



Parameters of Sustainable Action

Town of Indian Lantic, FL

Introduction

Sustainability is based on the ability to meet the needs of the present without compromising the ability of future generations to meet their own needs (1). This concept is foundational to the longevity of societies, governments, corporations, and individuals.

Sustainability-oriented discussions have become normalized throughout local and national governments, resulting in international conferences such as the Conference of the Parties of the United Nations Framework Convention on Climate Change (such as COP27) and the United Nations Global Compact. Sustainability has become a global priority as focus has shifted toward long-term impacts of decisions made by governments, businesses, and citizens. Because of this, sustainable behavior has become more mainstream, encompassing any “set of actions [that] protect natural, social, and human resources” (2). Coastal communities such as the Town of Indialantic face new sustainability challenges as a response to a broad range of rapidly changing conditions and needs.

Introduction cont'd

As a barrier island, Indialantic encompasses a unique and diverse set of environmental characteristics. Located between the Atlantic Ocean and the Indian River Lagoon, its habitats can host marine, aquatic, and terrestrial life. As a small beach town, many people vacation and ultimately move to the area for the beautiful natural settings. This creates an opportunity for a unique bond between residents and the surrounding environment as is observed through the common use of public beaches, parks, and river access points. Indialantic is even the home to the Sea Turtle Preservation Society, which focuses on sea turtle protection and conservation along the coast of Brevard County. Because of these characteristics, Indialantic has a heightened opportunity to incorporate sustainable projects and behaviors throughout the town.



Introduction cont'd

In 2016, the Town of Indialantic developed an environmental task force to guide the town's sustainability efforts. This group transitioned into the Sustainable Communities and Resiliency Committee (SCRC) in 2022 to help more directly address these efforts and to work with the town to promote longevity, resiliency, and ultimately sustainability. The SCRC works with town council and citizens to improve sustainability efforts and accessibility throughout Indialantic. They have completed various projects such as native plant incorporation on public lands, implementation of a rain barrel rebate program, drafting landscaping and stormwater management ordinances, and aiding public outreach and communication programs.

The following Parameters of Sustainable Action are designed to act as a living document that can guide town decisions and projects over coming years. The Town of Indialantic prioritizes stormwater and flood management, environmental restoration and protection, sustainable consumption and byproducts, waste management, and knowledge and access as major categories for sustainable improvements. Each of these categories is broken into subcategories which further specify the components of each topic. Actions are listed within subcategories to outline specific goals of the committee. The examples listed under these actions provide individual projects that can accomplish these goals. This will be incorporated in the planning and execution of new and current projects throughout the town.

An aerial photograph of a coastal area, showing a long, narrow road or causeway running parallel to the ocean. To the right of the road is a residential neighborhood with many houses and trees. The sky is filled with large, white clouds. The entire image has a blue color overlay. The text "Stormwater & Flood Management" is centered over the image in a white, serif font.

Stormwater & Flood Management

An introduction to stormwater & flood management...

As a part of the barrier island, stormwater and flood management greatly impact the town of Indialantic. The Indian River Lagoon is one of the most diverse ecosystems in the country yet is greatly threatened by nutrient loading and pollution from stormwater and other runoff. With seasonal hurricanes in Florida, the barrier island is vulnerable to storm surges, water level rising, runoff and flooding, posing a concern to both humans and nature. New policies are addressing these issues by requiring water treatment and limiting outdoor chemical use. Florida has new rules in place that reduce the total suspended solids of stormwater runoff by 80% in order to meet the predetermined threshold of pollution that causes noticeable impact in our waters (3). It is important to manage these concerns and protect the neighboring bodies of water. Stormwater and flood management is impacted by several factors, including city infrastructure such as road construction, implemented water drainage systems, and fertilizer and other chemical use.

Runoff Prevention

Polluted runoff poses a great threat to the neighboring bodies of water surrounding the Town of Indialantic. The use of swales also helps mitigate runoff. A 6in deep swale can hold 15 gallons for every foot of length (4), making it highly effective in storing stormwater and preventing runoff. Larger cities such as Miami and New York City have also addressed runoff with projects including street tree planting and mangrove planting (5).



