



RESILIENT PINELLAS

Action Plan

2023



Resilient Pinellas was made in coordination with the Sustainability and Resiliency Action Plan (SRAP) Project Team, consisting of Pinellas County staff and the consultant team as a part of the Scope of Services outlined in RFP Contract No. 190-0128-NC (SS), SRAP.



Credits

Resilient Pinellas was created through the guidance of a diverse and dedicated group of individuals, whose local knowledge, strategic insight and research have proven invaluable to the development and success of Resilient Pinellas.

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VISION STATEMENT

Pinellas County sets the standard for sustainability and resiliency practice by integrating its resources, embracing innovation and setting prudent policy to support future generations.

MISSION STATEMENT

Pinellas County is committed to enacting effective sustainability and resiliency policy, implementing best practices to cost-effectively reduce energy and water use, and responsibly manage environmental and public resources to meet the needs of future generations.



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Letter from Leadership

I'm proud to present the Resilient Pinellas Action Plan, the first-ever comprehensive action plan to help make Pinellas County more resilient and sustainable. Developed over two and a half years, the plan combined input from community members, local businesses and government leaders to identify and meet the needs and priorities of Pinellas County.

The plan covers a range of important topics, such as reducing greenhouse gas emissions, strengthening our infrastructure to withstand extreme weather events, and ensuring equitable access to resources and services for all residents.

The plan's 56 initiatives are organized into six focus areas: Empowered Citizens, Economic Vitality, Resilient Infrastructure, Healthy Ecosystems, Vibrant Neighborhoods, and Safe and Secure Communities. We lay out diverse tools for getting the work done, including a Clean Energy Roadmap, vulnerability assessment, external engagement strategy and more.

By engaging with residents and other stakeholders, promoting sustainable business practices, protecting critical infrastructure, preserving the environment and enhancing community safety, Pinellas County aims to be a leader in sustainability and resiliency solutions.

Thank you for your interest in the Resilient Pinellas Action Plan. We are committed to implementing prudent sustainability and resiliency policy and best practices to meet the needs of future generations. Whether you're a business owner, community leader or concerned citizen, there are many ways to get involved and make a difference.

Sincerely,



Hank Hodde, CFM, ENV SP

Sustainability & Resiliency Administrator

OVERARCHING GOALS

The **four overarching goals** represent important performance outcomes for Pinellas County and align with the County's Strategic Plan to provide long-term guidance to meet the mission and vision of the County.

1. We will promote practices that improve resiliency in recovering from natural disasters and responding to sea level rise and climate stresses.



2. We will implement best practices and strategies to reduce our energy use and protect the natural environment.

3. We will foster a culture of fairness, engagement and empowerment for all.

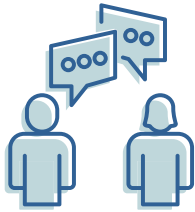


4. We will seek sustainable and resilient outcomes through proactive innovation, resource management and decision-making.



GUIDING PRINCIPLES

The **guiding principles** helped to guide the development of Resilient Pinellas and are an expression of Pinellas County's sustainability and resiliency values.



COLLABORATIVE

Encourages transparency and participation with other organizations, municipalities, community stakeholders, regional partners and the people of Pinellas County.



ACTIONABLE

Includes steps to achieve a realistic implementation timeline and defines responsibilities to put sustainability and resiliency into practice.



FUTURE-FOCUSED

Thinks about future conditions and increases our ability to improve our quality of life without damaging or depleting natural resources for present and future generations.



DATA-DRIVEN

Identifies steps to use sound science and quality, evidence-based data in the decision-making process and track measurable outcomes.



COMMUNITY-CENTERED

Promotes fairness and inclusion, putting people and our communities first.

SUSTAINABILITY AND RESILIENCY

Pinellas County's approach to sustainability and resiliency follows a triple bottom line approach, providing a holistic analysis common in sustainability practice that looks at potential return on investment based on three criteria: Economic Prosperity, or Profit; Social Responsibility, or People; and Environmental Stewardship, or Planet. As seen in the image below, each of the six Focus Areas adopted as a part of this plan align with the three criteria, providing a comprehensive means to support the County's residents and visitors, improve and protect the environment, and sustain a thriving economy.

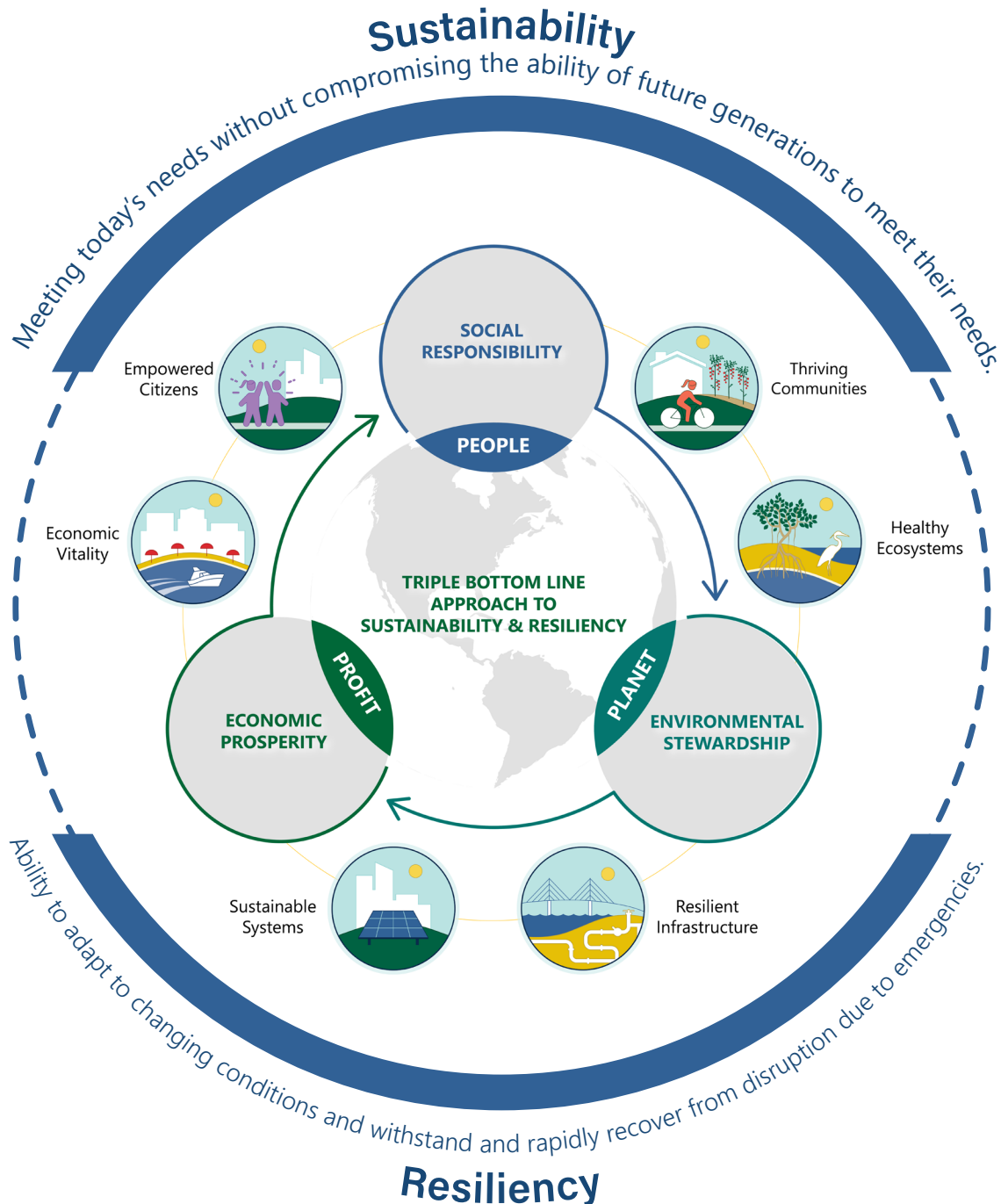




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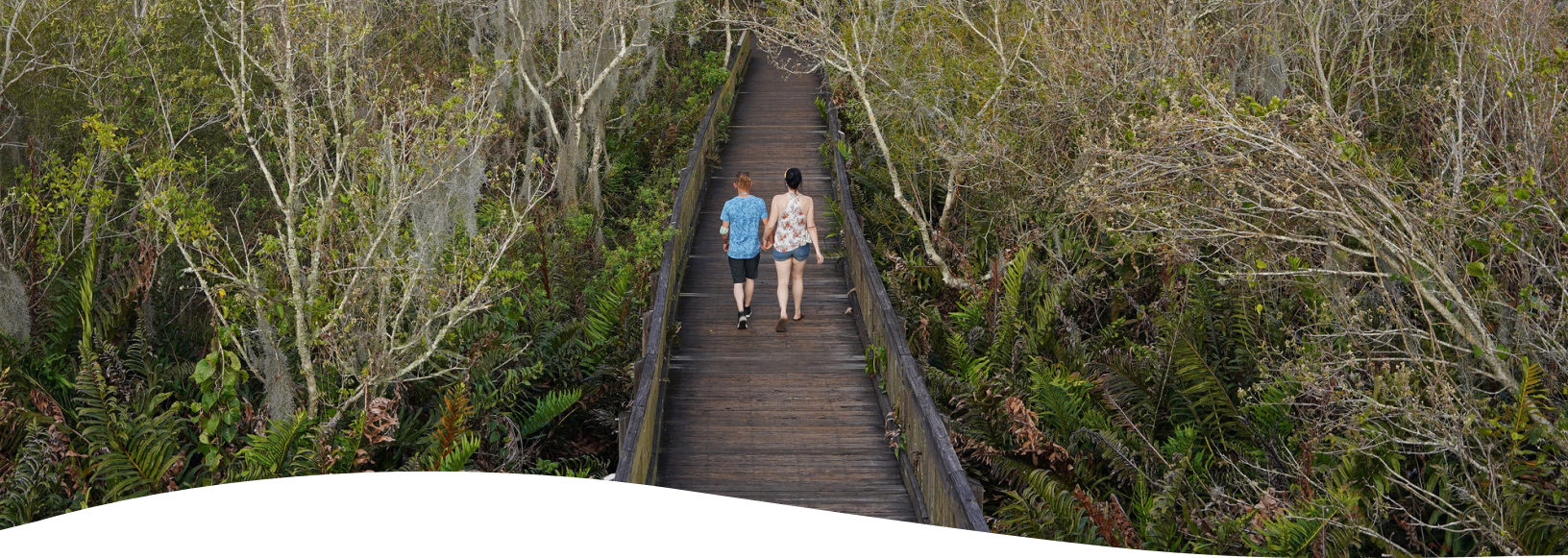
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List of Acronyms

AAA Adaptation Action Area

ADU Accessory dwelling unit

AFOLU Agriculture, Forestry, and Other Land Use

APWA American Public Works Association

C&D Construction and demolition

CDBG Community Development Block Grant

CDC Centers for Disease Control

CH₄ Methane

CG Clearwater Gas

CHIP Pinellas County Community Health Improvement Plan

CIP Capital Improvement Program

CO₂ Carbon dioxide

CO₂e Carbon dioxide equivalent

CRA Community Redevelopment Area

DEF Duke Energy Florida

EAM Enterprise Asset Management

EE Energy efficiency

EV Electric vehicle

FDEM Florida Division of Emergency Management

FDOT Florida Department of Transportation

FEMA Federal Emergency Management Agency

FFPC Florida Food Policy Council

FFWCC Florida Fish and Wildlife Conservation Commission

FGBC Florida Green Building Council

FGTF Florida Greenways & Trails Foundation

FLIP Florida-Friendly Landscaping Incentive Program

FSBDC Florida Small Business Development Center

GHG Greenhouse gas

GWP Global warming potential

HEC3 Pinellas County Household Electronics and Chemical Collection Center

HiAP Pinellas County Health in All Policies initiative

HOA Home Owners Association

ITS Intelligent transportation system

JWB Juvenile Welfare Board

kWh Kilowatt hour

LCAT Pinellas County Leadership and Action Team

LED Light-emitting diode

LEF Lowest floor elevation

LEED Leadership in Energy and Environmental Design

LFWG Large Food Waste Generators

LGOP Local Government Operations

LMI low to medium income

LMS Local Mitigation Strategy

MDS Minimum data set

MPG Miles per gallon

MPO Metropolitan Planning Organization

MSA Metropolitan Statistical Area

MSW Municipal solid waste

MTCO_{2e} Metric tons of carbon dioxide equivalent

MWh Megawatt hour

N₂O Nitrous oxide

NFIP CRS National Flood Insurance Program Community Rating System

NSF National Science Foundation

PACE Property Assessed Clean Energy

PCS Pinellas County Schools

PDRP Post Disaster Redevelopment Plan

PHEV Plug-in hybrid electric vehicle

PSTA Pinellas Suncoast Transit Authority

PV Photovoltaic

REC Renewable Energy Credit

RNG Renewable natural gas

ROI Return on investment

RRRF Pinellas County Regional Resource Recovery Facility

SLR Sea level rise

SRAC Pinellas County Sustainability and Resiliency Advisory Committee

SRAP Pinellas County Sustainability and Resiliency Action Plan

STEM Science, technology, engineering and mathematics

SVI Social Vulnerability Index

SWFWMD Southwest Florida Water Management District

T&D Transmission and distribution

TBEP Tampa Bay Estuary Program

TBL Triple bottom line

TBRPC Tampa Bay Regional Planning Council

TECO Tampa Electric, aka People's Gas

TIF Tax Increment Financing

UF/IFAS University of Florida Institute of Food and Agricultural Sciences

US DOE United States Department of Energy

US HUD United States Department of Housing and Urban Development

US EPA United States Environmental Protection Agency

USF University of South Florida

USDW Underground source of drinking water

USGBC U.S. Green Building Council

VMT Vehicle miles traveled

WRF Wastewater Reclamation Facility

WTE Waste-to-Energy

YAC Pinellas County Youth Advisory Committee



CHAPTER 1

Introduction

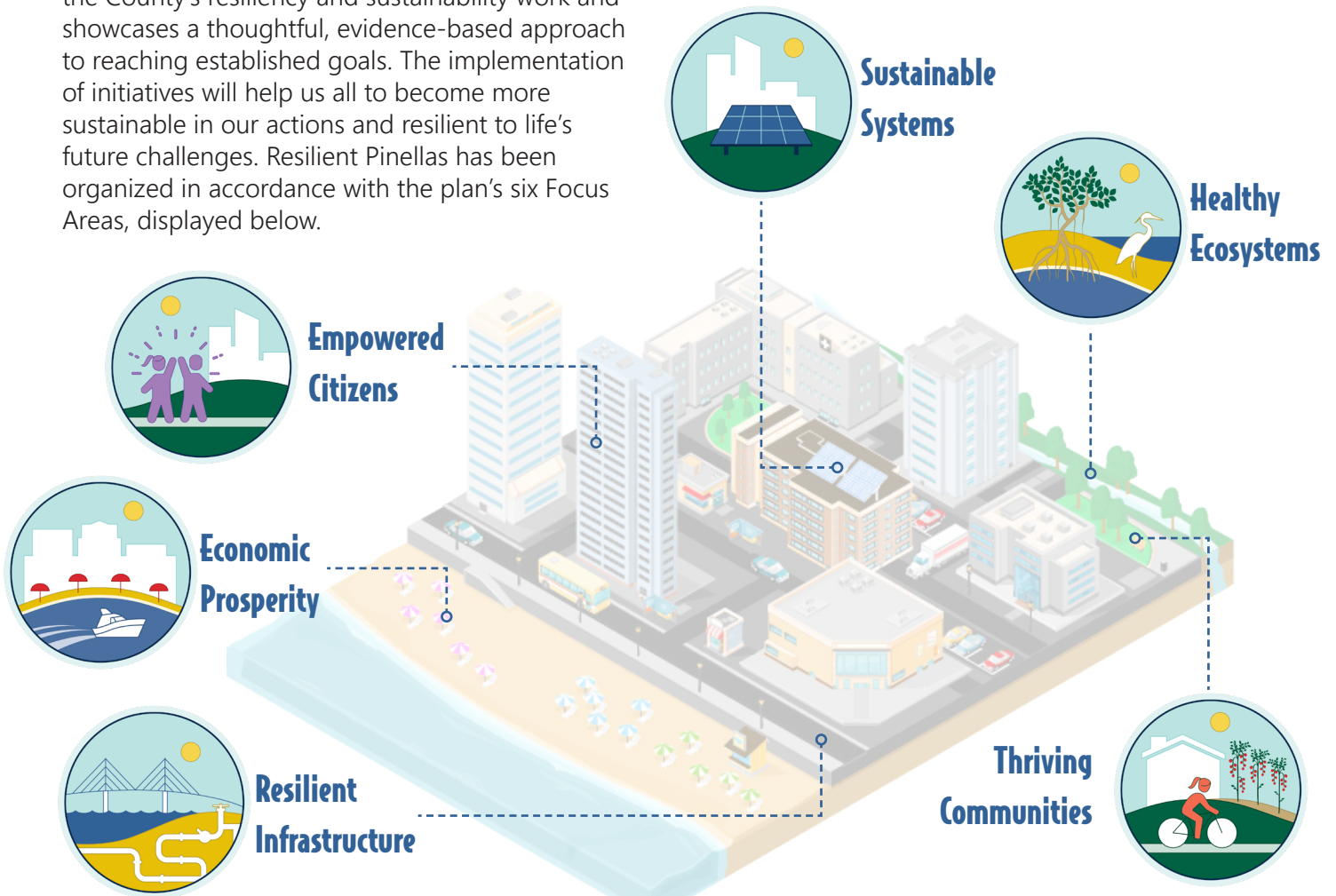
Introduction to the Action Plan

With nearly 600 miles of coastline, treasured natural habitats and vibrant beach communities, Pinellas County is a highly desirable place to live, work, play and visit. As Florida's most densely populated county, we need to think strategically about how to promote environmental stewardship, community resiliency, hazard mitigation and climate change adaptation to ensure we thrive both today and into the future. Pinellas County Government recognizes that the low-lying peninsula is at greater risk to changing future conditions such as sea-level rise, storm surge, man-made disasters and extreme weather events. The County is continuously working to reduce vulnerability to these threats and maximize resources to help us live more sustainably and overcome our economic, environmental and social challenges.

The Resilient Pinellas plan provides an overview of the County's resiliency and sustainability work and showcases a thoughtful, evidence-based approach to reaching established goals. The implementation of initiatives will help us all to become more sustainable in our actions and resilient to life's future challenges. Resilient Pinellas has been organized in accordance with the plan's six Focus Areas, displayed below.

Together, initiatives outlined in Resilient Pinellas will help to reduce the County's carbon footprint and vulnerability by embracing sustainable, resilient projects, policies and programs that reduce our demand on energy and water resources, help us to build smarter, and increase our understanding of the benefit of these solutions.

Resilient Pinellas was developed over the course of two years, with the project kick-off starting in early fall 2020 and implementation of Resilient Pinellas in spring 2023. The identification of the foundational elements and best practices included in Resilient Pinellas occurred through extensive collaboration with both internal and external stakeholders, leading to a data-driven, comprehensive and custom plan to meet the unique sustainability and resiliency needs of Pinellas County.



