Compact Regional Greenhouse Gas Inventory: Transportation and Stationary Energy, 2005-2015 average (2018)

The Martin Metropolitan Planning Organization (MPO) is the primary agency responsible for transportation planning in Martin County. The MPO is comprised of elected officials representing local governments. The current Board consists of seven voting members representing the Martin County Commission, City of Stuart, and Town of Sewall's Point. The MPO works to coordinate the improvement of all facets of the transportation network in Martin County. The MPO evaluates existing transportation conditions, develops improvement strategies to solve mobility and safety challenges, engages the public to inform and collect meaningful input, and prioritizes transportation funding strategies.

Every five years, the MPO is required to review and update the Long-Range Transportation Plan (LRTP). The LRTP sets the vision for transportation for all modes of travel throughout the County and influences projects included in the 5-year Transportation Improvement Program (TIP). The update of the Martin LRTP every five years is one of the primary activities of the Martin MPO to meet federal and state requirements. The 2040 LRTP, also known as Moving Martin Forward, details how Martin County's multimodal transportation system will evolve over the next 25 years.

Goals and Targets

17. Reduce energy use and cost.	➢ Convert vehicles in city fleet to hybrid or EV at scheduled replacement times. ➢ Adopt procurement policies and right-sizing of vehicle fleet by 2023. ➢ Offer a modified work week to employees within 6 months.
18. Create safe, affordable, mobility/transportation.	➢ Conduct a complete streets assessment by 2022.
19. Improve infrastructure to adapt to growing innovation and need.	➢ Adopt a complete streets conceptual plan by 2023. ➢ Add EV charging infrastructure to public rights of way by 2025.

Accomplishments

Projects and Programs Previously Completed by the City:

- Commissioned a downtown electric-powered tram service using state grants and city capital investment in maintenance and operations.
- Purchased numerous hybrid staff vehicles.

Actions

17. Reduce energy use and cost.

Increase the percentage of vehicles powered by alternative fuels.

The City has direct control over the vehicles within its own fleet and can reduce its gas-emission impacts by converting a majority or all its fleet to renewable energy alternatives such as hybrid or electric vehicles.

Develop a sustainable fleet policy.

Adopting policies for the procurement of hybrid, electric, or alternative renewable energy powered vehicles and equipment is a priority for the near term. The policy should include considerations for right-sizing the fleet and a policy that encourages sustainable fleet maintenance through route design, technology, and employee behavior. Right-sizing is a fleet management practice of ensuring that

the municipal vehicle fleets such as Stuart's are utilized by the right employees, at the right times, in the right locations, for the right amount of time based on the job tasks associated with use of the vehicles.



F-150 Hybrid will come equipped with the all-new 3.5L PowerBoost™ full hybrid engine. This new Ford hybrid engine is targeting an EPA-estimated range of 700 miles on a full tank of gas.

Explore the effectiveness of a 4/10 work week.

With the implementation of a 4/10 work week, there would be an immediate reduction (up to 20%) of energy consumption of both employee-owned and city-owned vehicles. A 4/10 work week has other tangible and significant benefits including improved employee satisfaction and quality of life, enhanced customer opportunities for conducting business with the city, and other cost savings.

Overwhelming studies have evidenced that when employers transitioned to a 4-day, ten-hour work week, employee satisfaction surveys indicated that employee happiness increased. Studies also found that employee productivity increased, and work-related stressors decreased. Overwhelmingly employees rated that they were "very happy" or "happy" with their new (4/10) work schedule, and those who rated their work life balance as "very good" increased by 71%.

The extension of business hours from 7 a.m. to 6 p.m., four days a week would ultimately provide residents and businesses better opportunity to conduct business with the City. This new schedule would also better accommodate working customers and business owners by providing more convenient opportunities to pay utility bills, apply for permits, and have their urgent questions answered.

18. Create safe, affordable, mobility/transportation.



Electric-powered City of Stuart public

Safe transit.