Runoff Prevention Actions & Examples:

- ❑ Increase water retention and runoff prevention
 - ❑ Implementation of swales with native plants
 - ❑ Adding more natives to overburdened swales
 - ❑ Investigate adequacy of current stormwater utility fee
- ❑ Increase sustainable stormwater management practices throughout the town
 - ❑ Rain barrel rebate program
 - ❑ Increase tree canopy to aid water storage
- ❑ Improve nutrient and pollutant filtering throughout the town
 - ❑ Native plant gardens and/or rain gardens along bike paths, Lily Park, and retention areas

Coastal Flooding

Coastal development has resulted in a large economic allocation in coastal properties which are vulnerable to flooding. This value can be seen in the market premium of waterfront properties. Dune restoration, shoreline enhancement, and beach erosion projects help protect these assets. Strategic retreat, mitigation, and adaptation are all methods of addressing flooding in coastal towns. An example of this is Louisiana's \$48 million federal grant to relocate families on Isle de Jean Charles due to flooding in the Gulf of Mexico at risk of completely destroying their properties (6).



Coastal Flooding Actions & Examples:

- ❑ Increase in natural shoreline protection methods
 - ❑ Mangrove and marsh grass shoreline plantings, particularly in the Indian River Lagoon
 - ❑ Encourage responsible irrigation practices throughout the town
 - ❑ Dune restoration projects focusing on plant diversity and healthy sea oat populations
- ❑ Form partnerships with nonprofit conservation groups to help in areas of storm water, flood mitigation and shoreline restoration
 - ❑ Surfrider Foundation's Ocean Friendly Gardens program
 - ❑ Approach Marine Resources Council regarding shoreline protection projects
 - ❑ Become involved with Brevard Zoo's conservation projects

A blue-tinted photograph of a residential street. In the foreground, there is a grassy area with a mulched garden bed containing several small bushes. A road curves to the left, with a red octagonal stop sign on the corner. In the background, there are several palm trees and other greenery under a clear blue sky. The overall scene is bright and sunny.

Environmental Restoration & Protection

An introduction to environmental restoration & protection...

Environmental protection and restoration efforts are crucial to maintaining biodiversity and ecosystem health amidst changing resource needs resulting from population changes. Florida, largely known for its coastal cities, faces unique challenges related to the need for shoreline protections. Many towns are putting new regulations in place to ensure the protection of shoreline developments from storms and environmental damages, while also protecting the shorelines themselves. It has become apparent that taking steps to protect the shoreline from erosion can cut down long-term restoration costs, as natural dunes and shoreline plants help protect buildings from wind damage, flooding, and other forms of erosion, particularly during hurricanes (7). In the Indian Atlantic, waterfront and water-adjacent development have a large economic impact. The IRL is one of the most biodiverse estuaries in North America, being home to over 4,400 types of plants and animals, and is valued at \$7.6 billion annually (8). The IRL and its shoreline should be a conservation priority.

Habitat Protection

Habitat loss is a leading cause of species endangerment and extinction, disrupting ecosystems and harming local plants and animals. Florida is one of the most biodiverse states, being home to vast marine, forest, and wetland ecosystems. According to the USDA, it consistently ranks as a top state for biodiversity, but also for the risk of species extinction rates (9). Locally, we can place emphasis on protecting habitats for native plants and animals to thrive in, particularly in and around the Indian River Lagoon, whose biodiversity is at risk due to several climatic factors (10).



Habitat Protection Actions & Examples:

- ❑ Practice responsible chemical usage & disposal throughout the town
 - ❑ Lower fertilizer use on town properties
 - ❑ Reduce insecticides, herbicides
 - ❑ Create a town policy that codifies sustainable chemical regulations
- ❑ Continue to protect the dunes and beach wildlife
 - ❑ Implement turtle-safe lighting
 - ❑ Remove invasive plants on dunes
 - ❑ Enforce beach regulations regarding digging holes and dune disturbance
- ❑ Advocate and encourage low impact development practices
 - ❑ Require new construction/remodels to follow low impact development (LID) guidelines through codification of LID principles