History of Sustainability and Resiliency in Pinellas County

Pinellas County Government will continue to be a leader in implementing sustainability and resiliency work, joining other local governments around the world who are increasingly setting bold targets and actions to address the impacts of climate change and deliver more sustainable outcomes. The timeline on the next page reflects major milestones in the County's sustainability and resiliency story. As mentioned in the 2020 Sustainability Report, the County's pathway to sustainability and resilience has had its fair share of interruptions and threats.

Major storms and historical events have caused societal and environmental changes and enlightened us about opportunities to rebound and adapt so that we are more successful in the future. The timeline on the following page represents recent events that had a negative impact on the community as well as the milestones that the County has achieved to better the quality of life of the community.

Vision and Mission Statement

Through the development of the action plan, Pinellas County has established a mission and vision statement for the County to guide its sustainability and resiliency work.

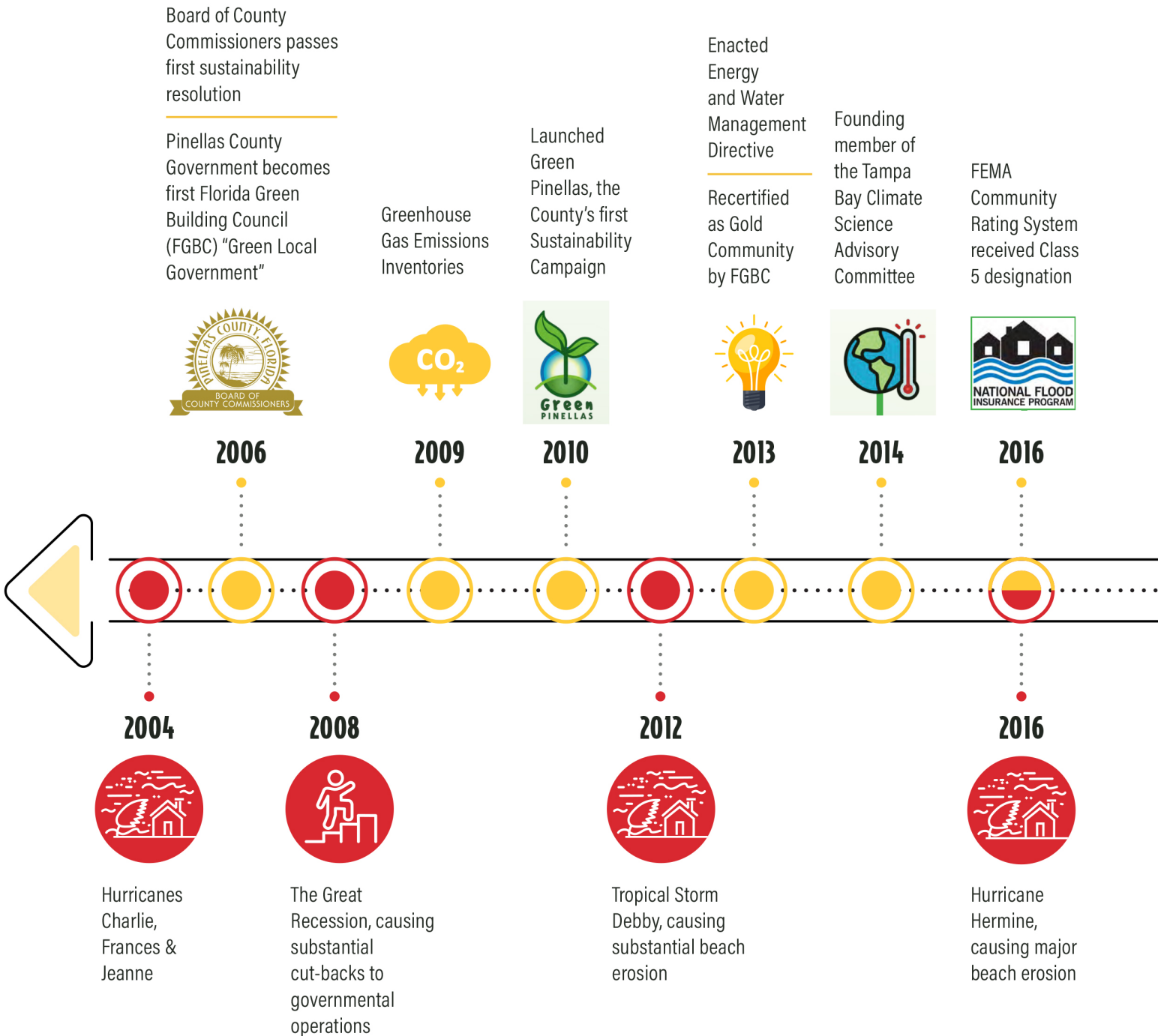
Our Vision

Pinellas County sets the standard for sustainability and resiliency practice by integrating its resources, embracing innovation and setting prudent policy to support future generations.



Our Mission

Pinellas County is committed to enacting effective sustainability and resiliency policy, implementing best practices to cost-effectively reduce energy and water use and responsibly manage environmental and public resources to meet the needs of future generations.



Founding member of Tampa Bay Regional Resiliency Coalition

Formed the Pinellas County Leadership Committee & Action Team (LCAT)

Became a LEED Certified Community

Hired Sustainability & Resiliency Coordinator

Released a Sustainability and Resiliency Report

Started Sustainability and Resiliency Action Plan (SRAP) project, now Resilient Pinellas

FEMA Community Rating System received Class 3 designation

Finished Vulnerability Assessment of Critical Infrastructure

Tampa Bay Regional Resiliency Action Plan

Formed the Pinellas County Sustainability and Resiliency Advisory Committee (SRAC)

Board of County Commissioners passed the Clean Energy Resolution

Expanded solar energy portfolio through Duke's Clean Energy Connection Program

Released Resilient Pinellas in Spring 2023



2018

2019

2020

2021

2022

2023



2017

2018

2020

2022



Hurricane Irma, causing over \$590 M in damages to the community

Red Tide outbreak, causing major impacts to local ecosystems and the economy

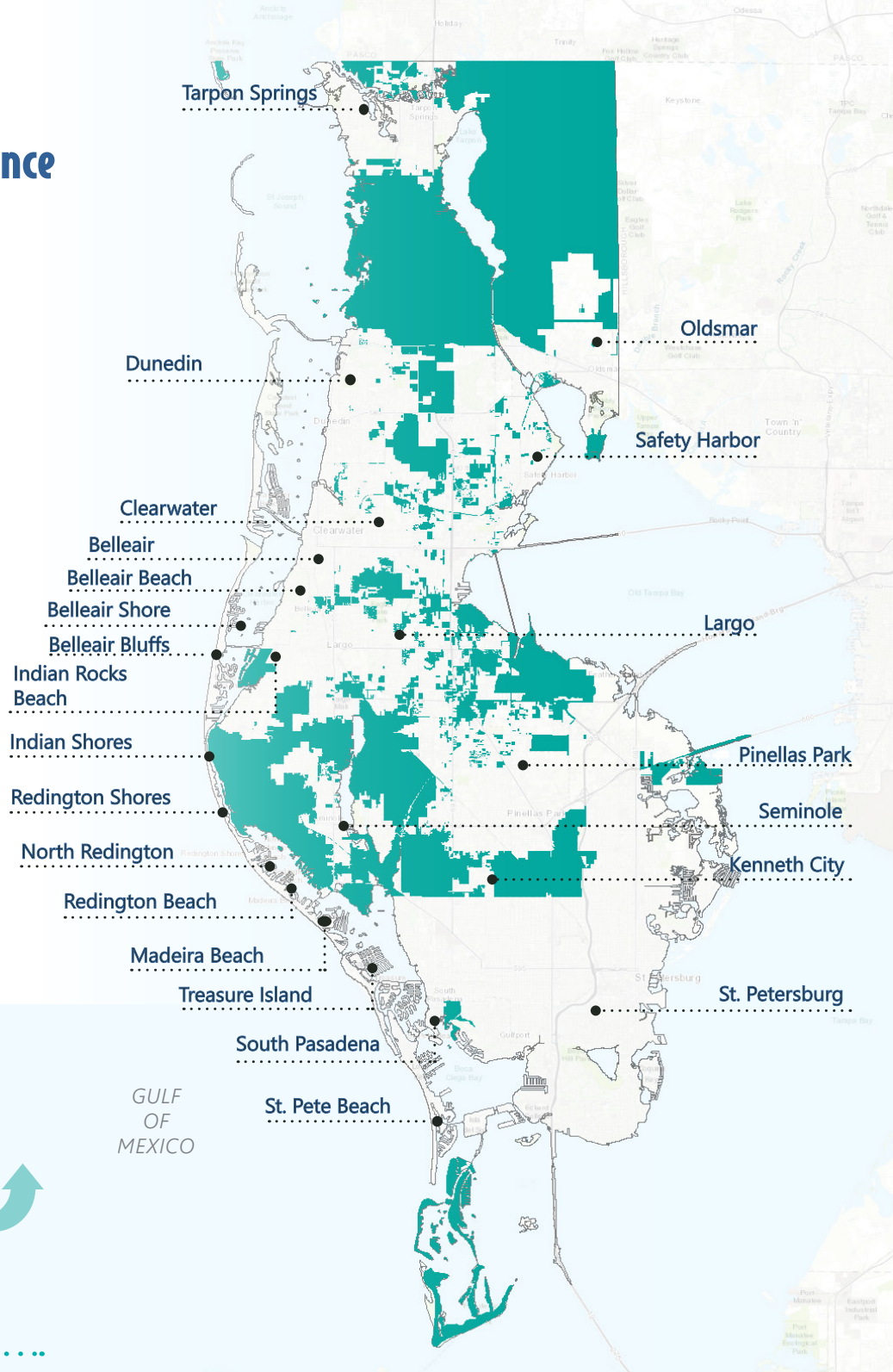
March 2020
COVID-19 Pandemic, causing loss of life and economic stability

October 2020
Tropical Storm Eta, causing significant beach erosion and flooding to homes

Hurricane Nicole and Ian, causing major impacts to local ecosystems and the economy

Pinellas County at a Glance

Pinellas County is a major urban county with close to a million permanent residents that also hosts approximately 20 million visitors and tourists every year. The County comprises nearly 273 square miles of land, located on a peninsula and part of the coastal Tampa Bay region. Resilient Pinellas has been created to allow for sustainable, smart growth in the area while preserving the area's unique coastal assets. The plan also meets the intent of Pinellas County Government, which is committed to progressive public policy, superior public service, courteous public contact, judicious exercise of authority and responsible management of public resources to meet the needs and concerns of our citizens today and tomorrow.



PINELLAS COUNTY



POPULATION

975,280

2018



MEDIAN AGE

47.6 YEARS



EMPLOYMENT
(JOBS)

534,900

2018




DWELLING
UNITS

510,090

2018




HOUSEHOLDS

406,871

2018

55%
Family
Households
45%
Non-Family
Households

Pinellas County's People

Pinellas County is a diverse community, comprising a variety of people of different socioeconomic backgrounds and ages. As the county continues to grow and its people along with it, equal growth in sustainability and resiliency actions will be critical to ensuring access to limited resources and continued economic prosperity. Many of the initiatives outlined in this action plan seek to provide an improved quality of life for Pinellas County's people, providing fair access to resources and collectively reducing our carbon footprint. In particular, Pinellas County recognizes the importance of its aging population, community health, diversity and inclusion.

A community's ability to prepare for, respond to, recover, and grow from its toughest challenges is closely tied to socioeconomic conditions and the existing social vibrancy of the community. Future outreach between the County and residents should include conversations on equity considerations to improve community resilience and provide localized needs.

The maps on the following pages present data prepared by the Centers for Disease Control (CDC), called the Social Vulnerability Index (SVI). This dataset was designed to assist communities and provide a more accurate assessment of those populations that may be more vulnerable to the negative outcomes of a natural disasters and social challenges. The SVI reflects 15 social factors organized by U.S. Census tracts, which are grouped into four different themes reflected in the Resilient Pinellas Story Map. Together, these factors describe a community's social vulnerability and its ability to bounce back in the face of adversity.

Each of the maps uses a quartile analysis, which represents values for each vulnerability theme on a scale of 0 – 1, with the highest number of 1 reflecting the highest vulnerability. Resilient Pinellas also includes additional demographic data relevant to each of these themes.



Pinellas County will continue to grow.

By 2025, there will be about 90,000 more residents, 50,000 more jobs and 50,000 new homes.

We will be more diverse.

By 2050, the county is anticipated to be majority people of color, with a 22 percent Latinx population.



We will be at added risk.

Nearly percent of the total land area in Pinellas County is within the Coastal High Hazard Area, which is at additional risk due to wind and wave action.

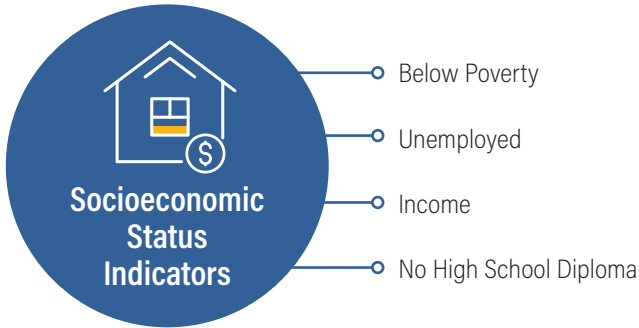
We will be older.

By 2045, almost half of the population will be 55 years of age or above and 35 percent will be 65 or above.



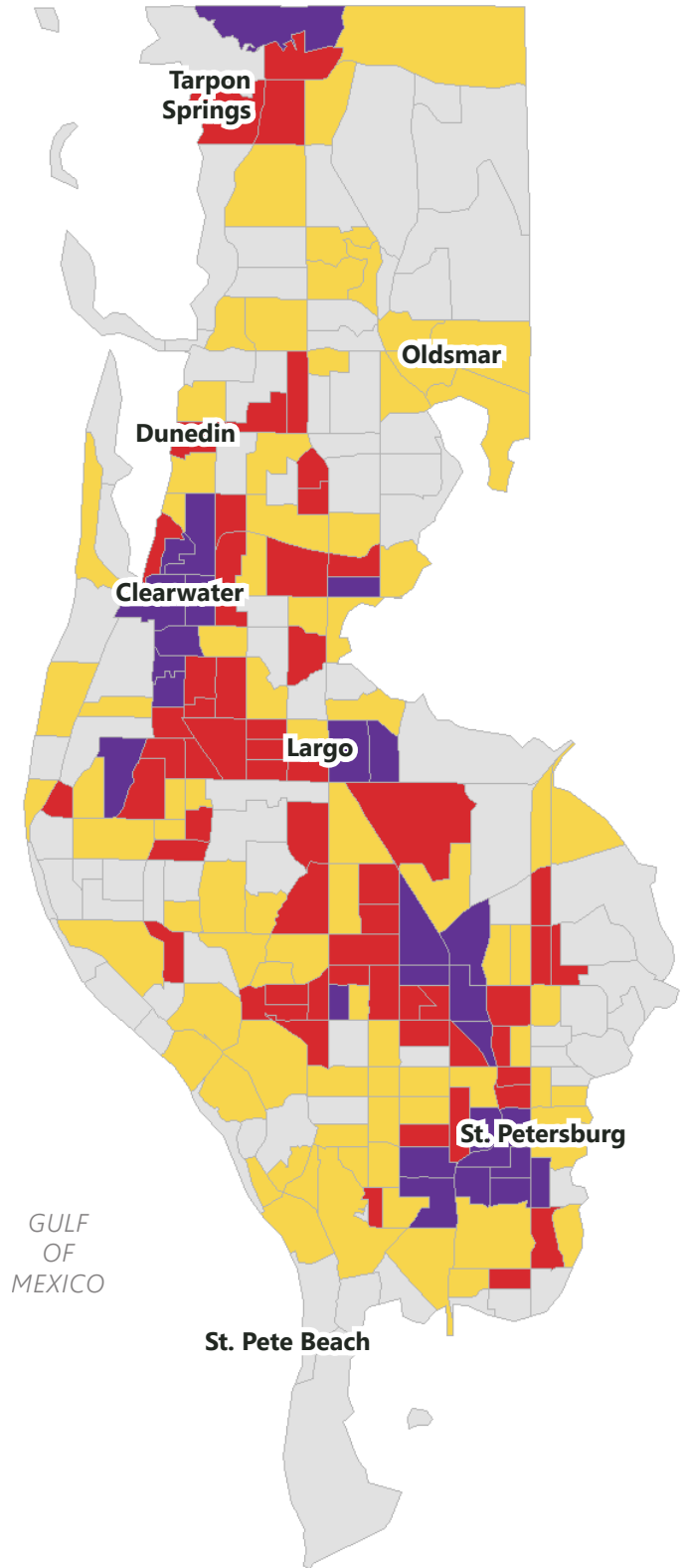
Through collective action, we will be more sustainable and resilient.

Pinellas County's Socioeconomic Status



Job security, access to quality jobs that pay a living wage and access to continuing education are all important factors to establishing a more sustainable, resilient community. This is especially true in the incident of a major climate disaster such as a hurricane. Existing financial burdens reduce the ability of a household to acquire life-saving resources such as water, food, transportation and health care needs in advance of the storm. These burdens also reduce peoples' ability to make needed upgrades to their homes, which provide protection and reduce the risk of severe harm.

Economic prosperity is directly linked to a household's capacity to cope and survive life's shocks and stresses, which can severely impact an already unstable financial situation. Financial constraints can delay our ability to re-connect to necessary resources, such as childcare and mental or physical health care. This can make it harder to resume work or reopen for business, which can eventually delay overall economic recovery.