The better transit options are, the better residents can age in place. Transit options as well as safe biking and walking infrastructure make the city more navigable by the young, old, and disabled. City officials should evaluate opportunities to enhance accessibility to pedestrians, bicyclists, and transportation connections.

Collaboration and planning with the MPO.

The City should continue to participate in the shaping future Martin County transportation initiatives through the MPO. The Bicycle, Pedestrian and Trails Master Plan intended to establish a multimodal transportation system that will expand transportation options and improve quality of life in Martin County.

Re-examine shuttle routes.

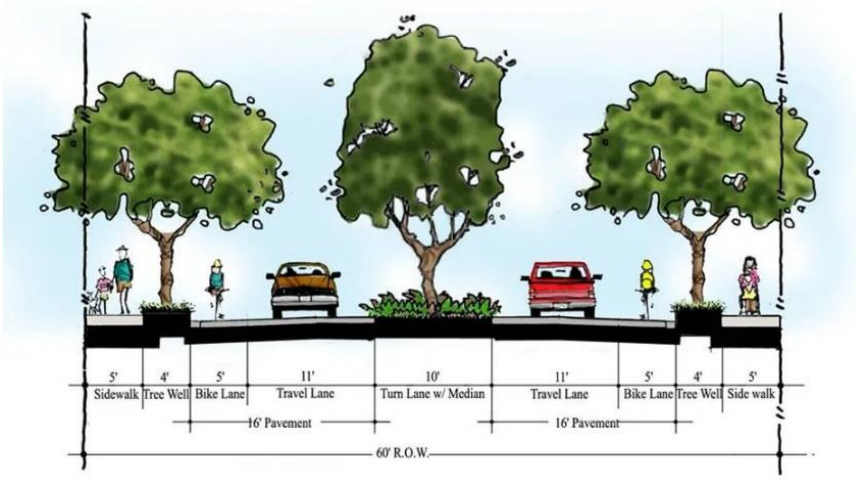
Many of the transit options in the City of Stuart are regional. The Martin County Public Transit, MARTY, offers four fixed route services, and one commuter bus service connecting to both Palm Tran and the Treasure Coast Connector public transit services, as well as an ADA eligible complementary paratransit service.

The City should re-examine potential shuttle routes or on demand mobility that would most efficiently move people from places of interest including residential areas, recreational areas, and areas of business. Stakeholders should be consulted to determine who would be most likely to use the service and for whom it would have the most benefit. Specific routes could also be piloted for a set time to assess ridership potential.

19. Improve infrastructure to adapt to growing innovation and need.

Develop a Complete Streets Conceptual Plan.

The plan would provide the city with an inclusive road design standard, enhancing pedestrian, bicyclist, motorist, and transit usage, regardless of mobility. Accordingly, there are different types of Complete Streets "interventions" or treatments that improve the function and safety of streets for the different members of the traveling public.



Complete Streets concept

Develop a public electric vehicle charging network.

The City should focus efforts to include electric vehicle charging infrastructure within existing city-owned parking areas and public facilities (municipal buildings and parks). An electric-powered downtown tram service has been utilized by the City for several years, however, more considerations for expanded mass transit both downtown and within the region should studied.

Investigate a more environmentally friendly pavement restoration program.

The near-road microenvironment (ME) is a significant area of policy and practice concern for modern urban planners, regulators, and sustainability managers. Emissions from cars and trucks are the major source of anthropogenic airborne toxins, which cause disorders such as asthma and even chronic pulmonary and cardiovascular diseases. Research has identified a clear association between serious environmental, ecological, and human health issues, and the presence of smog, acid rain and exposure to harmful toxins. The City could potentially counter harmful pollutants that are localized to municipal roads by evaluating innovative pavement restoration techniques, which fortify asphalt with a heat reducing, pollutant-removing photocatalyst.