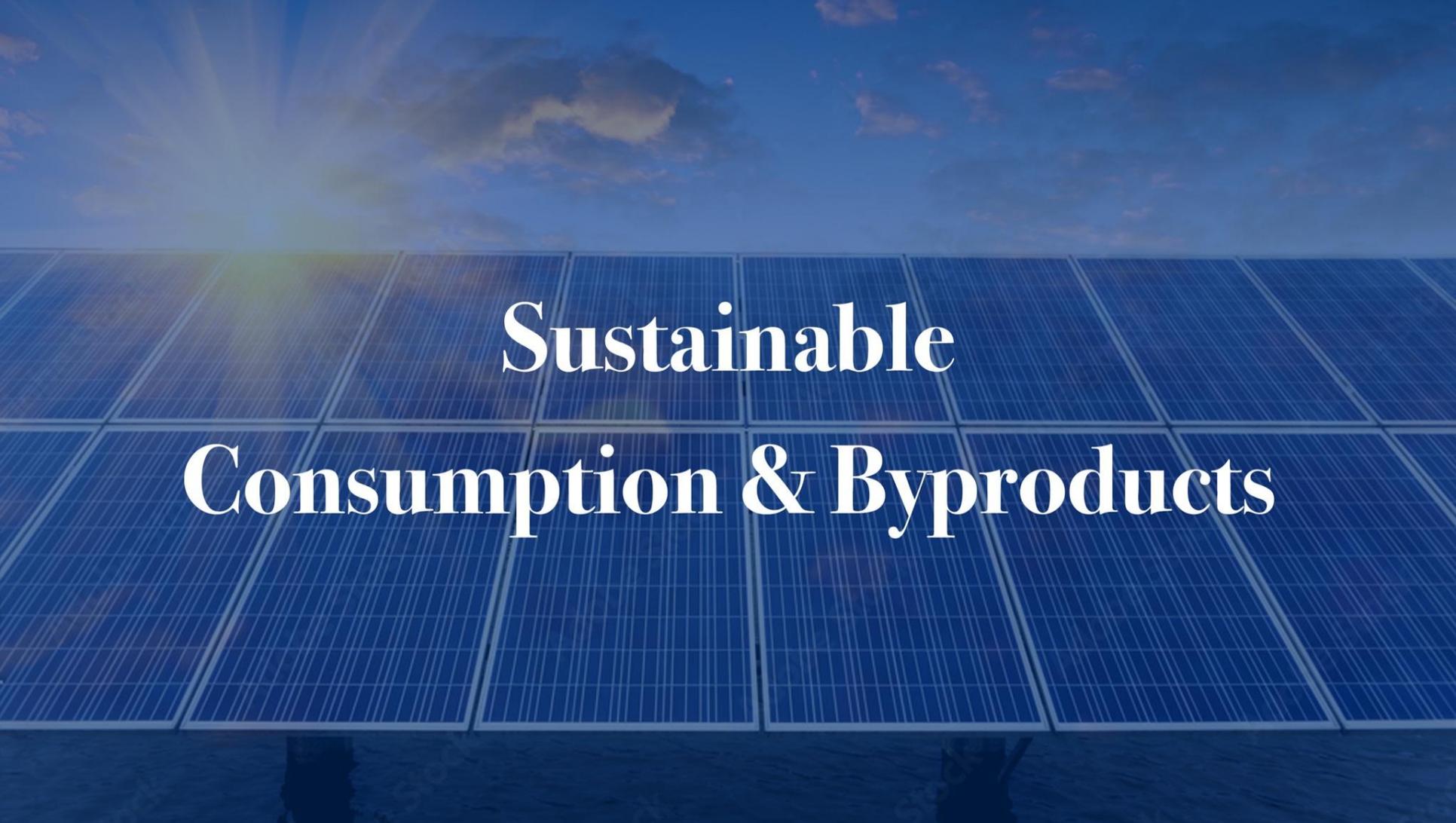
Vegetation Diversity Restoration



Plant diversity is crucial to the health of environments. Native plants provide habitat and food sources for wildlife. They also are important in maintaining atmospheric balance as they remove carbon dioxide from the atmosphere and produce oxygen. Trees provide shade and water treatment, helping mitigate concerns arising from concrete-based development. The introduction of surfaces such as concrete heat up quickly and decrease water drainage. This contributes to excess heat and flooding, both of which harm local systems. When considering diversity restoration, It is important that there is a focus on native plant species, as many nonnatives have a detrimental effect on local ecosystems (11). Additionally, native species have the ability to survive in natural conditions, drastically reducing the need for watering and other maintenance burdens.