90%
of the population has a high school diploma



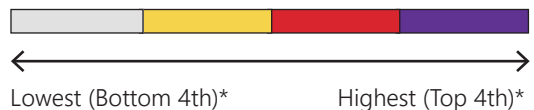
8.6%
of families live in poverty

31%

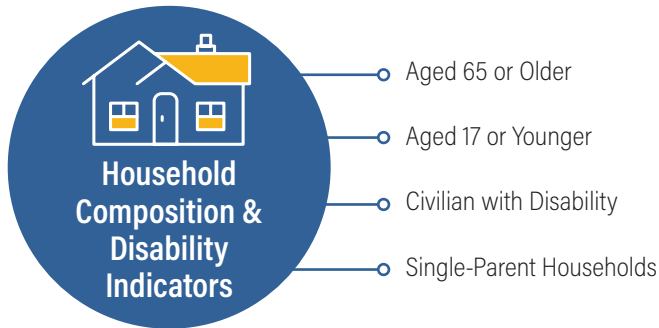
of households are at or below poverty level



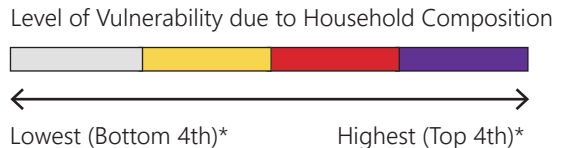
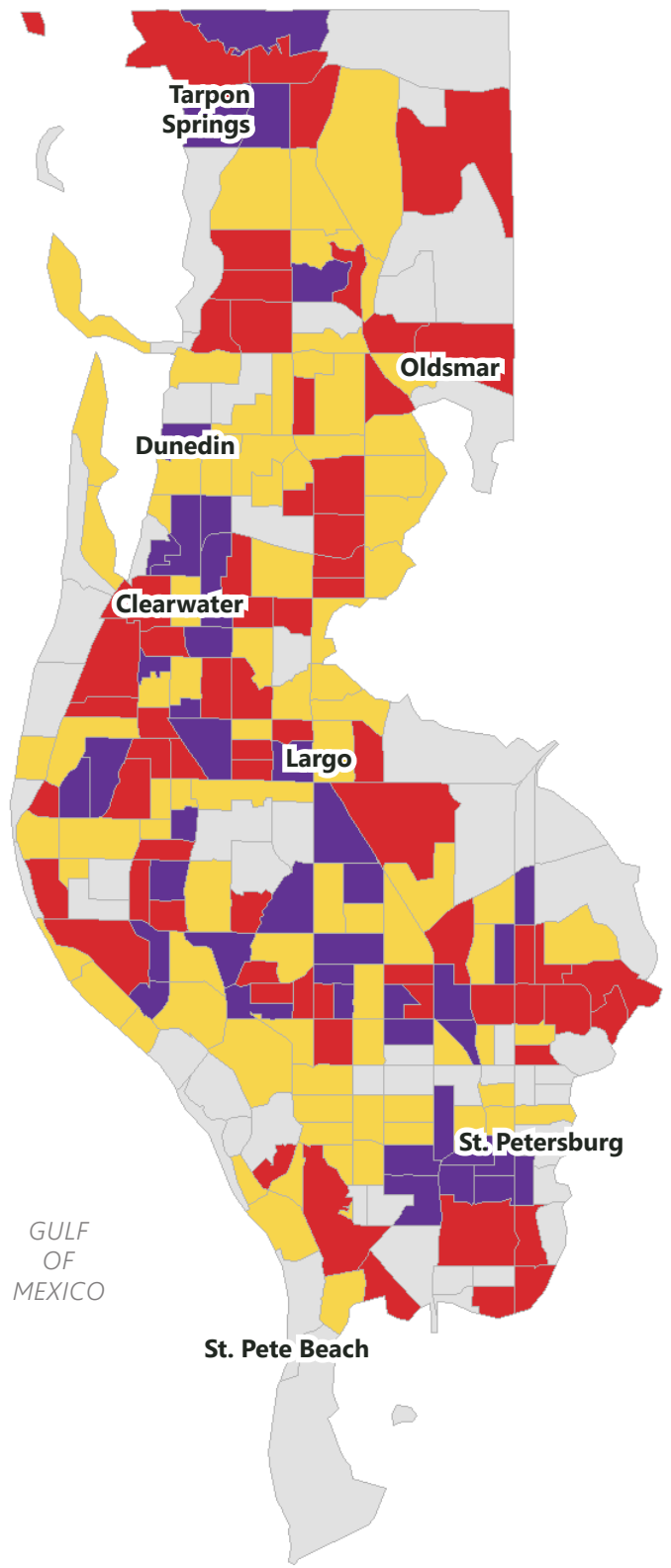
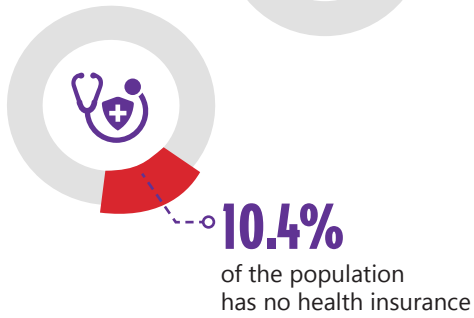
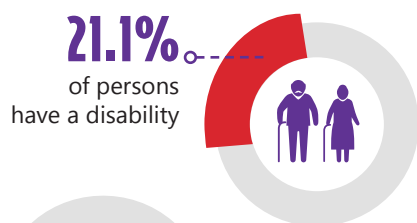
Level of Vulnerability due to Socioeconomic Status



Pinellas County's Household Characteristics



Exposure to both acute shocks and chronic stresses can cause mental or physical stress, which when prolonged, can impact younger children and older people more than others. Children and the elderly are more likely to need special care to prepare for and recover from disasters. People with disabilities or pre-existing health conditions are most likely to need assistance during evacuation, and access to medical help or medication after a storm. They are more vulnerable to mental health conditions and physical harm than others, which becomes even more critical in the post-disaster environment where a community can experience large-scale debris, increased airborne and water pollution, as well as foodborne illnesses. Compared to the state and nation, Pinellas County has a higher population of people age 65 and above, which is anticipated to grow. The County's sustainability and resiliency initiatives aim to provide a high quality of life for residents as they age.



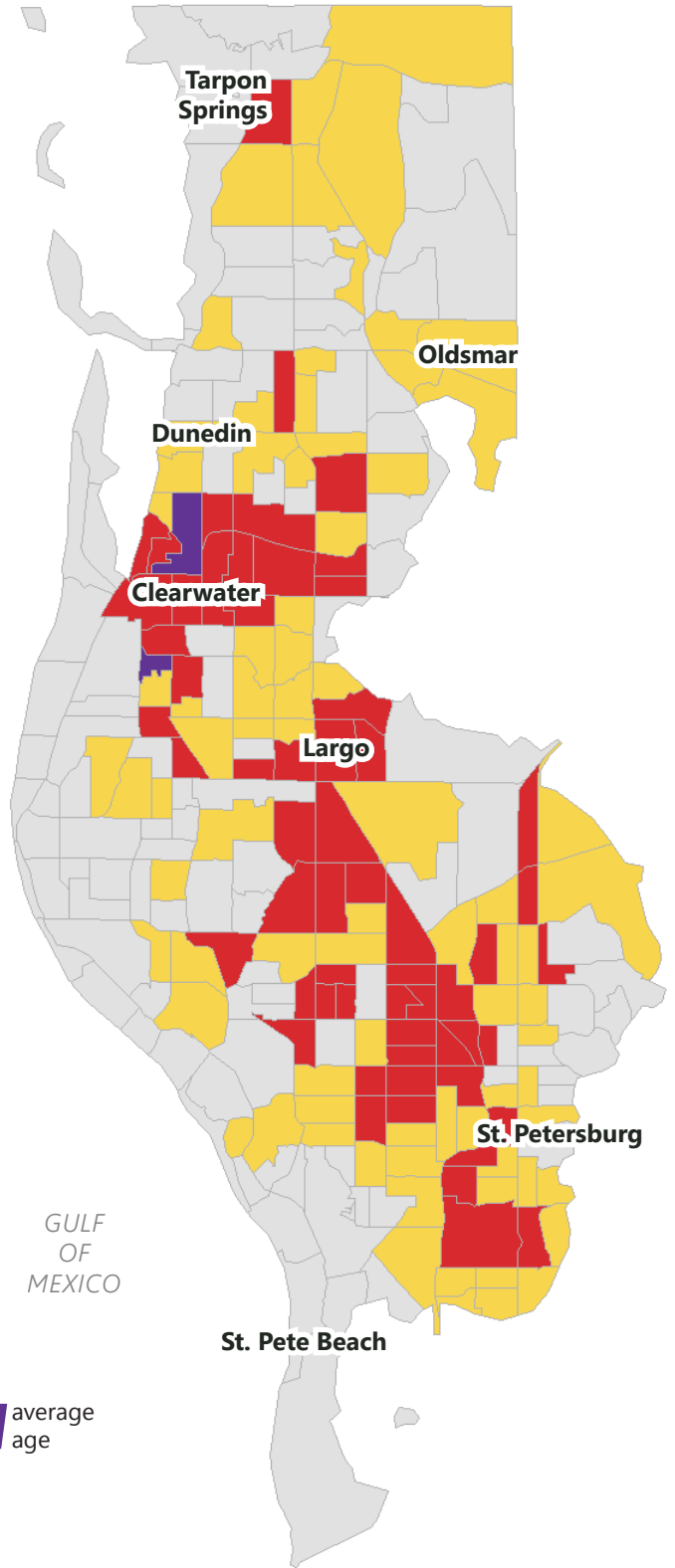
Pinellas County Minority & Language Status



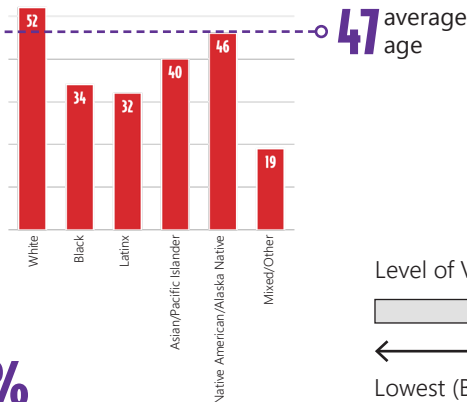
Minority Status & Language Indicators

- Minority
- Aged 5 or Older who Speaks English "Less than Well"

Diversity within our communities contributes to cultural, historical and economic richness. Diversity and inclusion are important factors in building community trust, respect and understanding of one another. They are fundamental needs that provide fair access to resources. Language or cultural barriers can lead to limited awareness or inaccessibility to knowledge, which can limit access to health and financial resources. This is exacerbated in a post-disaster situation. Understanding racial diversity and providing culturally- and language-sensitive education is important to help ensure that we have equal access to opportunity and resources, helping us all to recover in the face of adversity. Demographic data reveals that eleven percent of households in the county have people who are foreign-born non-citizens and three percent have limited English-speaking proficiency. Similar to national trends, Pinellas County will continue to see a demographic shift where the number of people of color and immigrants will increase in the future.

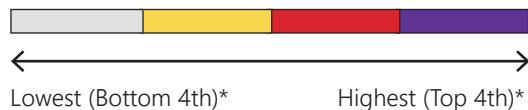


3.5% of the population speaks English less than well

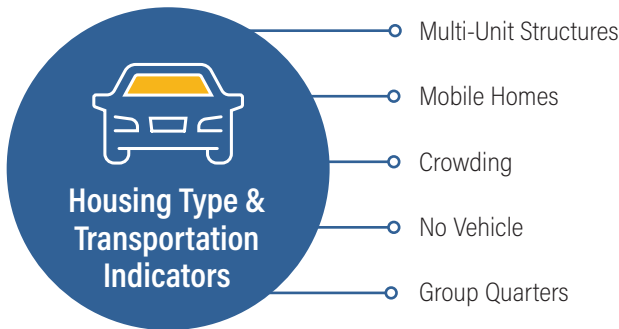


25.5% of the population is people of color

Level of Vulnerability due to Minority or Language Status

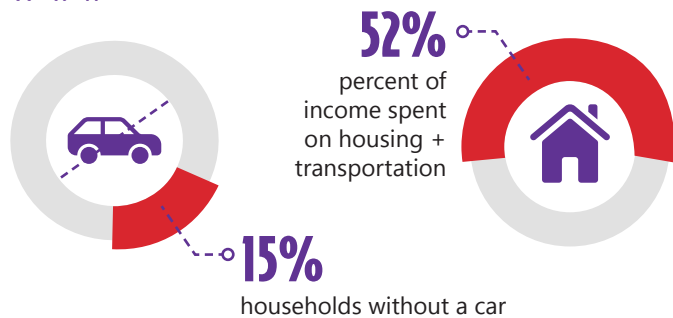
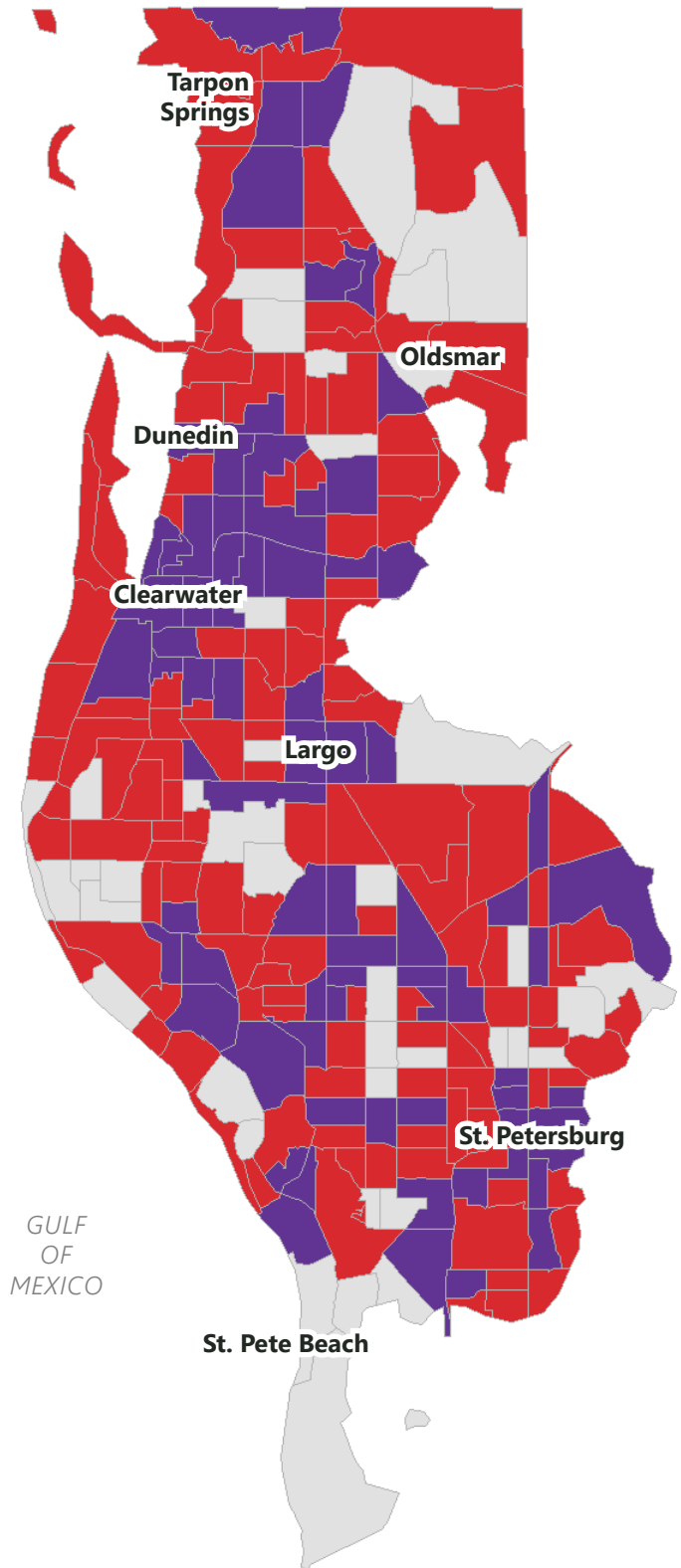


Pinellas County Housing Type & Transportation Characteristics



Safe, affordable housing and transportation are fundamental needs that provide access to opportunity and support quality of life for Pinellas County's residents. Fair access to resources such as food, health care, employment, childcare and other neighborhood assets is an indicator of a household's – and thus, community's – ability to thrive. Shelter and transportation are both critical assets that help each of us cope with and survive a major disaster. Financial security and improved accessibility together increase our quality of life, while also increasing our capacity to resume jobs or reopen businesses, spurring economic recovery after severe storms.

The Tampa Bay region currently faces a severe shortage of affordable and attainable housing, and many options such as mobile homes and older structures are not resilient. This is in addition to the many households without a vehicle. The County is working with regional partners to take proactive action in increasing housing and transportation affordability.



Level of Vulnerability due to Housing / Transportation Type

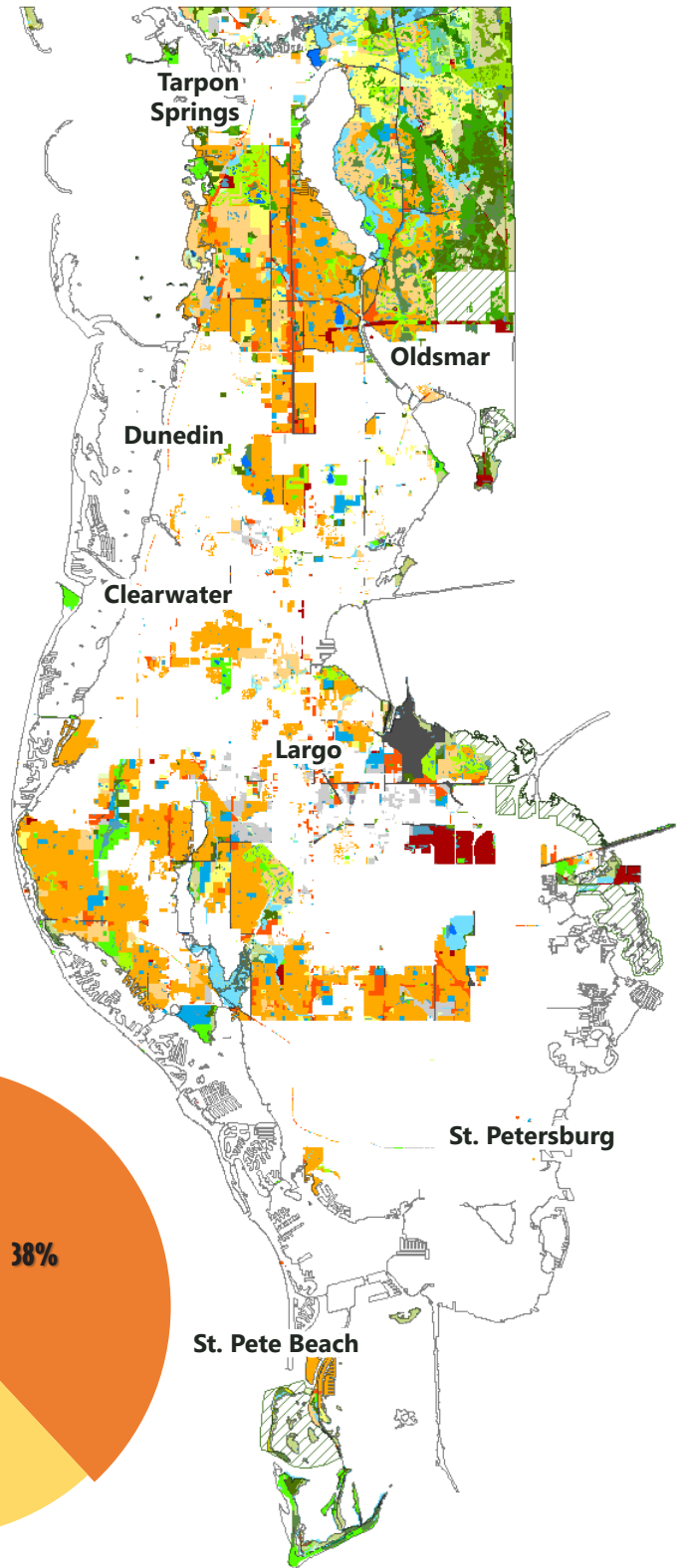


Lowest (Bottom 4th)*

Highest (Top 4th)*

Pinellas County's Built Environment

As the densest county in Florida, Pinellas County is largely developed and wants to balance any new development with the need to preserve its popular natural resources. As the county continues to grow, there will be a need for a lot of redevelopment, capitalizing on existing infrastructure and a diverse array of uses. The county's economy benefits from not only its natural amenities and associated tourism, but also from its proximity to several major transportation resources, including I-275, St. Pete-Clearwater International Airport and the Port of Tampa. As an established community, Pinellas County has a large, built-out infrastructure network that with continued growth will need upkeep and maintenance. It will be important for the County to identify sustainability and resiliency initiatives to meet the demands of a growing population, changing technologies for delivery of services, and rising repair costs. The operation and enhancement of the County's infrastructure require strong coordination and fiscally-responsible decision-making to ensure an effective delivery of services and provision of amenities.