CHAPTER 7: LOCAL GOVERNMENT

Home rule

The City is a level of government with the most immediate impact on most people's lives. As a City, Stuart controls much of the infrastructure, sets rules and regulations on how and where things are built, provides vital services and opportunities for recreation and learning. Many of the actions listed already in this plan will be carried out at the city government level. Some of the actions will be carried out at the level of individuals or businesses. All the actions will impact, in some way, the residents, businesses, and visitors to our City.

In striving towards a more sustainable city and in deciding what should be done to reduce and adapt to climate change, the City of Stuart should ask nothing from its residents and businesses that it isn't willing to do itself.

Ultimately, a City Sustainability Program should be ingrained in the way a city operates. Considering long-term sustainability into decision making should be imbedded in all processes. In using public funding, though monetary cost is always important, the long-term impacts the spending has on the city, the return on investment of a project, and the lifecycle costs of a good or a service. Decisions made in our City should not just benefit the present residents and businesses, but also the residents and businesses of our future.

Incorporating sustainability into City operations not only improves the sustainability of the City but is an opportunity to engage the City's more than 270 employees in sustainable practices and learning about and thinking about the environmental impact of behaviors. Those employees can spread that culture and understanding to their own homes, whether those homes are in Stuart or one of our neighboring municipalities and improve the overall sustainability of our region.



City of Stuart Commission Chambers

Goals and Targets

20. Incorporate sustainability into future city policymaking decisions.	➢ Conduct first biennial review of the Sustainability Action Plan by 2023.
21. Improve staff awareness of sustainability.	➢ 75% of city staff trained in sustainability issues by 2022.
22. Bolster city advocacy on sustainability issues.	➢ Identify sustainable legislation and policies for city advocacy priority annually.

Accomplishments

Projects and Programs Previously Completed by the City:

- In 2019, the City of Stuart established the first-ever sustainability committee to address future needs and challenges.

Actions

20. Incorporate sustainability into future city policymaking decisions.

Regularly monitor and update Sustainability Action Plan.

This Sustainability Action Plan is a living document intended to establish a continuum of broad policymaking decisions over a period. The initial draft is a policy framework that should be updated and improved as the city advances its efforts towards sustainability. Recommended objectives and targets should be tracked for progress and efficacy and the plan reviewed (at a minimum) biennially to integrate new technology considerations and strategic goals.

Develop sustainability criteria for CIP investments.

Develop sustainability criteria for Capital Improvements Project considerations based on priorities identified in the Sustainability Action Plan.

Implement a green procurement policy.

The City is a large consumer of goods and services locally. The purchasing preferences and practices of the City have the potential to drive market change to better products, materials, and efficiency as well as spur growth in green industries. The policy may be phased in starting with p-card purchases and expanding to common RFP language and project criteria.

Obtain a "green" certification.

Choose a certification program for the City to obtain. The Florida Green Building Coalition maintains a rating system for local governments that recognized the unique laws, environment, and climate of Florida. In order to compare ourselves to our neighbors and track our progress relative to an established system, the City should consider applying for recognition from the FGBC's Green Local Government program. LEED for Cities is a combination of STAR communities and LEED for Neighborhood Development.

21. Improve staff awareness of sustainability.

Include sustainability presentation in new employee orientation.

The City should educate new employees on the sustainability plan and provide new employees with a "green kit" consisting of high-quality reusable products such as straws, water bottles, insulated lunch bags, food containers, or other sustainable products that will help the new employees to incorporate the new behaviors.

Develop hands-on staff sustainability training.

A "Green Team" of staff members could help facilitate activities, meetings, and internal messaging to perpetually reinforce sustainability education among the city workforce. The team should consist of employees with an active interest in sustainability issues. The Green Team would create strategies to incorporate environmentally friendly behaviors to engage their coworkers in best practices and the development of a "green culture."



Flagler Park and the Saint Lucie River

Create an employee recognition program.