Vegetation Diversity Restoration Actions & Examples:

- ❑ Increase tree canopy for thermal benefit
 - ❑ Plant trees to provide increased shade
- ❑ Increase native landscaping along shorelines to decrease nutrient levels entering water bodies
 - ❑ Living shoreline at Douglass Park
 - ❑ Conduct landscaping projects at local parks and other public spaces
 - ❑ Conduct projects along both marine and IRL shorelines
- ❑ Codify, advocate, and encourage more native plant use throughout the town
 - ❑ Create native plant gardens and educational displays at Orlando, Douglas, and Tradewinds parks
- ❑ Increase native habitats throughout town.
 - ❑ Clear invasive species from public spaces and replace them with native species.
 - ❑ Expand bird sanctuary garden in Orlando Park

A large array of solar panels is shown from a low angle, stretching across the frame. The panels are dark blue with a grid of thin white lines. Above the panels, a bright sun is visible in the upper left corner, creating a lens flare effect that radiates across the sky. The sky is a deep blue with some light, wispy clouds. The overall scene is clean and modern, representing sustainable energy.

Sustainable Consumption & Byproducts

An introduction to sustainable consumption & byproducts...

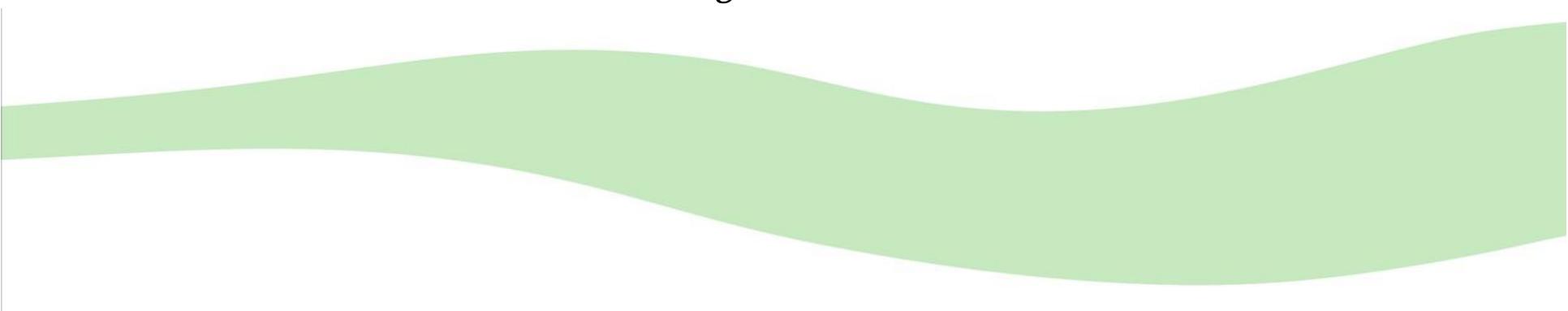
Resource consumption has increased drastically with population growth and technological advancement, especially in terms of electricity and water. This consumption occurs primarily in residential, commercial, and industrial sectors, with the total national electricity consumption totaling 3.9 trillion kWh in 2021 (12). Electricity is generated from several sources, primarily including natural gas, coal, nuclear, and renewables. As of 2021, about 20% of total U.S. electricity consumption was from renewable sources (26). Renewable energy has been shown to decrease long term electricity costs, and their share of energy generation has been increasing since 2000 (26). Using Energy Star and WaterSense certified appliances and fixtures is a popular way to decrease energy usage throughout homes and commercial buildings (14).

Energy Consumption

Average electricity consumption in the U.S. was about 886kWh per month per household in 2021 (12). The average residential electricity bill for Florida residents was \$130 in 2021, with an average monthly use of about 1100kWh (15). The transition to solar energy is one viable way to decrease the costs associated with energy consumption and move toward sustainable resources. According to the Solar Energy Industries Association, in 2022, about 5.3% of the state's electricity came from solar power (16). Locally, in 2018, the city of Satellite Beach installed solar canopies in Pelican Beach Park and City Hall, providing shade and power for local events and city functions (17).