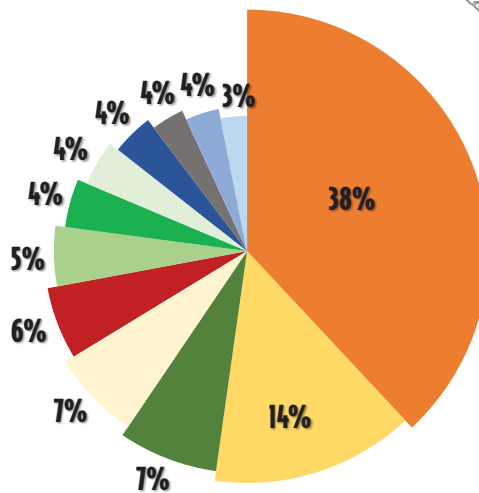
4,500 miles of paved roads



400 bridges



over 38,400 businesses



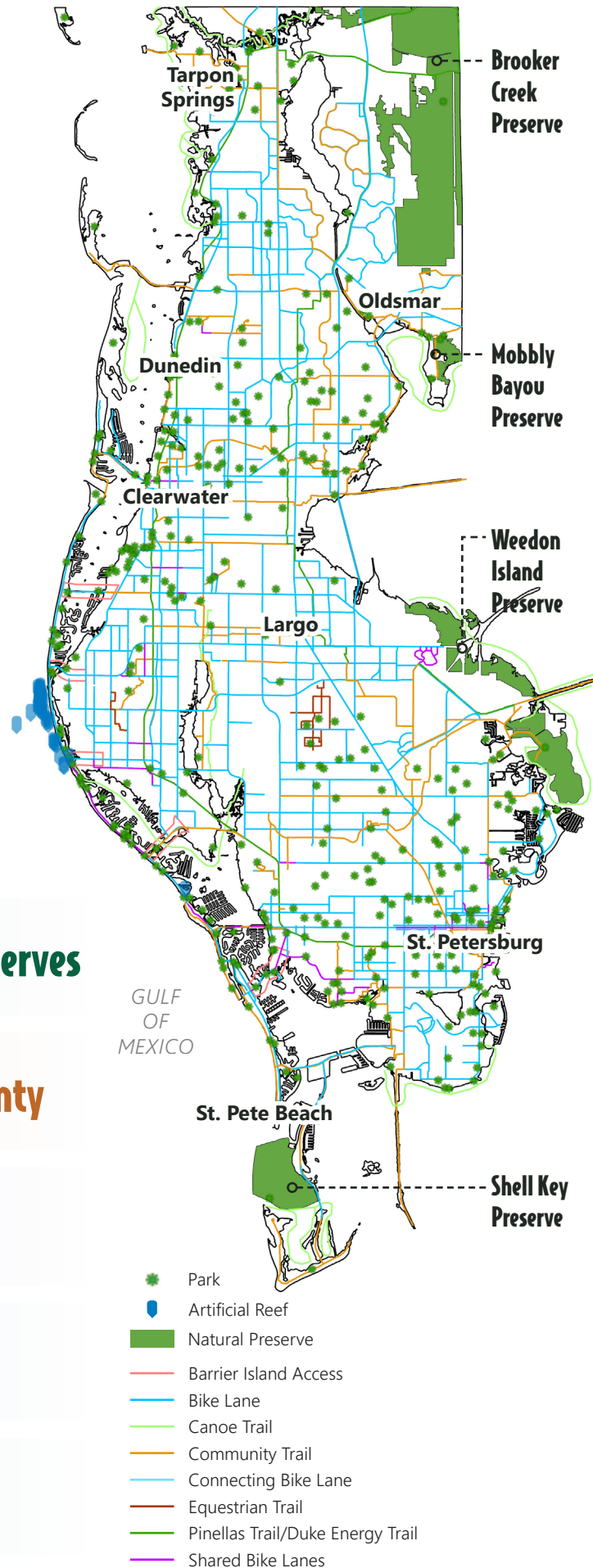
Top Ten Land Uses in the Unincorporated Area

- Residential High (>5 units/acre)
- Residential Medium (2-5 units/acre)
- Upland Hardwood - Coniferous
- Residential Low (<2 units/acre)
- Commercial and Services
- Cypress
- Golf Courses
- Recreational
- Reservoirs
- Industrial
- Institutional
- Streams and Lake Swamps

Pinellas County's Natural Spaces

As a peninsula on the Gulf of Mexico, Pinellas County is known worldwide for its natural resources and beauty. For both the people who call it home and those who visit, there is an array of opportunities for people to connect with nature. The county's coastal assets in particular significantly contribute to local tourism, the economy and overall quality of life. The system of parks and preserves also serves as vital ecosystems for local flora and fauna, and needed natural functions such as stormwater and filtration of pollutants.

Pinellas County Government manages over 4,000 acres of parks and preserves that provide recreational opportunities throughout the County. These parks and preserves offer important experiences to interact with each other and with nature. Parks are important community assets that offer health and social benefits through the use of a variety of passive and active elements such as playgrounds, dog parks, trails, boat ramps, boardwalks and ballfields. The County's four preserves have a primary purpose to conserve and enhance our natural resources, while also protecting the built environment.



20,000 acres of parks and preserves



3 beaches operated by the County



117 miles of recreational trails



nearly 588 miles of coastline



42 artificial reefs

Economic Vitality

Pinellas County Government is committed to strengthening the economy for its residents and business owners, while providing attractive destinations for visitors and local community members alike. The County has accomplished a lot to meet this goal, having established high standards that deliver fiscal responsibility and offer opportunities for continued growth and prosperity. As noted in the 2022 Accomplishments report, the County broke previous tourism records, bringing more than \$10 billion to the local economy. The county has also continued to be successful in managing its budget to responsibly improve infrastructure and invest in neighborhoods to grow new businesses and support residents' quality of life. As outlined in this plan, continued investment in sustainable and resilient solutions will help to deliver energy and water efficiency, preserve the County's popular beach and natural amenities that attract tourists from the world around, and create dynamic, vibrant communities that connect people to resources and amenities. A few examples from the 2022 Pinellas County Accomplishments Report that show proven support for economic vitality include:

Plans to invest **\$189 million in ARPA funds** in ways that will have a lasting impact on underserved communities and a **\$3.4 million Resilient Florida grant** for utilities building hardening and reliability improvements



Volunteers and interns contributed **over 98,000 hours** of service, or **\$2.8 million** in taxpayer dollars



Hosted more than **20 million visitors** at the County's parks and preserves



Awarded **over \$28.3 million** in contracts to **705 small business enterprises**



Supported 1,133 affordable homes



Helped 5,443 households with rent and utility payments



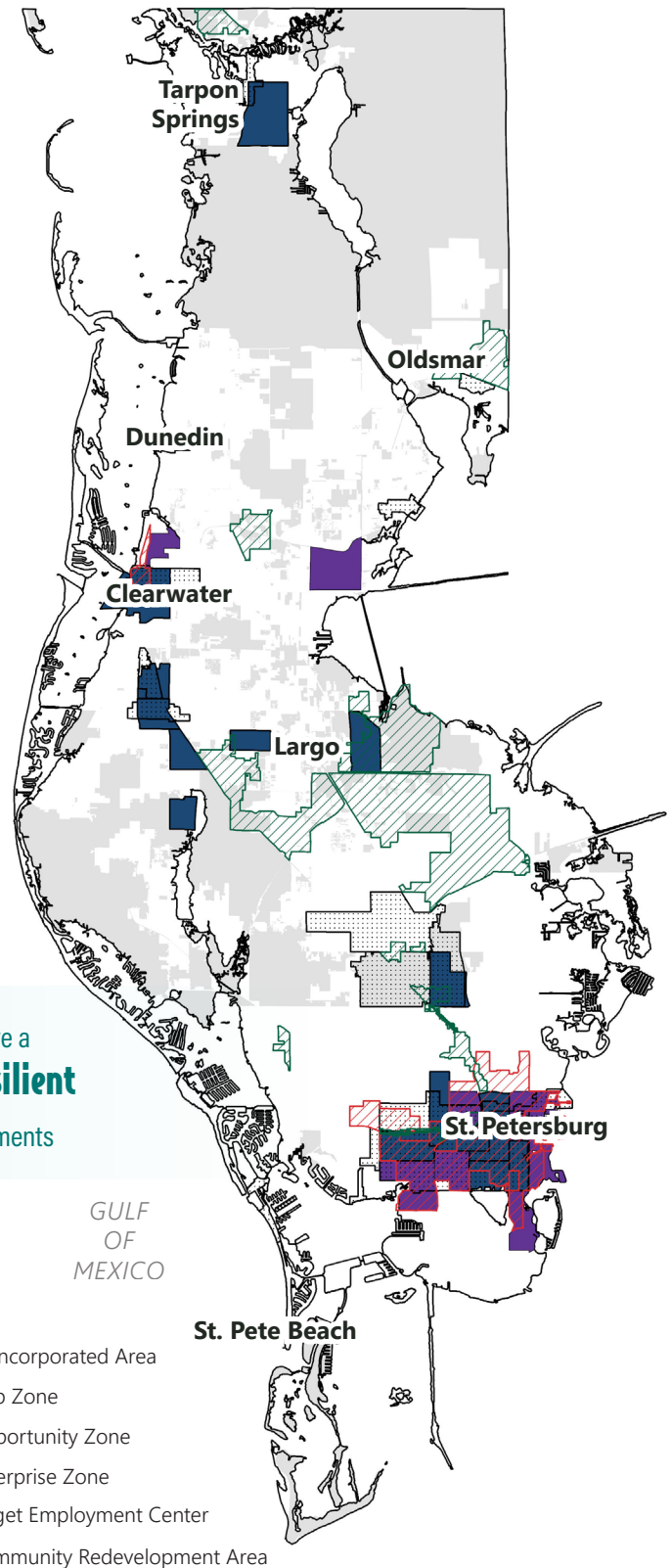
Achieved an unemployment rate **below 3%**



Issued more than 28,000 building permits



Facilitated over **\$6 million in loans and grants** for businesses

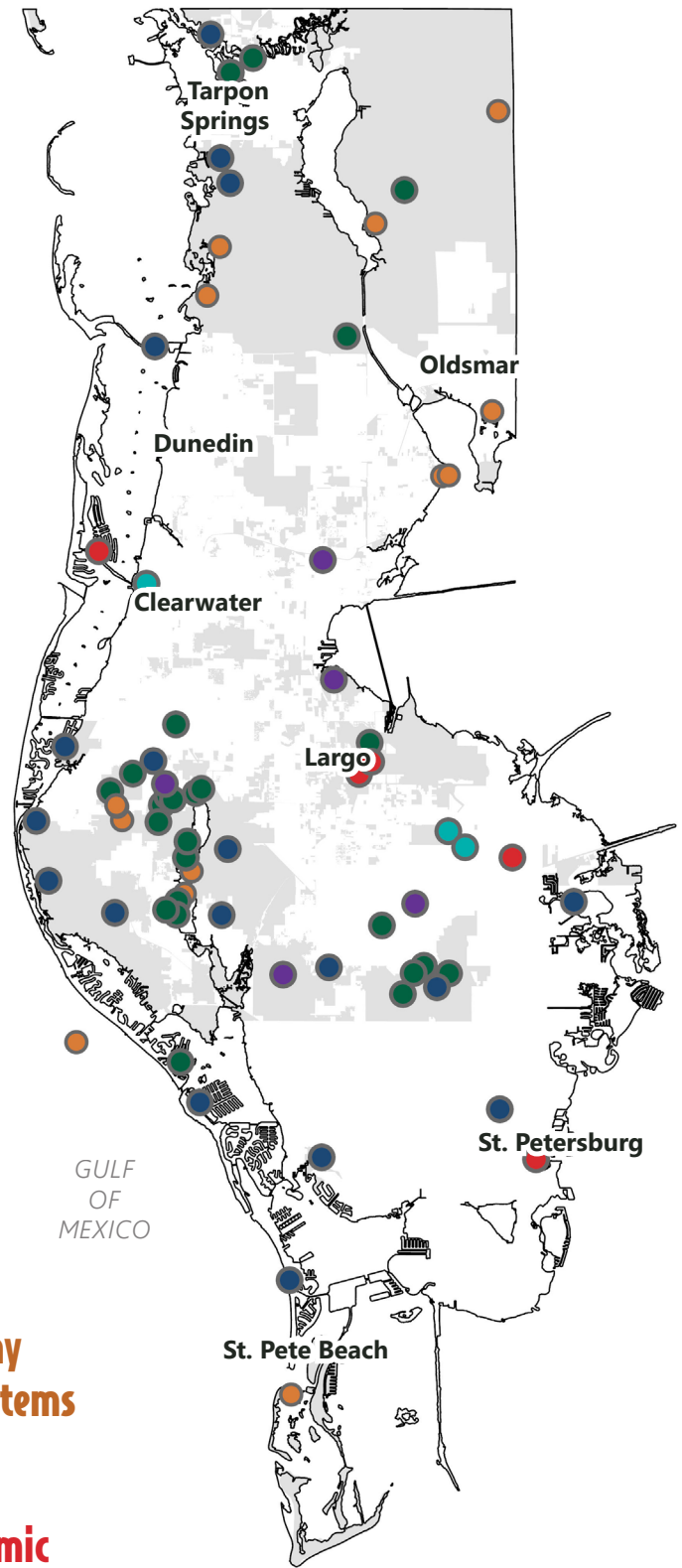


Resilient Pinellas Story Map

As a part of the development of Resilient Pinellas, the Project Team developed a web-based tool called a Story Map, which offers a dynamic means to explain information about the action plan through a set of dynamic maps, images, and text. The Resilient Pinellas Story Map, located at <https://resilient.pinellas.gov>, complements the County's sustainability and resiliency website, providing a dedicated space for people to log on and learn more about Resilient Pinellas and the thoughtful, evidence-based considerations that went into its development.

This Story Map is organized by the six focus areas of Resilient Pinellas and highlights some of the County's resiliency and sustainability work for users to view. In addition to the focus area maps, people can view interactive maps that include a 3-D view of the potential tidal and storm surge inundation areas, time lapse of development over time in the county, and the CDC's social vulnerability indicators. The interactive website also includes an overview of important Resilient Pinellas implementation measures such as the Clean Energy Roadmap and Sea Level Rise and Storm Surge Vulnerability Assessment.

While the action plan highlights over 70 specific sustainability and resiliency County projects on the individual goal and initiatives pages that follow, this Story Map will continue to evolve over time and act as a living record of the County's ongoing progress to accomplish the initiatives outlined in the plan.



**Empowered
Citizens**



**Healthy
Ecosystems**



**Sustainable
Systems**



**Economic
Vitality**



**Resilient
Infrastructure**



**Thriving
Communities**

Outlook on Sustainability and Resiliency in Pinellas County

Pinellas County Government and the people that live in Pinellas County alike have a lot to say about sustainability and resiliency. This became apparent through the development of this action plan, which included outreach with County staff and the community at large to gain awareness on the topics of most importance to most groups. Through a series of public engagement activities, the Project Team was able to better understand what people are doing already to live more sustainably or resiliently and their aspirations for

the future. Results from the internal and external engagement process reveal important insights on where the County already has momentum to reach its sustainability and resiliency goals, serving as a catalyst to achieve positive outcomes to live more resiliently, reduce our carbon footprint, advance equity and practice innovation. The data shared below represents results collected through the public survey that provides insight on what people are already doing in Pinellas County to live more sustainably and resiliently.

Sustainability

Meeting today's needs without compromising the ability of future generations to meet their needs.

74.8%

Recycle or Compost

65.4% Use reusable products instead of single-use products

58.8%

Use energy-efficient appliances

56.7%

Opt for paperless mail

50.1%

Reduce water use

62.6%

Conserve energy by turning off or unplugging lights and appliances

42.9% Purchase secondhand clothing or goods

40.8%

Assess my actions and impact, and find ways to improve my habits

Resiliency

Ability to adapt to changing conditions and withstand and rapidly recover from disruption due to emergencies.

55.4%

Often try to make sustainable choices everyday

Pinellas County's Vulnerability to Climate Change and Disasters

As a peninsula and the densest county in Florida, Pinellas County is extremely vulnerable to natural hazards. The occurrence of shocks, or short-term climate or manmade events that severely impact the community, can be life threatening and devastating to the built environment. An important goal in Resilient Pinellas is that, through the implementation of adaptation or mitigation strategies, together we will become a more resilient community, capable of withstanding potentially disastrous outcomes. By building up social equity and community resources, individuals and families will also be better prepared to tackle daily challenges and life's toughest moments.



RISING TEMPERATURES

Pinellas County is getting warmer. We will continue to see a rise in instances of extreme heat and humidity with temperatures above 90 degrees for a period of two to three consecutive days. In these conditions, our bodies work extra hard to maintain a normal temperature, which can lead to illness or even death. Rising temperatures also affect the natural function of local ecosystems, can deteriorate the built environment, and create more demand for energy use to keep us cool.

Average Daily Temperatures



Days with Max Temperature

Average Daily Temperatures	Year	Days with Max Temperature
81.4	1961-1990	65.7
83.4	2020	110.2
85.2	2050	142.3
86.9	2080	163.6



PRECIPITATION

While projections of anticipated rainfall may seem small, there are several compounding factors that are cause for concern about increased flooding in Pinellas County's future. With continued growth and development, anticipated increases in sea level rise, and the increased frequency and intensity of severe storms, a few additional inches of rain can have a significant impact. Large amounts of rainfall over a short period of time where stormwater drainage is insufficient or the ground is already saturated can lead to increased flood risk. Flooding risks increase through the hurricane season with more concentrated periods of rainfall.