Referral of sustainable actions by staff could be an objective of the Green Team or promoted as a "Green Moment" in city commission meetings. The intent of promoting these activities and the people that make it happen is to inspire a citywide culture of sustainability.

22. Bolster city advocacy on sustainability issues.

Lobby for bolder and broader change.

The task of creating a sustainable city is daunting, but collaborative efforts will make a greater and longer-lasting impact. There are many organizations providing guidance and roadmaps to sustainable action. The City is currently working with Martin County to review assess climate vulnerabilities locally while developing a long-term mitigation strategy. Leadership should continue to be active participants and explore other avenues of cooperation locally and abroad.

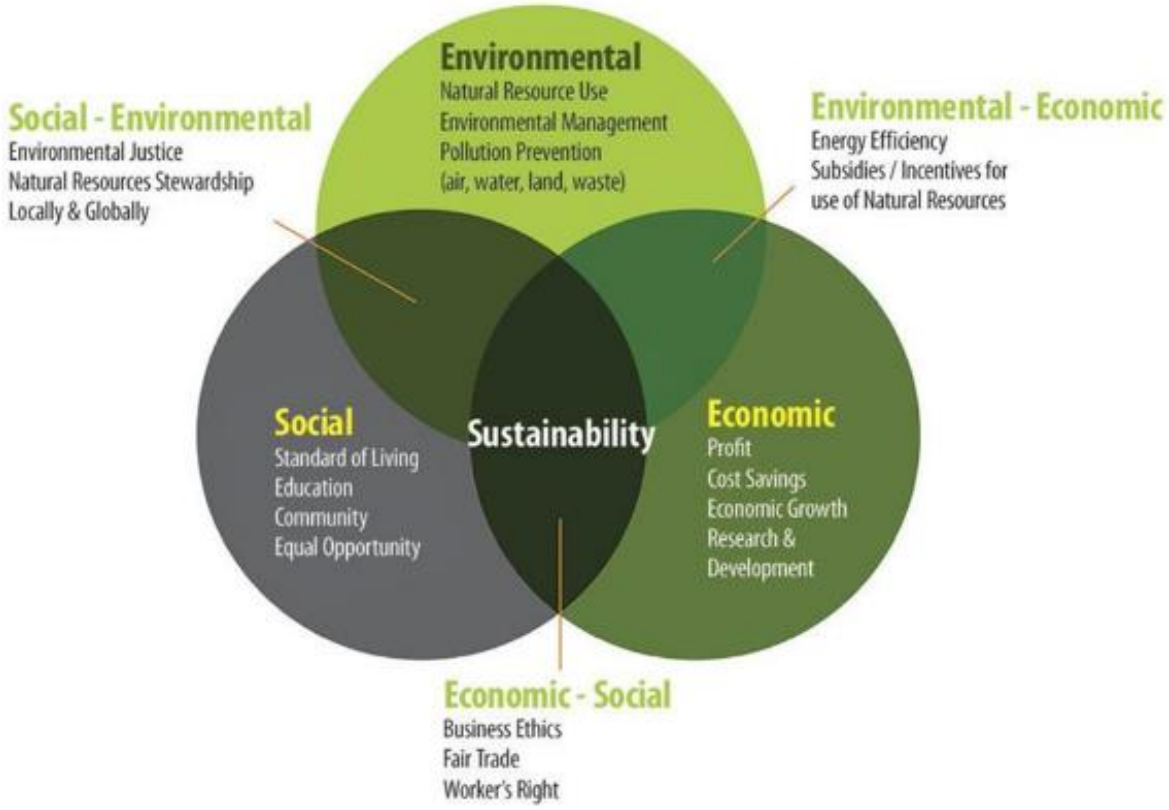
The City must continue to strengthen its legislative advocacy, particularly at the state level and include such topics in the City's annual legislative priorities. In addition, the City could advocate whenever possible, for amending federal regulations to incentivize the capital investment in renewable energies. Only a holistic framework of environmental, social, and economic solutions will yield the desired results, which require collaboration across the board.