Energy Consumption Actions & Examples:

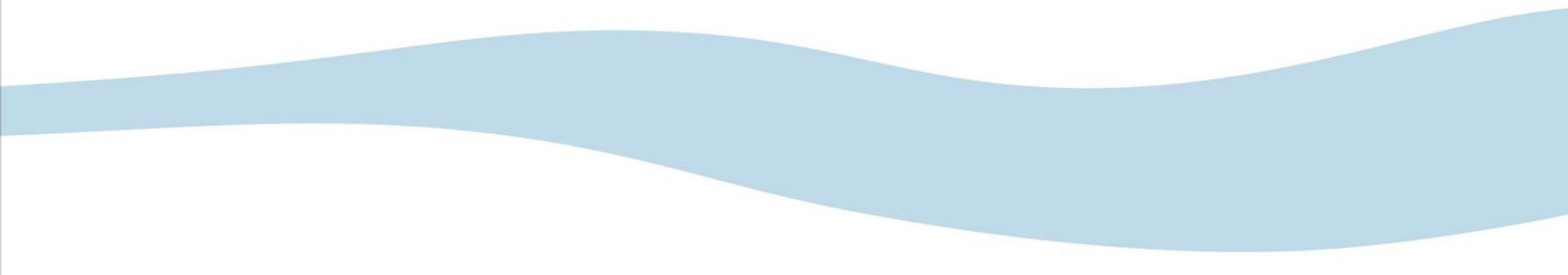
- ❑ Increase the use of sustainable energy throughout the town
 - ❑ Encourage solar panel use for residential power
 - ❑ Add solar panels to government buildings
 - ❑ Define and codify updated government building sustainability certification standards
 - ❑ Increase the number of town buildings that meet sustainable building certification standards
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Water Consumption



There are concerns throughout the country regarding long-term accessibility to clean water. Much of Florida uses underground aquifers that provide fresh water. The Florida Aquifer, providing water for most of northeast and central Florida, has been subject to saltwater intrusion, increasing the need for expensive treatments and decreasing the amount of freshwater available. Because the aquifers are replenished by rainfall, there is a high risk of variability in water accessibility if more water is removed from the aquifer than is replenished annually (18). The average American used 82 gallons of water each day in 2021 (13). Energy Star and WaterSense certifications have been put in place to categorize appliances by their efficiency, and use of these appliances saves about \$400 on average per family per year, helping to save money and conserve water (13, 14).

Water Consumption Actions & Examples:

- ❑ Reduce water consumption through the town, particularly in government buildings
 - ❑ Recommend water efficient appliances in remodels and new developments
 - ❑ Incorporate water efficient systems in government buildings as available
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Byproducts

The burning of fossil fuels accounted for roughly 72% of greenhouse gas emissions, and the transportation sector made up 37% of energy end-use CO₂ emissions in the U.S. in 2021 (19). Reducing the carbon output of vehicles will be critical to decreasing overall energy consumption and emissions. According to the 2021 U.S. census, Over 90% of American households have at least one car (20). Electric Vehicles (EVs) are becoming increasingly popular to decrease the greenhouse gas emissions in transportation, and Florida had the second highest number of EVs registered by state in 2021 (21).



Byproducts Actions & Examples

- ❑ Encourage use of electric vehicles
 - ❑ Build electric vehicle charging stations on public property
 - ❑ Incentivize electric vehicles with access to restricted parking
 - ❑ Replace existing city vehicles with hybrid or electric vehicles
- ❑ Encourage use of public transportation
- ❑ Improve access to sidewalks and crosswalks to encourage use of bicycles and walking
- ❑ Increase tree canopy for CO₂ capture

A large pile of plastic waste bales, consisting of numerous white, blue, and green plastic bottles and containers, stacked high and secured with white ropes. The background is a clear blue sky with a few wispy clouds. The text "Waste Management" is overlaid in the center in a white, serif font.

Waste Management

An introduction to waste management...

With a growing population, waste management becomes increasingly important. In 2018, 292.4 million tonnes of solid waste were generated in the United States, with only roughly 32% being recycled or composted (22). New technologies are making recycling and composting more accessible to the general public, as well as more efficient to produce. The concept of a circular economy also gains popularity as society works towards a system where the same materials and products can circulate over a long-term period instead of needing a constant inflow of new resources (23). The United Nations 27th Conference of the Parties (commonly referred to as COP27) also emphasizes the need for this in their discussion of progressive policies and treaties. This results in more exposure and, ultimately, an increase in education about the implications of single use plastic. An increase in awareness and education about waste helps create a more conscious and sustainably minded town.