Total Annual Precipitation



Average Inches of Rain (HURRICANE SEASON)

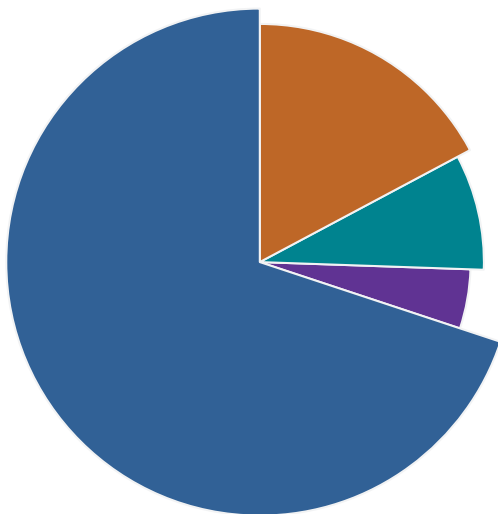
Total Annual Precipitation	Month	Average Inches of Rain (HURRICANE SEASON)
1961-1990	June	5.91
52.4	July	8.31
2020	August	9.07
54.7	September	6.94
2050	October	2.69
54.9	November	2.09
2080		
55.5		

* Observed average between 1950-2013

Climate and Community Resilience in Pinellas County

An important consideration in the development of this plan was the community's thoughts on climate change and the perception of potential impacts to their way of life. Resilient Pinellas establishes a timeline for implementing strategies in the near-, medium-, and long-term, and the County recognizes that the community's input is vital in understanding which initiatives need to be established first. Through the public survey, the County was able to better understand the public's opinion on climate concerns, as well as when residents anticipate impacts to their lives from climate change. The results of these two questions are reflected below.

Which statement best represents your thoughts on climate change?



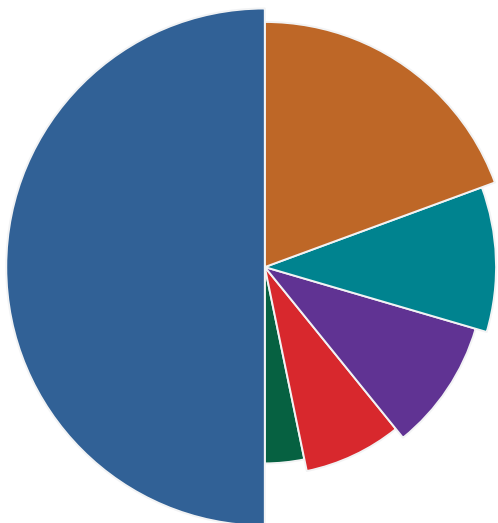
69.9%
Climate change is something that concerns me a great deal.

17.2%
Climate change is moderately concerning to me.

8.3%
Climate change is not very concerning to me.

4.5%
Climate change is not real to me.

When do you think climate change will impact your life?



50.1%
Now

19.3%
All of the Above

10.1%
Within the next 5 years

9.7%
Never









7.6%
Within the next 25 years

3.2%
Other

In order to best identify targeted strategies to build climate (or environmental) and community resilience, the County asked the community which shocks and stresses they were most concerned about. Resilient Pinellas strategies that could best build equitable resilience in Pinellas County will need to address both sudden events that threaten our safety and well-being, and the daily challenges that weaken our ability to overcome them. The icons below represent the **top shocks and stresses** that threaten Pinellas County, as identified by the community via public survey results.









Shocks

Short-term events that suddenly threaten a community's ability to function and have substantial negative effects.

<p>#1</p>  <p>Algal Blooms 75.6%</p>	<p>#5</p>  <p>Inland Flooding 35.4%</p>
<p>#2</p>  <p>Hurricanes 74.6%</p>	<p>#6</p>  <p>Extreme Heat 33.6%</p>
<p>#3</p>  <p>Coastal Hazards 62.1%</p>	<p>#7</p>  <p>Hazardous Material Spill 29.3%</p>
<p>#4</p>  <p>Severe Storms & Rainfall 50.9%</p>	<p>#8</p>  <p>Disease Outbreak 25.9%</p>

Stresses

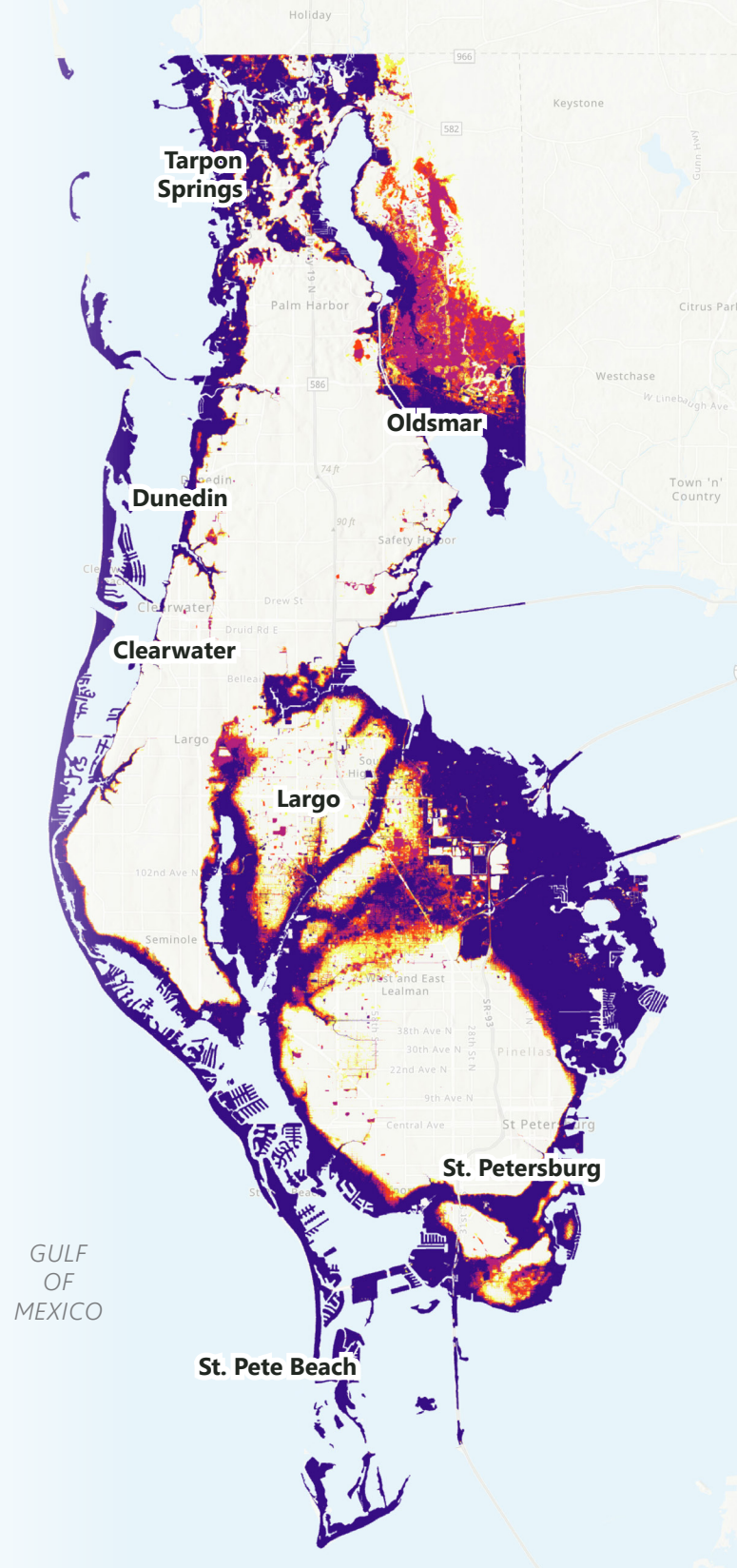
Long-term trends that weaken the ability of a community to function and succeed.

<p>#1</p>  <p>Lack of Affordable Housing 55.0%</p>	<p>#5</p>  <p>Lack of Access to Affordable Health Care 34.4%</p>
<p>#2</p>  <p>Poor Water Quality in Rivers, Lakes & Bays 41.1%</p>	<p>#6</p>  <p>Lack of Job Opportunities that Support a Living Wage 34.4%</p>
<p>#3</p>  <p>Aging Infrastructure 40.7%</p>	<p>#7</p>  <p>Limited Water Supply 31.5%</p>
<p>#4</p>  <p>Traffic & Congestion 40.7%</p>	<p>#8</p>  <p>Population Growth 30.9%</p>

Pinellas County's Future Sea Level Rise and Storm Surge Conditions

As global temperatures rise, Pinellas County and its residents will be at increased risk of climate threats that can affect the environment, community health, and economy. In particular, as a low-lying peninsula, Pinellas County is at risk from rising sea levels and storm surge. These climate hazards require special consideration of the potential consequences to the county, its communities, and infrastructure. Sea level rise and storm surge will create high demand for nature-based solutions, infrastructure, and services that will protect the county from future flooding. Continued research on the locality and severity of threats will be necessary to determine the type and level of assistance that Pinellas County will need to protect, mitigate and recover from impacts. In some circumstances, the magnitude of an incident may be substantial, leading to substantial loss of life, natural habitat or the built environment. In other circumstances, there may be economic and social challenges.

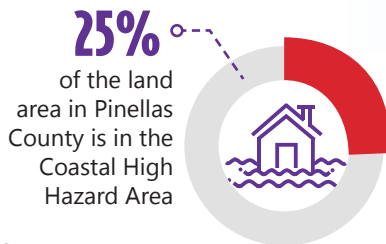
A data-driven approach to assessing future coastal conditions and implementing actions is vitally important to achieving the Resilient Pinellas vision and mission. This analysis will continue to help the County prioritize the most important and feasible adaptation and mitigation actions as outlined in the action plan to make Pinellas County communities more resilient.



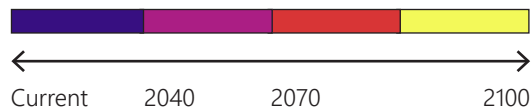
\$19 million invested in infrastructure projects to prevent flooding in 2019



nearly **8 inches** of sea level rise since 1946



Potential Storm Surge Inundation Areas (Intermediate Scenario)



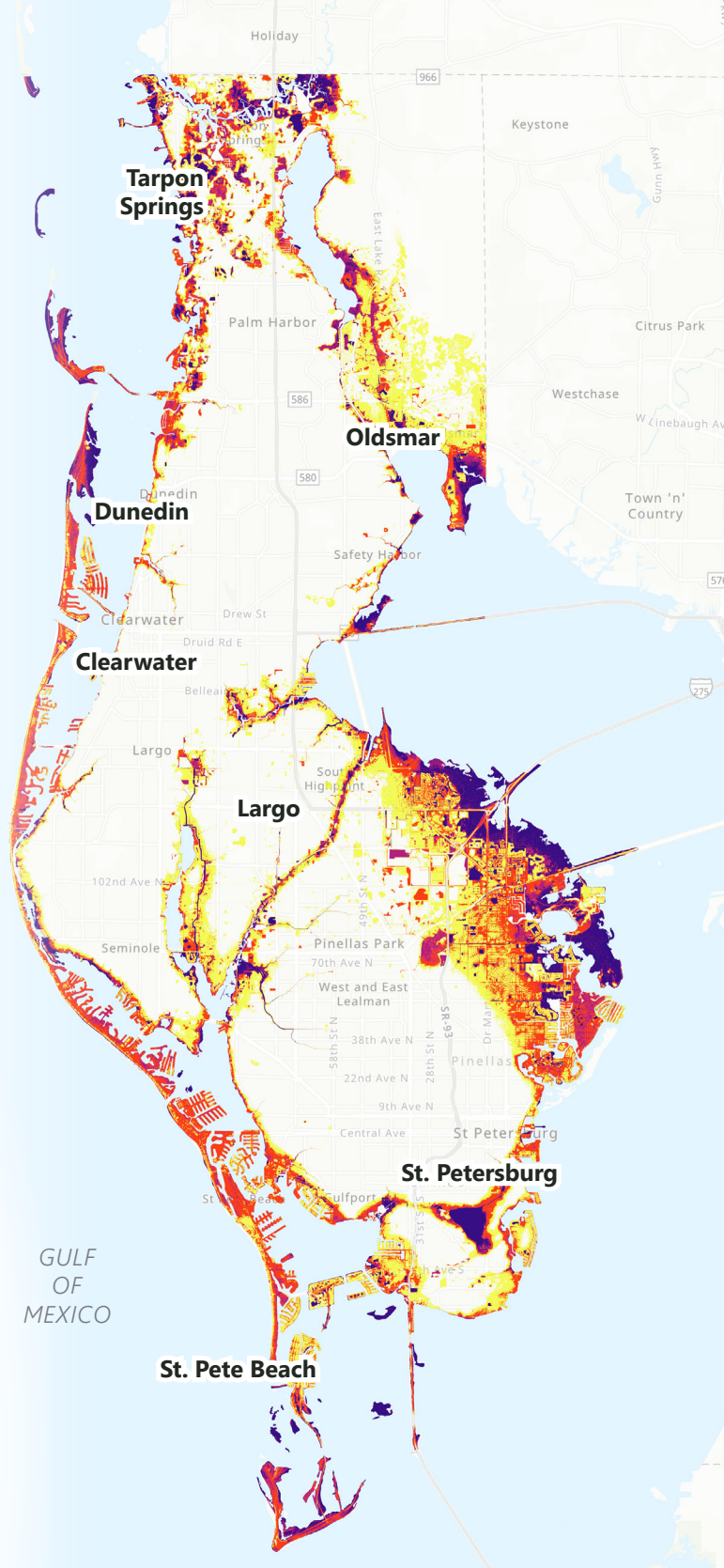
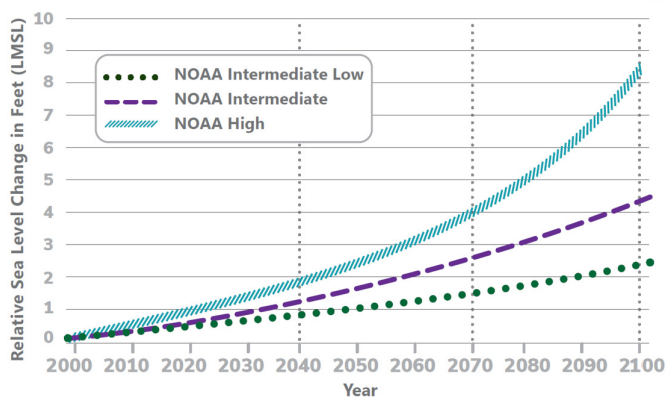
The County recently completed a Sea Level Rise and Storm Surge Vulnerability Assessment to better understand changing conditions and risks, and prioritize mitigation and adaptation strategies. The data analysis parameters of this study are displayed below. Important outcomes of this study include:

- Assessment of timing associated with climate impacts and an understanding of when impacts can be expected to arrive or worsen
- Development of data for countywide assets, sea level rise flooding models for future tidal conditions, and storm surge model data that presents probable future flooding conditions
- Identification of areas where action needs to be taken and associated cost estimates to protect important assets from future impacts
- Identification of planning and mitigation actions to prepare for future conditions
- Overview of cause-and-effect data that can be used to communicate concerns to the diverse stakeholders in Pinellas County and have conversations on what measures to take to make the community more resilient to coastal hazards

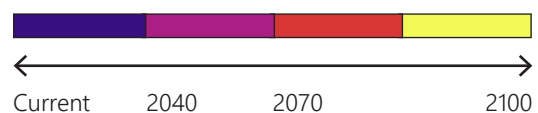
Data Analysis Parameters

Horizon Analysis Years	2018	2040	2070	2100	
NOAA Sea Level Rise Scenarios (Highs to 2100)	Current	1.9 Feet	3.9 Feet	8.5 Feet	
Tidal Flooding Frequencies	1,185 hours per year (Mean Higher Water)	528 hours per year (Mean Higher Water)	250 Hours Per Year	50 Hours Per Year	1 Hour Per Year
Storm Surge Return Periods	25 Year	50 Year	100 Year	250 Year	500 Year

Selected Sea Level Rise Projections



Potential Tidal Inundation Areas (High Scenario)



Pinellas County Greenhouse Gas (GHG) Emissions Inventories

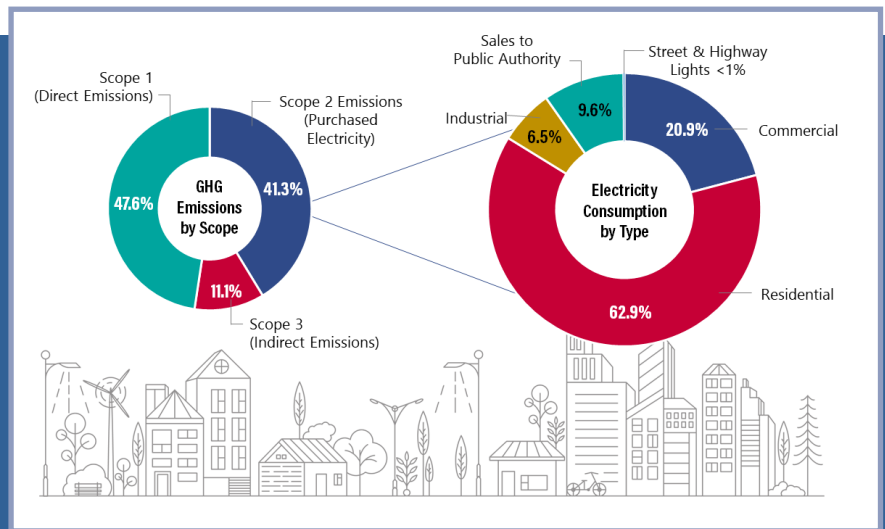
The majority of scientists agree that the Earth’s climate is warming due to human activity, and that this warming will lead to significant and long-term negative impacts on our communities and ecosystems. As a coastal community and peninsula, Pinellas County has always been vulnerable to climate hazards such as hurricanes, storm surge, flooding and extreme heat. As global temperatures rise, Pinellas County and its residents will be at increased risk of future threats that can affect the community’s health and economy. Targeting a reduction in greenhouse gas (GHG) emissions will help to reduce the effects of climate change, improving overall air quality, environmental conditions and community health.

As the county continues to become more urbanized over time, its people will continue to see high demand for services to meet daily needs. The continued assessment of GHG emissions produced by daily activities by local government operations and the community will be important in reducing the level of threat of extreme events, as well as supporting more sustainable and affordable living in the coastal community as it grows.

During the development of Resilient Pinellas, the County conducted a GHG emissions inventory as an important baseline assessment for the plan. The continued reduction of GHG emissions is an important performance measure outlined in Resilient Pinellas and touches across all six of its focus area strategies and overarching goals. The results of the inventories are shared in metric tons of carbon dioxide equivalent (MTCO2e) below.