PLAN IMPLEMENTATION

Sustainability and synergy

The City of Stuart is a small urban, full-service municipality that is already experiencing the effects of climate change like many coastal communities in Florida. While some of the challenges reflected in this plan are not yet of urgent concern, the intent of this action framework is to provide for a timeline and incentive to adapt proactively to our changing environment. In so doing, the City may find feasible and practicable solutions to current challenges, while ensuring those changes meet the needs of the future.

The interim Sustainability Committee worked diligently to identify areas for improvement and optional approaches to adapting to growing needs. The goals and objectives identified in this action plan are purposefully broad and open to modification. The intent of provided plan goals and targets is to lay a foundation for city leadership and staff to evaluate and revise according to urgency, resource constraints, and level of risk. The "menu" of options identified herein were not provided to constrain city officials, but rather to ensure synergy and continuity from the drafting of this plan to the implementation throughout the organization.

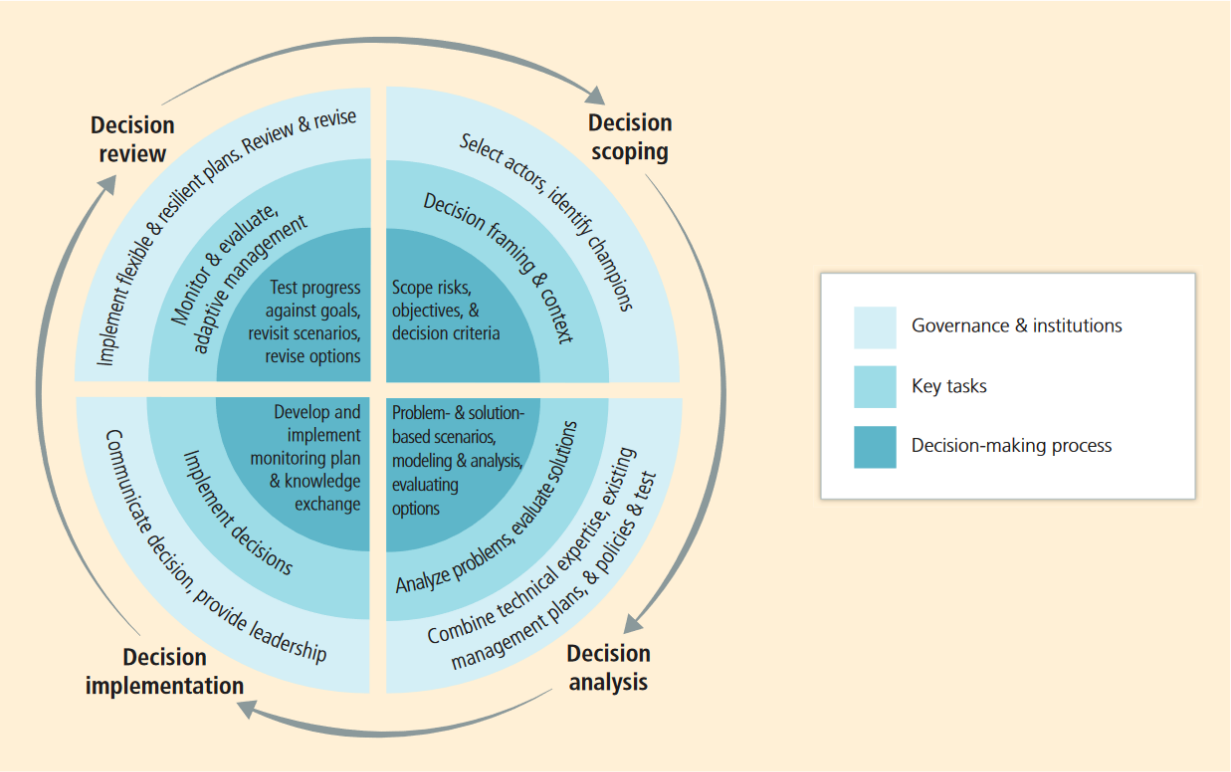


"Triple-Bottom-Line" approach to Sustainability

Review and Assessment

The sustainability committee focused its efforts on including a "Triple-Bottom-Line" framework as an overarching focus for local sustainable initiatives: incorporating social, environmental, and economic factors. While any one of these three categories can be positively impacted by a future sustainable initiative, priority should be given to a policy, program, or project that would benefit multiple or all three. Conversely, the adoption of sustainability initiatives that have a net positive impact in one category while negatively impacting another should be carefully evaluated for vulnerabilities and net outcomes.

Although most sustainability initiatives will be implemented over an extensive period, a uniform method for reviewing and assessing options for implementation should be included into the decision-making process. Similarly, a uniform method for evaluating the success of policies, programs, and projects will be a critical factor in determining future sustainability projects or in the drafting of any amendments to this plan.



IPCC four-stage process of decision-making graphic

Framework for risk analysis

An Intergovernmental Panel on Climate Change (IPCC) report, *Foundations on Decision Making*, describes iterative risk management as an ongoing process of assessment, action, reassessment, and response that will continue in perpetuity for decades or longer. While the interim Sustainability Committee does not formally recommend adoption of any one risk analysis framework, the IPCC report provides a transferrable model to local sustainability reform.