Reusing & Recycling

Reusing and recycling play key roles in waste management. By reusing products when possible, waste can be significantly reduced. This helps to limit single-use plastics and is also economically favorable in many instances, such as reusing water bottles or other containers. Recycling also reduces waste by allowing used plastics, glass, and metals to be converted into new products. Unfortunately, only 9% of plastics were recycled in 2018, though this number is slowly increasing (24).

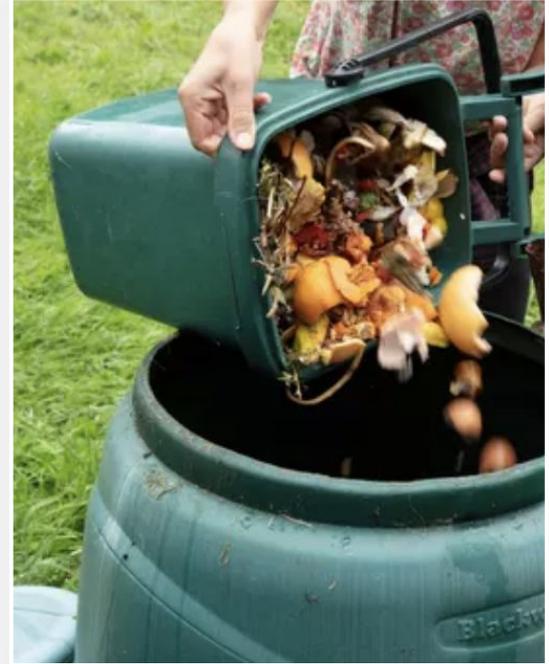


Reusing & Recycling Actions & Examples:

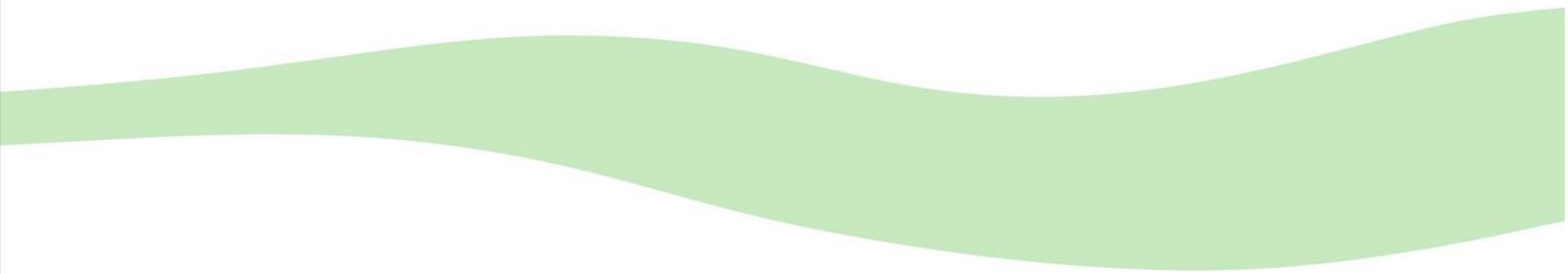
- ❑ Promote and increase reducing, reusing, and recycling throughout the town
 - ❑ Provide access to terracycling, electronics recycling, sneaker recycling
 - ❑ Add more recycling bins at beaches and parks
 - ❑ Increase access to water bottle refilling stations
 - ❑ Create a public source stating what can and cannot be recycled
- ❑ Promote sustainable waste management in local business and government practices
 - ❑ Partner with Surfrider Foundation's Rise above plastics and Ocean friendly restaurants
 - ❑ Decrease the use of paper for town processes
 - ❑ Invest in small glass compactors in appropriate areas

Composting

Composting is an effective method of waste management, converting biodegradable waste into soil additives through aerobic respiration (25). By increasing access and education surrounding composting, communities can prevent excess waste and receive added benefit of the byproducts in individual and communal gardening. This includes food waste as well as compostable packaging. Disposable items such as plastic straws and utensils can be made out of biodegradable materials such as algae phage, hemp, agave, or other plants. The use of these sustainable materials in local businesses and establishments can greatly decrease waste when paired with an active composting initiative throughout the town.