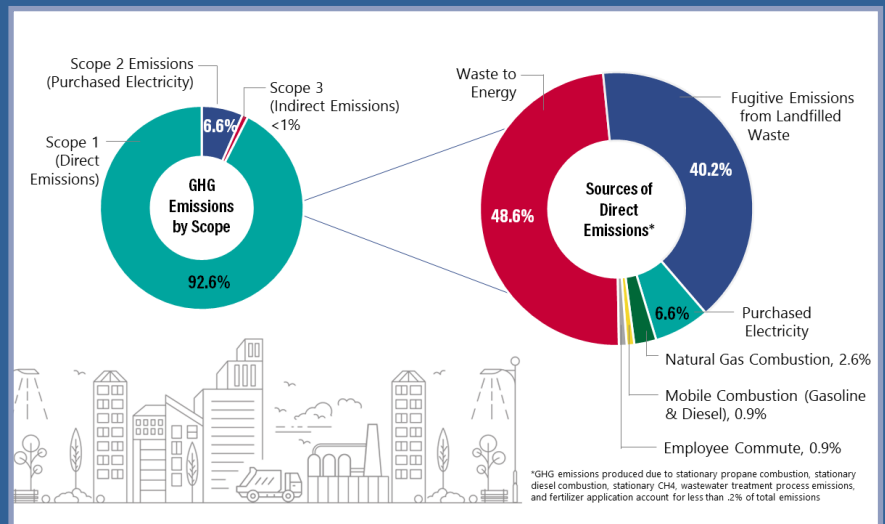
Total community-wide GHG emissions within the unincorporated area of Pinellas County in calendar year 2019 were 2,604,545 MTCO2e.

Nearly 49 percent of community-wide emissions are attributed to the transportation sector, and nearly 46 percent of current emissions are associated with electricity consumption and electricity transmission and distribution (T&D) losses.



Total GHG emissions due to local government operations in calendar year 2019 were 688,610 MTCO2e.

The largest contributor to local government GHG emissions is the Solid Waste Facilities sector, at 46.6 percent of total GHG emissions. The second largest contributor is the Power Generating Facilities sector at 42.3 percent of total GHG emissions, associated with the County’s Waste-to-Energy facility.

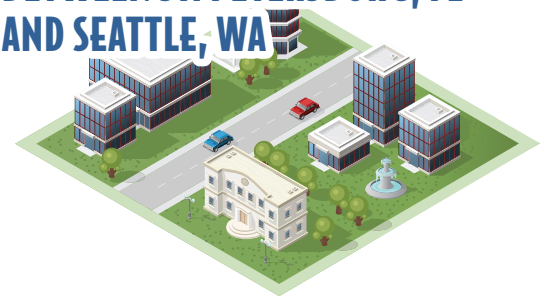


*GHG emissions produced due to stationary propane combustion, stationary diesel combustion, stationary CH4, wastewater treatment process emissions, and fertilizer application account for less than .2% of total emissions

Making Sense of Our Carbon Footprint

The Pinellas County GHG emissions inventory reveals that most of the local government's carbon footprint is attributed to industrial processing of waste and creation of electricity in its Waste-to-Energy facility. This is followed by transportation-associated emissions at 1.8 percent of the total **688,610 MTCO₂e**. The figure below illustrates other activities that equate to the approximate amount of emissions that are produced through the services the County provides.

10 FAMILY ROADTRIPS BETWEEN ST. PETERSBURG, FL AND SEATTLE, WA



ENOUGH FOOD TO FEED **1,500 FAMILIES OF FOUR** FOR A YEAR



A YEAR IN THE LIFE OF **40,000 COWS**



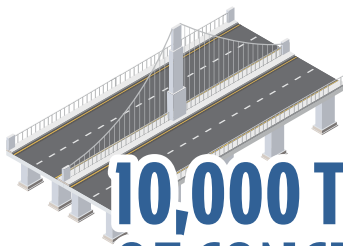
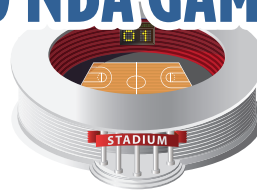
5 FIVE-DAY CRUISES FOR A FAMILY OF FOUR



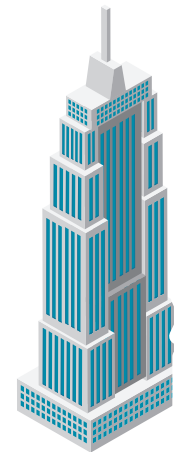
ANNUAL HOME ENERGY USE FOR **1,500 HOMES**
PRODUCTION OF **2,000 NEW HOMES**

ANNUAL WASTE PRODUCED BY **1,500 HOMES**

10 NBA GAMES



10,000 TONS OF CONCRETE



Enough steel to build **5 EMPIRE STATE BUILDINGS**



10 ROUNDTrip FLIGHTS FOR A FAMILY OF 4 BETWEEN ST. PETERSBURG, FLORIDA AND LONDON, ENGLAND

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CHAPTER 2

Plan Development

Resilient Pinellas was developed over the course of two and a half years, with the project kickoff starting in early fall 2020 and administrative adoption of Resilient Pinellas in the spring of 2023. Resilient Pinellas was developed over the course of six major phases, including important data analyses and both internal and external outreach to help identify sustainability and resiliency initiatives that will help the County reach its goals. This section of the final report provides an overview of the plan development process and important project milestones.

Resilient Pinellas Development

Starting as the Sustainability and Resiliency Action Plan, or “SRAP”, Resilient Pinellas was developed over the course of two years, with the project kickoff starting in early Fall 2020 and administrative adoption of the action plan in the Spring of 2023. The identification of the Resilient Pinellas foundational elements and best practices occurred through extensive collaboration with both internal and external stakeholders, leading to a data-driven, comprehensive and custom plan to meet the unique sustainability and resiliency needs of Pinellas County.

Resilient Pinellas was developed over the course of six major phases:

PHASE 1 Project Initiation: The Project Team – Consisting of the County Sustainability and Resiliency Program Coordinator, Applied Sciences, REAL Building Consultants, Vrana Consulting and VHB – created a catalog of existing project, programs, and policies the County already has in place to advance sustainability and resilience across both County operations and the community.

PHASE 2 Greenhouse Gas Emissions Inventories: The Project Team conducted both a community-scale GHG emissions inventory and a local government operations inventory to assess opportunities where progress can be made to reduce overall GHG emissions and our carbon footprint.

PHASE 3 Internal Program and Process Assessment: The Project Team collaborated with the County through a series of internal interviews and workshops to document specific existing best practices and goals for the future. Together, the Project Team, including key leadership from the County, was able to synthesize a diversity of voices and subject matter areas that will advance resiliency and sustainability more comprehensively across County operations.

PHASE 4 External Stakeholder Engagement: The Project Team led several external engagement activities to hear about the work other organizations across the county are doing to support equity, resiliency and sustainability, as well as directly from residents on the concerns and opportunities they have identified as necessary to increasing their quality of life.

PHASE 5 Plan Development: The Project Team organized proposed sustainability and resiliency strategies and drafted the foundational elements of the plan. This process included prioritizing initiatives based on internal and external feedback and the review of projects, programs and policies from other similarly size or climate-specific communities that may prove beneficial to Pinellas County’s vision and mission.

PHASE 6 Plan Implementation: The action plan was rebranded as Resilient Pinellas for implementation. With the plan’s foundational elements in place, the Project Team developed a suite of implementation guidance for County staff and leadership to help bring departments, stakeholders and the community together to reach common sustainability and resiliency goals.

Internal Engagement

The Project Team developed Resilient Pinellas on a robust foundation of internal guidance and review of existing processes and policies to better operationalize sustainability and resiliency across Pinellas County’s departments. Throughout Phase 3, the Project Team collaborated with the County in a series of internal interviews and workshops to document existing best practices and policies, as well as goals and specific action items that may be pursued in the future. Engagement included:

- **Eleven department lead meetings**, through which leadership shared insight on existing best practices and goals for the future. The Project Team gained important insight on overarching needs and tone for the Action Plan that would best reflect organizational values.

- **Three Pinellas County Leadership Committee and Action Team (LCAT) Workshops and Two Surveys.** The County's LCAT provided feedback toward the identification of strategies and finalization of the Plan's foundational elements. Through surveys, LCAT members provided feedback on language for the vision and mission statement, prioritized the County's top shocks and stresses, and developed an implementation timeline for potential strategies outlined in the plan based on short-, medium-, or long-term timeframes.

Through the continued collection of feedback from Pinellas municipalities, community leaders, regional organizations, and key private-sector stakeholders, the County can better prepare the public with the resources they need to strengthen personal and community resilience. Outcomes of the external engagement conducted as a part of plan development are expressed as "Community Connections" in the initiative pages of this Plan.

Future engagement will be guided by the **Resilient Pinellas Engagement Strategy**, which provides a structure for community outreach. The Engagement Strategy identifies guiding principles, objectives, strategies, tools and performance measures for outreach and engagement activities to support Resilient Pinellas work. It is intended to occur in close collaboration across County departments and partner organizations to build community awareness of Resilient Pinellas initiatives and engagement activities in unincorporated areas of Pinellas County.

External Engagement

The development of Resilient Pinellas included several external engagement periods and the adoption of an External Engagement Strategy to establish important community connections and build capacity for the County to reach its goals.

RESILIENT PINELLAS WAS DEVELOPED THROUGH THE FOLLOWING ACTIONS:

6 MAJOR PHASES

2 PINELLAS COUNTY BOARD OF COUNTY COMMISSIONER SESSIONS

3 SRAC WORKSHOPS

1,299 SURVEY RESPONSES

3 PINELLAS COUNTY LEADERSHIP COMMITTEE & ACTION TEAM (LCAT) WORKSHOPS

10 LOCAL SUSTAINABILITY AND/OR RESILIENCY PLANS REVIEWED

2 LCAT SURVEYS

11 

24 COMMUNITY LEADERS ON SRAC 

2 SRAC SURVEYS

DEPARTMENT LEAD MEETINGS

The Road to Develop Resilient Pinellas

The following roadmap shows the general timeline and steps taken to create Resilient Pinellas, based on the results of the Sustainability and Resiliency Action Plan (SRAP) project. By documenting existing best practices, collecting feedback from County staff and engaging stakeholders and the public in conversations about sustainability and resiliency. Resilient Pinellas reflects the needs and values needed to reach the County's vision.



Project Initiation

Summer 2019

Pinellas County hires a Sustainability and Resiliency Program Coordinator and creates the Leadership Committee and Action Team (LCAT).

Spring 2020

Pinellas County releases a Request for Proposal for the Sustainability and Resiliency Action Plan (SRAP) and selects a project Consultant Team to manage plan development. The scope consists of six key phases which include:

- Phase 1: Project Initiation
- Phase 2: Greenhouse Gas (GHG) Inventories
- Phase 3: Internal Program & Process Assessment
- Phase 4: External Stakeholder Engagement
- Phase 5: Plan Development
- Phase 6: Plan Implementation

The Project Team interviews 11 department leads and meets with the Assistant County Administrators to discuss best practices and future opportunities for the sustainability and resiliency program. Departments interviewed included:

- Administrative Services
- Building & Development Review Services
- Emergency Management
- Housing & Community Development
- Office of Asset Management
- Office of Management & Budget
- Office of Technology & Innovation
- Parks & Conservation Resources
- Public Works
- Solid Waste
- Utilities

Spring 2021

Internal Engagement

Baseline Assessment

Winter 2020

The Project Team starts collecting data needed for the GHG emissions inventories and additional GIS-based data for the development of a Sustainability & Resiliency Story Map.

Fall 2020

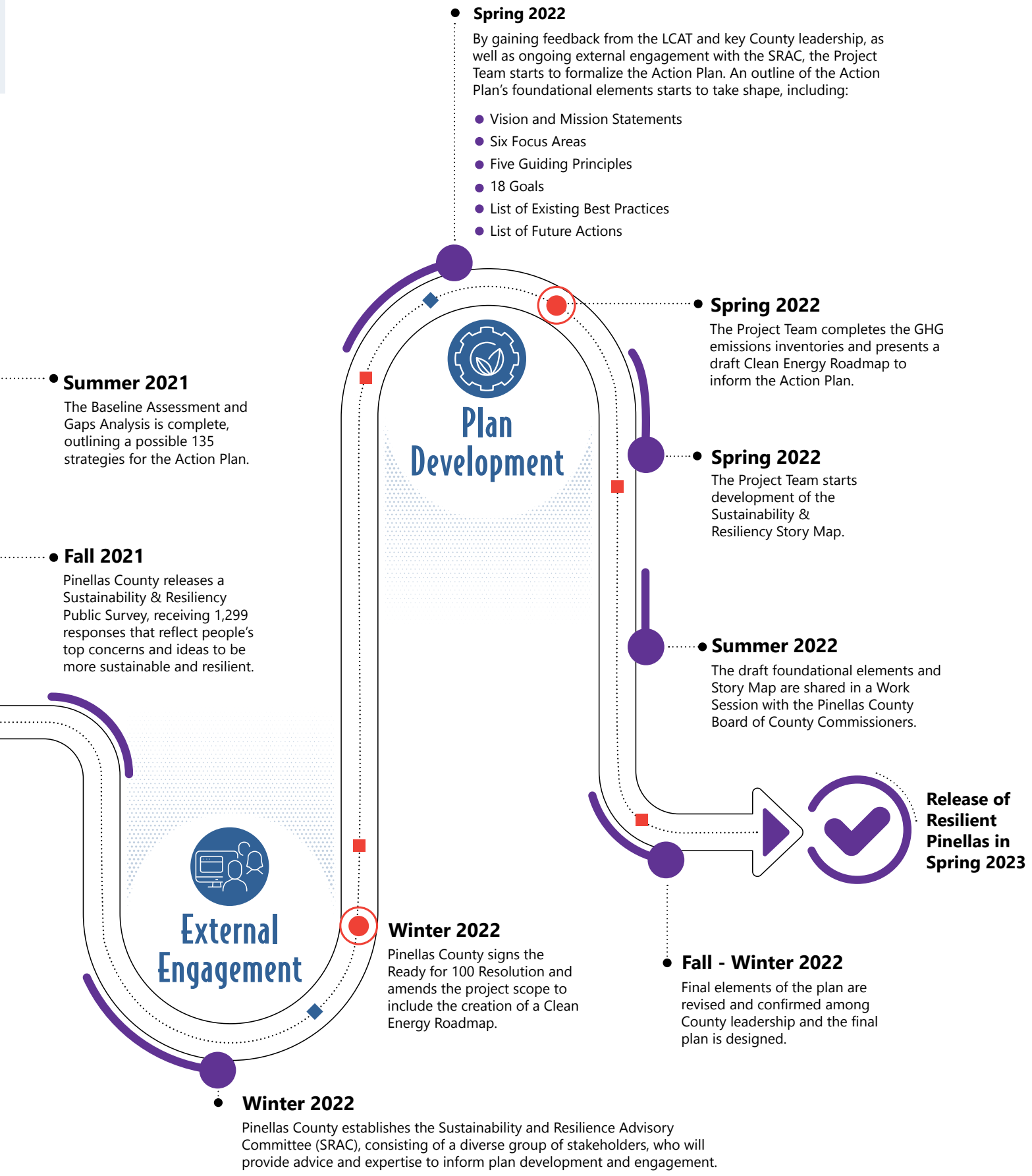
The Project Team kicks off the SRAP project, starting with the review over sixty documents that highlight Pinellas County projects, programs and policies to create a catalog of existing sustainability and resiliency practices and get to know the organization.

Legend

- Timeline
- Phased Plan Development
- Milestone
- ◆ LCAT Engagement*
- SRAC Engagement**

* Includes 2 virtual work sessions, 2 surveys, and internal discussions

** Includes 3 virtual work sessions and 1 survey



● **Spring 2022**

By gaining feedback from the LCAT and key County leadership, as well as ongoing external engagement with the SRAC, the Project Team starts to formalize the Action Plan. An outline of the Action Plan's foundational elements starts to take shape, including:

- Vision and Mission Statements
- Six Focus Areas
- Five Guiding Principles
- 18 Goals
- List of Existing Best Practices
- List of Future Actions

● **Summer 2021**

The Baseline Assessment and Gaps Analysis is complete, outlining a possible 135 strategies for the Action Plan.

● **Fall 2021**

Pinellas County releases a Sustainability & Resiliency Public Survey, receiving 1,299 responses that reflect people's top concerns and ideas to be more sustainable and resilient.

● **Spring 2022**

The Project Team completes the GHG emissions inventories and presents a draft Clean Energy Roadmap to inform the Action Plan.

● **Spring 2022**

The Project Team starts development of the Sustainability & Resiliency Story Map.

● **Summer 2022**

The draft foundational elements and Story Map are shared in a Work Session with the Pinellas County Board of County Commissioners.

● **Winter 2022**

Pinellas County signs the Ready for 100 Resolution and amends the project scope to include the creation of a Clean Energy Roadmap.

● **Fall - Winter 2022**

Final elements of the plan are revised and confirmed among County leadership and the final plan is designed.

● **Winter 2022**

Pinellas County establishes the Sustainability and Resilience Advisory Committee (SRAC), consisting of a diverse group of stakeholders, who will provide advice and expertise to inform plan development and engagement.

Release of Resilient Pinellas in Spring 2023

Resilient Pinellas Foundational Elements

The Resilient Pinellas foundational elements reflect input shared by County staff, as well as needs identified by the community and the Sustainability and Resiliency Advisory Committee (SRAC). Together, the overarching goals, vision and mission statement, guiding principles, focus areas, focus area goals and initiatives make up the action plan's foundational elements.

Overarching Goals

Resilient Pinellas includes **four overarching goals** that represent important performance targets for the County. These overarching goals align with the County's Strategic Plan to provide long-term guidance about county government priorities and to guide the activities of departments in pursuing the mission and vision of the County.

Each Resilient Pinellas initiative page includes an assessment of that strategy's impact on helping the County to reach these overarching goals. Assessment criteria reflect a high-level assessment of each of the four overarching goals.

Vision and Mission Statements

These statements provide an understanding of the intent of Resilient Pinellas and the commitment the County has taken to reach that vision.

Guiding Principles

The **guiding principles** shaped Resilient Pinellas plan development and are an expression of Pinellas County's sustainability and resiliency values. They provide a lens to achieve the County's end goals and implement adopted initiatives included in the action plan.

THIS PLAN HAS ESTABLISHED:

6 IMPLEMENTATION
PATHWAYS 

18
FOCUS AREA GOALS



56

INITIATIVES

6 
FOCUS
AREAS

8 TOP
STRESSES

8
TOP SHOCKS

1 
SUSTAINABILITY
& RESILIENCY
STORY MAP

5 GUIDING
PRINCIPLES

100+ EXISTING BEST
PRACTICES

4 OVERARCHING
GOALS 

Focus Areas

Resilient Pinellas encompasses **six distinct focus areas**, which together will help the County reach its goal to be a leader in sustainable and resilient outcomes through proactive innovation, resource management, and decision-making. For each of the focus areas, a set of goals has been identified to provide structure for existing and future initiatives adopted in the Action Plan, as well set desired outcomes that can be achieved through the implementation of these initiatives.

Focus Area Goals

Resilient Pinellas includes **18 focus area goals** that characterize what the County wants to achieve across the diverse subject matter areas of sustainability and resiliency. The Project Team, County leadership and LCAT members provided a thoughtful, data-drive approach to develop each of the focus area goals. Members of the SRAC also vetted the focus area goals to better ensure consistency with work being done in Pinellas County's communities and the region.