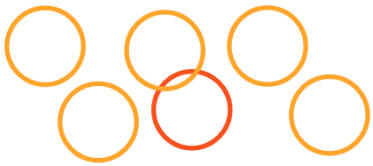
The following three risk categories are defined in the IPCC analysis as one approach to measuring risk of implementing actions identified in the sustainability plan.

1. Simple risk: Consisting of simple outcomes and communication, with widely accepted and straight forward implementation. *(e.g. installing a butterfly garden in Memorial Park; or EV chargers on public property).*
2. Complicated risk: A more collaborative approach requiring negotiated terms, shared outcomes and calculated risk, and frequent review. *(e.g. Amending city code to require developers to install EV charging infrastructure; or commercial or high-density residential recycling).*
3. Complex risk: A highly process-driven system of collaboration and cooperation among various stakeholders requiring thorough public input and buy-in. *(e.g. Collaborating with MPO to develop a complete streets plan that includes transportation connections to external services).*









Characteristics of decision making	Simple risk	Complicated risk	Complex risk
Methodology	Linear, cause and effect	Top down and/or bottom up, iterative	Iterative and/or adaptive, ongoing and systemic
Approach	Analytic and technical	Collaborative process with technical input	Process driven. Frame and model multiple drivers and valued outcomes
Stakeholder strategy	Communication	Collaboration	Deliberation, creating shared understanding and ownership
Mental models	Common model	Negotiated and shared	Contested initially and negotiated over project
Values and outcomes	Widely accepted	Negotiated over project by user perspectives and calculated risk	Contested initially and negotiated over project
Monitoring	Straightforward	With review and trigger points	As real-time as possible, adaptive with management feedback and trigger points

IPCC hierarchy of simple, complicated, and complex risks and calculation of risk

Conclusion

The City of Stuart Sustainability Action Plan should primarily be viewed as a living document allowing for ever-changing information, innovations, ideas, and methodologies to be assimilated into future actions. The goals, objectives, methods of assessment, and risk analyses are all subject to review and revision in the future as needed by city leadership. The recommendations contained herein will hopefully provide a system of continuity between the development of this plan and policy decisions developed hereafter.

The primary recommendation of the interim Sustainability Committee is for the creation of a Green Task Force comprised of city staff members with direction from the city commission and city manager. The new committee would be resolved to long-term plan implementation, project scoping, and evaluating successes and identifying new vulnerabilities.

The Sustainability Action Plan should be fully reviewed on a biennial basis to evaluate the overall progress of identified goals and priorities.