Composting Actions & Project Examples:

- ❑ Increase usage of composting throughout town
 - ❑ Create publicly accessible compost bins
 - ❑ Create educational materials about private composting
 - ❑ Coordinate with existing nonprofits that aid in the collection of compost
- 

A close-up photograph of several hands of different skin tones stacked together in a circle, symbolizing unity, teamwork, and support. The image is overlaid with a semi-transparent blue filter. The text 'Knowledge & Access' is centered over the hands in a white, serif font.

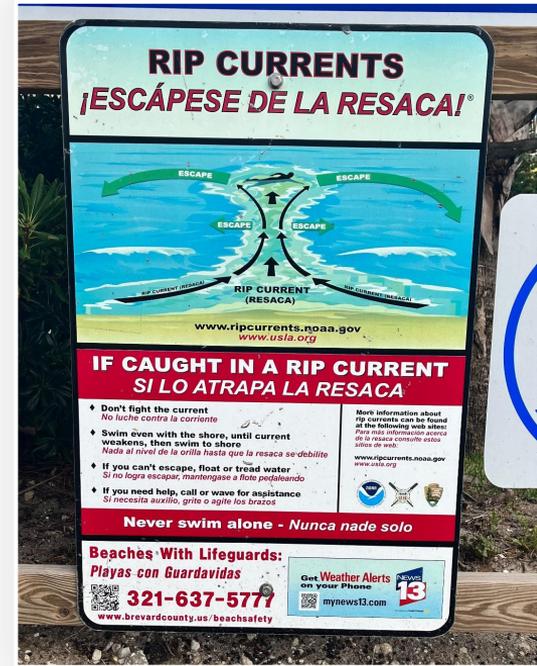
Knowledge & Access

An introduction to knowledge & access...

In the age of technology, people are exposed to more information than ever before. This leads to an overload of information in many avenues and can often cause problems in the general public's ability to locate accurate portrayals and sources of relevant information. With the use of social media, informational bias makes it increasingly difficult to navigate these influxes of sources. However, several nonprofits have taken advantage of these platforms to create widespread mission marketing, providing awareness and resources to a vast range of audiences and environmental topics. This can increase the general public's exposure to the connections between environmental and societal systems, creating a pathway to community engagement surrounding these issues. Within the Town of Indialantic, access to information can increase local engagement and stimulate more sustainable behavior.

Access to Information

With this increase in access to information, the concept of sustainability has become more widely known within the general public. As people are exposed to new information regarding environmental challenges faced across the country, sustainability has gained traction as a topic of conversation through the use of widespread digital platforms. This opens up opportunities for fundraising, educational events, and a progressive shift towards more sustainably minded societal practices. Sustainable behavior and its varying implications continue to become more mainstream as these opportunities expand.



Access to Information Actions & Examples:

- ❑ Educate the community on sustainable topics
 - ❑ Hosted and non-hosted events
 - ❑ Community classes
 - ❑ Social media promotion of topics such as importance of swales, turtle nesting, native habitats, runoff mitigation, mangrove roles in flood prevention, creating a circular economy, and maintaining healthy beach habitats
- ❑ Increase access to environmentally educational materials
 - ❑ Permanent informational signs at sites of note such as STPS nesting signage at Paradise Beach and native landscaping and fertilizer education displays at local parks
 - ❑ Use website as information hub to a variety of sustainability resources
 - ❑ Implement a small library of sustainability materials at town hall
- ❑ Increase exposure to Resilience/Sustainability materials and current projects
 - ❑ Create and maintain a website to provide timely updates and information

Community Engagement

Community events play a key role in increasing involvement and awareness of a wide range of environmental and social impacts of sustainability efforts. Festivals, athletic events, corporate-sponsored events, and other forms of community engagement offer opportunities to get community members involved in sustainable projects and learn about ways to increase their own sustainability. This can lead to an increase in volunteers and support towards future sustainable endeavors in Indialantic.



Community Engagement Actions & Examples:

- ❑ Create opportunities for the public to become involved in the town's sustainability efforts.
- ❑ Increase access to town processes and procedures
 - ❑ Stream Town Council meetings
- ❑ Host community events
 - ❑ “March for Monarchs” or “Bike for Bees” and entrance fees can go towards the purchase of native pollinator plants
 - ❑ Host beach cleanups
 - ❑ Native planting events