Initiatives

Resilient Pinellas includes **56 initiatives** that provide direction and guidance for the type of work the County will embark on to support its sustainability and resiliency goals. Some of these initiatives build off of work the County is already doing to help build more resilient systems and communities and reach its sustainability commitments. The Project Team identified a total of 135 existing and proposed new best practices through internal engagement with County staff for potential inclusion in Resilient Pinellas. This initial list of potential strategies was evaluated across a set of criteria (as seen on the next page) that aligned with public survey results, including a high-level identification of strategies that will help Pinellas County residents address their top concerns into the future.

For each new initiative, the Project Team has identified a timeline for implementation and department responsibilities, in coordination with County staff.



Empowered Citizens

Goals: **2** | Initiatives: **11**



Economic Vitality

Goals: **3** | Initiatives: **8**



Healthy Ecosystems

Goals: **3** | Initiatives: **9**



Resilient Infrastructure

Goals: **3** | Initiatives: **7**



Sustainable Systems

Goals: **4** | Initiatives: **12**



Thriving Communities

Goals: **3** | Initiatives: **10**



INITIATIVE IDENTIFICATION

Internal feedback to gain insight on potential SRAP initiatives

Ideas for potential sustainability and resiliency initiatives were generated through the following engagement strategies:

- LCAT Kickoff Workshop and Survey
- 12 Departmental Lead Interviews
- Assistant County Administrator Survey
- Project, Program & Policy Review
- Sustainability & Resiliency Program Coordinator Feedback

135 Potential Initiatives



INITIATIVE PRIORITIZATION

Internal and external input used to prioritize initiatives

Potential initiatives were prioritized using the outcomes of outreach strategies including an LCAT Survey, Public Survey of 1,299 responses, and SRAC feedback on survey results. Important initiative prioritization criteria from the Public Survey include:

- Top Shocks, reflecting Climate Resilience
- Top Stresses, reflecting Community Resilience
- Identification of Existing Barriers to living more sustainably or resiliently

56 Resilient Pinellas Initiatives



INITIATIVE EVALUATION

Strategies evaluated by key performance criteria in a spreadsheet

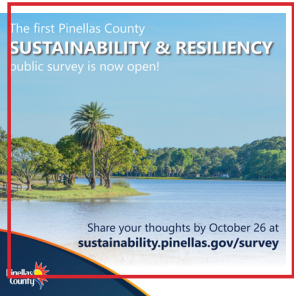
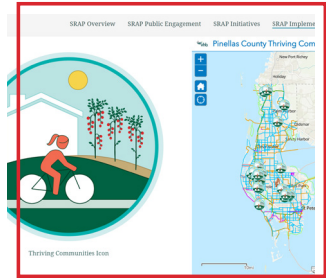
Initiatives were evaluated to reflect alignment with the Public Survey results, LCAT feedback, and other local plans. Criteria included:

- LCAT Survey Result
- Focus Area Alignment
- Climate Resilience
- Community Resilience
- Overcoming Barriers
- Local Plan Alignment

PUBLIC ENGAGEMENT

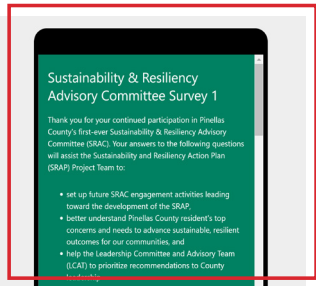
The development of the SRAP, now Resilient Pinellas, included several external engagement activities. These engagement opportunities were important to effective stakeholder participation and provided clear information in the decision-making process.

Development of a public-facing Pinellas County **Sustainability & Resiliency Story Map**. This interactive website highlights the County's resiliency and sustainability work and showcases the thoughtful, evidence-based considerations that went into the creation of Resilient Pinellas that will help us all to become more sustainable in our actions and resilient to life's future challenges.



One public survey, through which the Project Team received **1,299 total responses**. Responses were reviewed to create a list of top concerns for County residents (i.e., shocks and stresses), as well as strategies that residents might like to see the County implement leading to more sustainable, resilient outcomes.

Establishment of the Sustainability and Resiliency Advisory Committee (SRAC). The SRAC is composed of **24** highly respected **community leaders** who have expertise and an active and ongoing interest in sustainability and resiliency issues of relevance to Pinellas County. SRAC members also reflect the diverse communities, interests, and geographies of the unincorporated areas of the County.



Three SRAC Workshops and Survey. Similar to the LCAT, the SRAC provided feedback on the foundational elements of the plan and the identification of strategies that would best fit the County's needs. The SRAC also provided insight on the public survey results on three key topics: climate change, stresses and barriers, and ideas on what kind of strategies the County might implement.

Development of a Local Plan Crosswalk, in which the Project Team reviewed **10 similar sustainability and/or resiliency plans** adopted by some of Pinellas County's local municipalities or regional partners, creating a list of similar projects and programs. This assessment was conducted in order to build capacity across the county for sustainability and resiliency work.



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CHAPTER 3

Initiatives

Pinellas County seeks to become more sustainable and resilient to current vulnerabilities and future conditions through both internal governmental practices and external community services. To ensure the organization has a unified vision and framework for sustainability and resiliency, Pinellas County has adopted 56 initiatives to be implemented in the short-, medium- and long-term. Each of the organizational and community-based sustainability and resiliency actions were developed to support the Resilient Pinellas vision and mission and the County's Strategic Plan, structure, operations and services.

3.1 How to Read this Plan




For each of the 56 Resilient Pinellas initiatives, the County has prepared an overview of implementing actions, important background information and example best practices. The following pages offer a consistent format to review content and a proposed plan for implementation.

Initiative and Description 1

Brief overview of the initiative with a highlight of its sustainability and resiliency benefits.

Timeline 2

Department Champions identified a proposed timeline for implementation. Timeframes include:

-  Short-term: 0 – 3 years
-  Medium-term: 4 – 6 years
-  Long-term: 7 or more years

Budget 2

A high-level cost analysis for implementation. General cost ranges include:

- \$ = Under \$10,000
- \$\$ = \$10,000 - \$100,000
- \$\$\$ = \$100,000 - \$500,000
- \$\$\$\$ = Over \$500,000

Implementation Pathways 3

During the plan development process, the Project Team identified six standard ways the County works to provide projects, programs and polices. These actions have been identified as implementation pathways that offer actionable steps to implement initiatives and include:



Department workplan: The initiative is supported by a directive in a departmental workplan or the County's strategic plan.



Policy-enacted: The initiative is strengthened by local, state, or federal policy to support sustainability or resiliency work.



Data performance: The initiative tracks key performance metrics to promote sustainable operations or community or operational resilience and can show progress over time.



Financial performance: The initiative reduces expenditures and/or provides opportunities to supplement the County budget (grants, partnerships).



Partnership: The initiative encourages collaboration with external stakeholders.



Community engagement: The initiative provides an opportunity for community engagement.

Overarching Goals Analysis 4

With the adoption of Resilient Pinellas, the County has created a Return on Investment (ROI) Guidance Tool designed in a concise, easy-to-use format to assess initiatives or other county work for common sustainability or resiliency outcomes. With this tool, the County has established an order of magnitude assessment for the County to reach the overarching goals of Resilient Pinellas. The levels include:

- v** Very Beneficial, meaning the initiative has a significantly positive effect to improve the overarching goal;
- b** Beneficial, meaning the initiative has a positive effect to improve the overarching goal;
- n** Neutral / Unknown, meaning the criteria either has no net positive or negative effect to improve the overarching goal;

Department Champion 5

Department Champions will lead Resilient Pinellas implementation as identified with the proposed timeline, starting with updating department budgets and workplan items to reflect future staffing and capital improvement needs. They will take the lead on creating collaborative opportunities to engage other departments and the community as needed to advance the County's sustainability and resiliency work. As a part of the plan development process, the Project Team created a Resilient Pinellas Operational Plan, which outlines important information and the proposed implementation pathways that Department Champions may follow to deliver projects, programs and policies. This document provides a guidance tool for the County and it looks to reach identified goals and targets.

Resilient Pinellas initiatives will also have Supporting Champions, who are other departments, County leadership and important

external stakeholders who will provide support to the Department Champion, as needed, to advance initiatives. Supporting Champions may offer strategic insight on how to align specific initiatives with other County work and/or support Resilient Pinellas initiatives with the integration of data, creating a comprehensive, collaborative approach toward initiative implementation.

Strategic Partners 6

This section includes a list of local partners the County may work with to advance Resilient Pinellas initiatives. These partnerships will be important in building on the lived experience of others, creating additional capacity for County work and being purposeful in engagement.

Implementation Elements 7

This section reflects important guidance documents such as the Clean Energy Roadmap, External Engagement Strategy, and Sea Level Rise and Storm Surge Vulnerability Assessment that provide important insight on initiative implementation needs for Pinellas County.

Community Connections 8

This section outlines existing baseline information such as demographic information, data related to the built or natural environment that relates to each Resilient Pinellas initiative. The Community Connections section may also relay some of the results or feedback received through the sustainability and resiliency public survey released as a part of action plan development.

Pinellas Projects and Case Studies 9

These call-out boxes share examples of existing County projects, programs or policies that relate to the identified Resilient Pinellas initiative or best practices as implemented by other governing agencies to advance this type of initiative.

1 RI 6 Increase adaptability of water and wastewater systems to withstand environmental threats and hazards

Pinellas County Utilities is committed to protecting people and the environment while delivering high-quality wastewater collection and treatment services. The department offers several programs and has spent substantial capital investment to increase the resilience of the County's water and wastewater systems. This was recently highlighted with the development of a Risk and Resiliency Assessment of County Water Systems, through which the County has identified Utilities' 12 most critical water assets, helping to guide future capital investment.

The department has also been working to upgrade the County's sewer systems through a variety of projects and programs. This includes a grant-funded program to eliminate septic systems and require residents to connect to Pinellas County wastewater systems and the establishment of the Private Sewer Lateral Program through which private property owners can receive rebates for the replacement or rehabilitation of private sewer lines. Each of these programs offer opportunities to protect groundwater and surface water quality while increasing the reliability and efficiency of public services.

2 TIMELINE & BUDGET  Short 	3 IMPLEMENTATION PATHWAYS 	4 OVERARCHING GOALS ANALYSIS <table border="1"> <tr> <th>GOAL 1</th> <th>GOAL 2</th> <th>GOAL 3</th> <th>GOAL 4</th> </tr> <tr> <td></td> <td></td> <td></td> <td></td> </tr> </table>	GOAL 1	GOAL 2	GOAL 3	GOAL 4				
GOAL 1	GOAL 2	GOAL 3	GOAL 4							
										
5 DEPARTMENT CHAMPION Utilities	6 STRATEGIC PARTNERS Local Municipalities, Tampa Bay Regional Planning Council, Tampa Bay Water	7 IMPLEMENTATION ELEMENTS <ul style="list-style-type: none"> External Engagement Strategy, Sustainability & Resiliency Story Map, Sea Level Rise and Storm Surge Vulnerability Assessment 								

8 COMMUNITY CONNECTIONS

In 2019, Pinellas County lined and replaced more than 23,000 linear feet of pipe to maintain our utility systems and reduce overflows.

9 **Pinellas Project:**
Chestnut Park Aquifer Recharge and Recovery Project

Located off Lake Tarpon, the project will increase the lifespan and reliability of the north county reclaimed water system and will also benefit the environment by creating a freshwater bubble that will provide a barrier to saltwater intrusion and freshening of the aquifer underlying the underground source of drinking water (USDW). The project will benefit our region by replacing the saline waters in the aquifer under the USDW in nearby well fields, ensuring a sustainable supply of potable water. It will also reduce the amount of nitrogen discharged into upper Tampa Bay by an estimated six tons per year.





Empowered Citizens

Empowerment is important to community sustainability and resiliency. When residents are informed, engaged and feel that they can make a difference, they will be more motivated to help solve problems and achieve community goals. Empowered residents are a necessary condition for the implementation of this plan to address community vulnerabilities influenced by climate change. By engaging with residents and other Pinellas County stakeholders about our collective challenges and opportunities, the County aspires to align thinking and behaviors with the realities of the social, economic and environmental systems upon which our society depends.

Goal 1

We will provide residents with resources to help them live sustainably and address future adversity in a coastal Florida community.

Goal 2

We will provide opportunities for leadership and participation in Pinellas County's sustainability and resiliency work.

EC Goal 01

We will provide residents with resources to help them live sustainably and address future adversity in a coastal Florida community.

EC 1 | Analyze publicly accessible health data and trends to inform policy, projects and programs that address the health and well-being of county residents in need of assistance

EC 2 | Enhance the flood information portal application to incorporate cumulative impacts from sea level rise within current flood-prone areas to support community conversations

EC 3 | Increase resilience and capacity of existing and future emergency shelters

EC 4 | Transition the Lealman Exchange into a Neighborhood Resilience Hub to provide community-serving facilities that coordinate disaster, social and revitalization programs

EC 5 | Provide awareness of incentives to private property owners for resilient, green building and/or low-impact development

EC 6 | Continue to provide updates to the Post Disaster Redevelopment Plan and regional collaboration toward identifying recovery and redevelopment needs

Ready Pinellas, an Emergency Planning Mobile Application

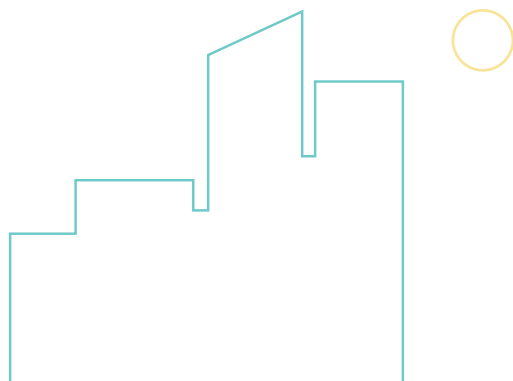
Ready Pinellas is designed to help residents prepare themselves and their families before, during and after a storm. It is available for free download on the Apple App Store and Google Play store.



The app features helpful information and checklists to make sure residents are prepared. App users can use emergency supply checklist, home inventory and emergency contacts tools to build a personal emergency plan. As a storm approaches, the app provides real-time updates to help keep residents safe. It also provides resources to stay informed year-round and during a disaster.

Pinellas County Ready-Set-Protect Webinar Series

In 2023, Pinellas County Emergency Management and affiliated community partners will host a webinar series to discuss preparation, evacuation zones, emergency shelter options, special needs and insurance considerations, providing information and resources to assist the community in best preparing for hurricane season.



EC 1

Analyze publicly accessible health data and trends to inform policy, projects and programs that address the health and well-being of county residents in need of assistance

The County will continue its work with regional public health providers to expand and share health data that can be applied in decision-making processes and support community health and well-being. This would build off the County's work developed through the Community Health Improvement Plan (CHIP), Health in All Policies Initiative (HiAP), and the Behavior Health Coordinated Access Model, providing a regional collaborative approach to improving the health of all people. An important part in each of these programs is the continued tracking of data aimed at improving

outcomes for the County's residents. As an example, the County's Behavioral Health System of Care program is grounded on a Minimum Data Set (MDS), which is a valuable performance management tool that tracks and reports on the most important behavioral health indicators to promote evidence-based decision-making and future-state system planning. Continued analyses of community health indicators and trends are fundamental to identifying new projects and programs across the County's departments to support comprehensive community resilience solutions.

TIMELINE & BUDGET  Medium 	IMPLEMENTATION PATHWAYS   	OVERARCHING GOALS ANALYSIS <table border="0"> <tr> <td>GOAL 1</td> <td>GOAL 2</td> <td>GOAL 3</td> <td>GOAL 4</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> </tr> </table>	GOAL 1	GOAL 2	GOAL 3	GOAL 4				
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DEPARTMENT CHAMPION Human Services	STRATEGIC PARTNERS Forward Pinellas, Florida Department of Health, Healthy St. Pete, Tampa Bay Regional Planning Council	IMPLEMENTATION ELEMENTS External Engagement Strategy, GHG Emissions Inventory								

COMMUNITY CONNECTIONS

The County's Sustainability and Resiliency Story Map shares a series of data prepared by the Centers for Disease Control (CDC), called the Social Vulnerability Index (SVI). This dataset was designed to assist communities and provide a more accurate assessment of those populations that may be more vulnerable to the negative outcomes of a natural disasters and social challenges., both of which are of high concern to residents of Pinellas County. The inclusion of socioeconomic data and specific vulnerability indicators is important to develop new strategies or enhance existing strategies that lead to equitable outcomes for the residents of Pinellas County.

Pinellas Project: Health in All Policies (HiAP)


















Health in All Policies (HiAP) offers a regional, collaborative approach to improving the health of all people by incorporating health considerations into decision-making across sectors and policy. HiAP aims to improve the health of all Pinellas residents by increasing cross-sector collaboration around mutually shared goals and incorporating health considerations into decision-making processes and policy. Trained in the HiAP approach, health planners in Pinellas Park, Pinellas County, and St. Petersburg help guide decision-makers to implement policies and programs could potentially impact the health of all communities. The group serves to recommend changes to maximize community health benefits and minimize the health risks. Through HiAP, the places where people are born, live, learn, work, play and age can be reshaped to encourage healthy choices, which would grant all Pinellas residents an equal opportunity to live a long and healthy life.

EC 2

Enhance the flood information portal application to incorporate cumulative impacts from sea level rise within current flood-prone areas to support community conversations

The County will continue to update and provide awareness of the County’s detailed flood information mapping application, which provides homeowners, business owners, and interested parties with an overview of flood risks and flood insurance requirements in an interactive platform.

Future steps the County may take includes the continued assessment of the projected impacts from sea level rise and storm surge, updates to the web portal to include an interactive map of projected impacts and continued outreach with the community to discuss these updates and concerns.

TIMELINE & BUDGET  Short 	IMPLEMENTATION PATHWAYS   	OVERARCHING GOALS ANALYSIS <table border="0"> <tr> <td>GOAL 1</td> <td>GOAL 2</td> <td>GOAL 3</td> <td>GOAL 4</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> </tr> </table>	GOAL 1	GOAL 2	GOAL 3	GOAL 4				
GOAL 1	GOAL 2	GOAL 3	GOAL 4							
										
DEPARTMENT CHAMPION Public Works	STRATEGIC PARTNERS Tampa Bay Regional Planning Council, FEMA, Local Municipalities	IMPLEMENTATION ELEMENTS External Engagement Strategy, GHG Emissions Inventory, Sea Level Rise and Storm Surge Vulnerability Assessment, Sustainability and Resiliency Story Map								

COMMUNITY CONNECTIONS

Currently, unincorporated Pinellas County is rated a Class 3 in the National Flood Insurance Program (NFIP). As of October 2021, eligible residents and businesses within the unincorporated areas of Pinellas County will receive a 35 percent discount on their flood insurance premiums, saving residents almost \$8,000,000 annually. As flood insurance premiums are a recognized financial burden for some homeowners, it will be important for the County to continue to track insurance cost reductions and share the value in implementing resiliency measures.

Resilience may be our greatest challenge, since we have already built so much infrastructure on vulnerable coastlines. Flood insurance is a good example of how we allow our politics to interfere with sustainable and resilient coastlines.





Pinellas Project: National Flood Insurance Program’s (NFIP) Community Rating System (CRS) program

Involvement in the NFIP CRS program will continue to have positive outcomes for property owners in Pinellas County. Through its great work to reduce the potential impacts of flooding and rising costs of flood insurance through their involvement in FEMA’s CRS program, the County provides tremendous value back to the community it serves. CRS gives local communities credit for actions taken to reduce flood risk, through direct reductions in federal flood insurance premiums when mitigation actions are taken. In 2021, the County was able to attain a Class 3 rating (from its previous Class 5 rating), which will have significant financial benefits to homeowners in Pinellas County, as this will increase the insurance discount from 25 percent with a “5” to 35 percent with the score of a “3”.

EC3 Increase resilience and capacity of existing and future emergency shelters

Through continued coordination among regional stakeholders, the County will assess opportunities to increase shelter capacity throughout the region. In particular, as Pinellas County Schools (PCS) continues to build new school facilities or conduct facility rehabilitation and expansions, the County will continue to assist PCS so these facilities are designed to serve as and provide emergency shelters. The County will also continue to assess opportunities to increase shelter capacity in private development.

“There needs to be clear understanding of where my zone is and where my shelter is. Pinellas County has been hit harder by hurricanes each year and each year those hurricanes get worse.”

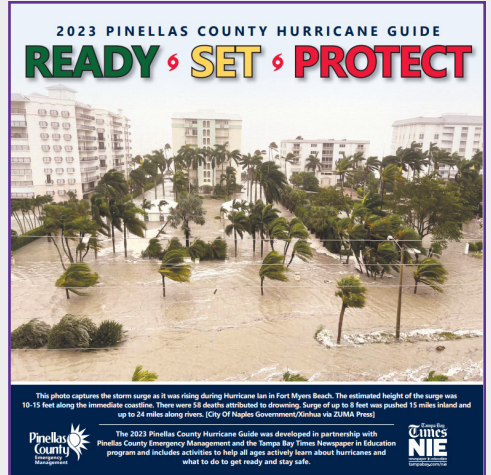
TIMELINE & BUDGET  Medium \$\$\$\$	IMPLEMENTATION PATHWAYS   	OVERARCHING GOALS ANALYSIS <table border="0"> <tr> <td>GOAL 1</td> <td>GOAL 2</td> <td>GOAL 3</td> <td>GOAL 4</td> </tr> <tr> <td>v</td> <td>v</td> <td>v</td> <td>b</td> </tr> </table>	GOAL 1	GOAL 2	GOAL 3	GOAL 4	v	v	v	b
GOAL 1	GOAL 2	GOAL 3	GOAL 4							
v	v	v	b							
DEPARTMENT CHAMPION Emergency Management	STRATEGIC PARTNERS Pinellas County Schools, Florida Department of Emergency Management	IMPLEMENTATION ELEMENTS External Engagement Strategy, Sea Level Rise and Storm Surge Vulnerability Assessment								

COMMUNITY CONNECTIONS

In the event of a climate disaster, Pinellas County will start opening emergency shelters for use by the public and share information on the open/closed status of the shelters as needed to support evacuation needs. Once an evacuation is called, this list is updated and shared with the public. The County manages a public dashboard, called Know Your Zone where residents can receive up-to-date information on sheltering needs and locations.

Pinellas Project: Pinellas County Hurricane Guide

In partnership with the Tampa Bay Times, Pinellas County releases an annual Pinellas County Hurricane Guide, which provides families with a suite of tools and valuable information to prepare for hurricane season and other potential events. The document serves as a robust resource which throughout the year so that people can be better prepared before disaster strikes, including supplies and materials that need to be gathered and important contact information and resources to rely on prior to, during, and after the storm. The guide provides information so people may assess their potential risk, develop a plan for their household, stay informed and get involved.



EC 4 Transition the Lealman Exchange into a Neighborhood Resilience Hub to provide community-serving facilities that coordinate disaster, social and revitalization programs

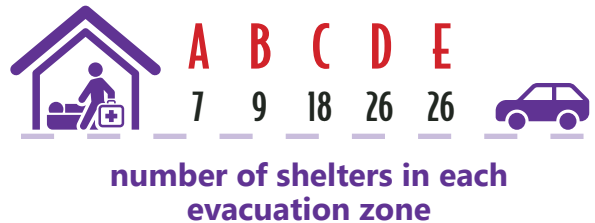
As a long-term initiative, the County will collaborate with community organizations to identify existing neighborhood centers that can act as Resilience Hubs to provide emergency management, recovery assistance, and social or health and welfare support before, during and after disruptions. Resilience hubs would provide backup, renewable energy resources, food supply, cooling stations and more for the community in times of need. These hubs may be similar to the existing Lealman Exchange Resilience Hub located in the Lealman Community Redevelopment Area (CRA), where

members of the community are offered free programs focused on economic empowerment, educational advancement, health and wellness, character and leadership and community connectivity. The facility also serves as a special needs shelter during severe weather events. The CRA has created a public/private partnership with the St. Petersburg Foundation to implement these programs.

TIMELINE & BUDGET  Long 	IMPLEMENTATION PATHWAYS     	OVERARCHING GOALS ANALYSIS <table border="0"> <tr> <td>GOAL 1</td> <td>GOAL 2</td> <td>GOAL 3</td> <td>GOAL 4</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> </tr> </table>	GOAL 1	GOAL 2	GOAL 3	GOAL 4				
GOAL 1	GOAL 2	GOAL 3	GOAL 4							
										
DEPARTMENT CHAMPION Office of Resilience and Asset Management	STRATEGIC PARTNERS Local Municipalities, Pinellas County Public Schools, Tampa Bay Regional Planning Council	IMPLEMENTATION ELEMENTS External Engagement Strategy, Sea Level Rise and Storm Surge Vulnerability Assessment								

COMMUNITY CONNECTIONS

Community centers and schools throughout the County are used as emergency shelter facilities in instance of evacuation. There are a variety of sheltering types including those open to the general population, pet-friendly and those that provide for people with special needs. The graphic to the right provides an overview of the number of shelters in 2023 by their Evacuation Zone Level.











Case Study: City of Orlando Community Resilience Hubs

Through the development of its Future-Ready Master Plan, the City of Orlando identified the creation of Resilience Hubs as a key strategy to improve the community's ability to weather disasters such as extreme heat, severe and tropical storms and hurricanes in a more equitable manner. In April 2021, the city was awarded a \$2,850,000 grant by the State of Florida's Department of Economic Opportunity through HUD's Community Development Block Grant (CDBG) Mitigation General Infrastructure Program to transform six existing community centers into Resilience Hubs. This funding will support the implementation of enhancements to existing community centers so these centers can serve as Resilience Hubs where to provide residents with access to electricity, public wi-fi, and even apply for benefits in a post-disaster situation. These facilities will also act as distribution centers for sandbags, water, food or other supplies and services for residents to help residents be prepared when disaster strikes.

EC 5 Provide awareness of incentives to private property owners for resilient, green building and/or low-impact development (density bonuses, expedited permitting, etc.)

In coordination with the adoption of new land development code that provides incentives to developers that implement green building or low-impact development practices (EV 1), the County will lead the implementation of an educational campaign to promote these best practices. This would strengthen existing education opportunities for county residents and raise awareness of choices property owners can make to implement green building solutions.

Targeted campaigns could include outreach with students in Pinellas County Schools to complete an environmental training program and/or outreach to strategic demographics to include assisted living facilities and/or adult literacy programs.

TIMELINE & BUDGET  Medium 	IMPLEMENTATION PATHWAYS    	OVERARCHING GOALS ANALYSIS <table border="0"> <tr> <td>GOAL 1</td> <td>GOAL 2</td> <td>GOAL 3</td> <td>GOAL 4</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> </tr> </table>	GOAL 1	GOAL 2	GOAL 3	GOAL 4				
GOAL 1	GOAL 2	GOAL 3	GOAL 4							
										
DEPARTMENT CHAMPION Building and Development Review Services	STRATEGIC PARTNERS Local Municipalities, Pinellas County Schools	IMPLEMENTATION ELEMENTS External Engagement Strategy, GHG Emissions Inventories								

COMMUNITY CONNECTIONS

The top two responses to the question on what community services people think the County should be providing more of include the need for “funding opportunities for residents and businesses to improve communities” and “renewable energy sources for the community” with just over 50 percent of survey respondents stating that these are important needs. Continued awareness on green building or low-impact development solutions and their associated incentives will be integral toward advancing opportunity and reducing the County’s overall carbon footprint.

Pinellas Project: Wastewater and Solid Waste Facility Tours

Pinellas County Utilities and Solid Waste departments are committed to educating the public about water resources and solid waste facilities through educational opportunities such as tours, classroom presentations and participation in education-based events (i.e. science fairs, STEM Academies, and sustainability events). These tours cover a wide variety of topics including career opportunities, the chemistry of wastewater treatment, monitoring of drinking water and the steps to process waste at the Solid Waste Complex including the Waste-to-Energy facility, landfill and water treatment facility.



EC 6 Continue to provide updates to the Post Disaster Redevelopment Plan and regional collaboration toward identifying recovery and redevelopment needs

Continued updates to the Post Disaster Redevelopment Plan (PDRP) will help guide County and municipal actions and decisions in a post disaster situation. The implementation of strategies identified in the PDRP and continued collaboration among regional partners toward project implementation will help to address a variety of recovery and long-term redevelopment needs, such as business resumption and economic redevelopment, housing repair and reconstruction, infrastructure restoration and mitigation, environmental restoration, and recovery needs identified by the community.

Together, the County and its partners will also identify needed preparations before a disaster strikes to speed up the recovery process. The County recently received funding under the State of Florida’s Resilient Coastlines Program to evaluate flood-risk policies and sections of the PDRP and continued needed outreach in support of these updates.

<p>TIMELINE & BUDGET</p> <p>Short \$\$</p>	<p>IMPLEMENTATION PATHWAYS</p> 	<p>OVERARCHING GOALS ANALYSIS</p> <table border="1"> <tr> <td>GOAL 1</td> <td>GOAL 2</td> <td>GOAL 3</td> <td>GOAL 4</td> </tr> <tr> <td>V</td> <td>V</td> <td>V</td> <td>V</td> </tr> </table>	GOAL 1	GOAL 2	GOAL 3	GOAL 4	V	V	V	V
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<p>DEPARTMENT CHAMPION</p> <p>Emergency Management</p>	<p>STRATEGIC PARTNERS</p> <p>Local Municipalities</p>	<p>IMPLEMENTATION ELEMENTS</p> <ul style="list-style-type: none"> External Engagement Strategy, Sea Level Rise and Storm Surge Vulnerability Assessment 								

COMMUNITY CONNECTIONS

As a part of updates to the Post-Disaster Redevelopment Plan, Pinellas County released a public survey to assess important information on how often the community experiences certain climate hazards. Per the survey results, 24.2 percent have experienced a hurricane or tropical storm about once a year, 30.3 percent have experienced these storms every few years, and 31.8 percent have experienced these storms at least once or a few times in their lifetime. As hurricanes become more intense and frequent in the future, post disaster needs will become more necessary.

Pinellas Project: Community Emergency Response Team (CERT)

One of the county’s most active volunteer programs is the Community Emergency Response Team (CERT). Together with FEMA and the Florida Division of Emergency Management (FDEM), Pinellas County offers a training program that prepares Floridians to help their families and neighbors in the event of a disaster in their community. Through CERT, citizens can learn about disaster preparedness and receive training in basic disaster response skills such as fire safety, light search and rescue, and disaster medical operations.



EC Goal 02

We will provide opportunities for leadership and participation in Pinellas County's sustainability and resiliency work.

EC 7 | Expand the County's "EMbassador" program to assist with residents' emergency preparedness training and education for all hazards

EC 8 | Provide a public education and volunteer campaign to reduce and/or remove invasive exotic plants and species from public lands

EC 9 | Provide updates to local recycling guidance given to residents reflecting new regional recycling processes identified by the Solid Waste Regional Partners Committee

EC 10 | Implement a Resilient Pinellas visibility and engagement campaign for residents, businesses and organizations to increase knowledge of community-wide sustainability or resilience initiatives

Pinellas County Adopt-a-Pond Program

Stormwater ponds are vital systems that collect rainwater runoff before it enters our storm sewer systems or flows into the built environment and our waterways. Properly functioning stormwater ponds increase storage capacity, decrease flooding, improve water quality, and create habitat for wildlife. Through the Adopt-a-Pond program, the County partners with citizens to improve the function of our stormwater ponds. Participants in the program will work as a team to implement a variety of best management practices, including removal of invasive plant species and installation of native plants as well as implementing neighborhood outreach and education.

Pinellas County Recycling Education

Pinellas County Department of Solid Waste offers an array of recycling opportunities for residents of the unincorporated area. To help residents know where their unwanted materials may go instead of the landfill, the County produces an annual Recycle Guide to educate residents on how and where to "recycle right." They also provide an online "Where Does it Go?" search tool so residents may look up what to do with commonly discarded items. The Department of Solid Waste also offers educational opportunities through tours, presentations, and a YouTube playlist with videos on the 4 Rs (reduce, reuse, recycle and recover).

The Youth Advisory Committee (YAC)

Established in 2001, the YAC was developed as a vehicle for young people to provide input and assistance to the Pinellas County Commission. The committee assists the commission by helping young people identify their needs, to organize activities that are beneficial to the community, to suggest services they need as a group, and to become active participants with their adult counterparts in county programs. To join the YAC, connect at <https://www.pinellascounty.org/yac/history.htm>



EC7

Expand the County's "EMbassador" program to assist with residents' emergency preparedness training and education for all hazards

Pinellas County Emergency Management has established an "EMbassador" and Community Emergency Response Team (CERT) program through which the County provides education to volunteers about disaster preparedness. This is a Whole Community Engagement program in which the County has established partnerships with community leaders and other organizations in at-risk communities. Following an all-hazards approach, members of the community receive information on potential impacts and then training on basic disaster response skills

to assist with preparedness, response, recovery, and mitigation. The County plans to continue to identify candidates willing to serve as community "EM"bassadors to facilitate education and assistance as made available by the County. This program is similar to programs run in cities of Seattle, Washington, and Austin, Texas, where volunteers receive training and resources to residents willing to assist with emergency preparedness, response, recovery and mitigation and climate education in their local community, with a focus on assisting areas with more vulnerable populations.

<p>TIMELINE & BUDGET</p> <p> Short </p>	<p>IMPLEMENTATION PATHWAYS</p> <p>   </p>	<p>OVERARCHING GOALS ANALYSIS</p> <table border="0"> <tr> <td>GOAL 1</td> <td>GOAL 2</td> <td>GOAL 3</td> <td>GOAL 4</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> </tr> </table>	GOAL 1	GOAL 2	GOAL 3	GOAL 4				
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<p>DEPARTMENT CHAMPION</p> <p>Emergency Management</p>	<p>STRATEGIC PARTNERS</p> <p>Local Municipalities, Sustainability and Resilience Advisory Committee (SRAC)</p>	<p>IMPLEMENTATION ELEMENTS</p> <p>External Engagement Strategy, Sea Level Rise and Storm Surge Vulnerability Assessment</p>								

COMMUNITY CONNECTIONS

Protecting the residents of Pinellas County is of the utmost importance to Pinellas County government. Toward this mission, Pinellas County Emergency Management leaders host workshops for residents help them prepare their families, property and pets during hurricane season. These Hurricane Preparedness Expos include presentations by local experts on important storm-related topics, including hurricane planning for pets, Pinellas County flood risks, and Q&A sessions about the 9-1-1 Regional Communications Center and County Information Center. Participants can gain assistance in finding evacuation zones and learning about zone changes, as well as register special needs assistance and receive free hurricane kits while supplies last.

Case Study:
City of New Orleans Resilience Design Review Committee

In order to support the achievement of the resilience goals established in its guiding framework Resilient New Orleans, the City of New Orleans established a Resilience Design Review Committee to provide regular project review. The Committee meets monthly to review City-led infrastructure projects funded under Resilience Programs, especially those that have stormwater management and green infrastructure components. In review of design and site plans, the Committee works to integrate best management practices that meet resilience performance criteria, support energy conservation and support a context-sensitive approach.

EC 8 Provide a public education and volunteer campaign to reduce and/or remove invasive exotic plants and species from public lands

Invasive plants and/or non-native plants can reproduce rapidly, which can negatively impact local ecosystems. Using approved herbicide treatments and manual removal tactics in its Invasive Plant Management Program, the County controls invasive and nuisance weeds in stormwater, retention, mitigation ponds, lakes and ditches. Plant selection includes native vegetation which provide a wildlife habitats, while improving drainage and water quality and reducing mosquito breeding.

This program would provide educational materials and volunteer opportunities to learn about or implement these best management practices.

TIMELINE & BUDGET  Short 	IMPLEMENTATION PATHWAYS   	OVERARCHING GOALS ANALYSIS <table border="0"> <tr> <td>GOAL 1</td> <td>GOAL 2</td> <td>GOAL 3</td> <td>GOAL 4</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> </tr> </table>	GOAL 1	GOAL 2	GOAL 3	GOAL 4				
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DEPARTMENT CHAMPION Parks and Conservation Resources	STRATEGIC PARTNERS Local HOAs	IMPLEMENTATION ELEMENTS External Engagement Strategy								

COMMUNITY CONNECTIONS

Environmental conservation and the protection of local ecosystems was the top rated topic for inclusion in Resilient Pinellas, with 74 percent of survey respondents identifying it as a need. In addition to this, the responsible management of and respect for natural environments was identified as the top characteristic to make Pinellas County more sustainable and resilient (with 70 percent support). Increasing invasive plant removal and education on all public property through in-person volunteer opportunities, educational materials, and/or other outreach provides an important step in protecting Pinellas County's important ecosystems, including invasive species.

Pinellas Project: Invasive Plant Management Program

Pinellas County established the Invasive Plant Management Program to provide a coordinated effort to control invasive vegetation and restore native plants and habitat in public places. The purpose of this program is to maintain public property in an efficient, economically responsible and environmentally conscious manner. People can either volunteer their time to assist with important maintenance during scheduled events or review educational materials provided by the County. Together, we can promote healthy, natural plant communities by removing invasive plants from the landscape and using native or Florida-Friendly external site plants in your landscape.



EC 9

Provide updates to local recycling guidance given to residents reflecting new regional recycling processes identified by the Solid Waste Regional Partners Committee

Pinellas County's Solid Waste Master Plan serves as the guide for solid waste operations and program development to meet the future waste management needs of Pinellas County. The Master Plan outlines a series of short, intermediate, and long-term strategies to accomplish the "zero waste to landfill" goal within 30 years. The plan outlines options for residents and business owners to reduce, reuse or recycle the products they use every day. The development of the Regional Partners Committee was identified as a short-term action item (through 2024) and includes the

counties of Hillsborough, Manatee, Pasco, and Sarasota and the City of Tampa. Two primary objectives for the Regional Partners Committee include advocating for legislative and regulatory initiatives and information and resource sharing.

As the Committee continues to track new opportunities to increase waste diversion from the landfill, the County will work with Communications to provide external messaging and guidance to reflect updated waste and recycling guidance.

TIMELINE & BUDGET  Short 	IMPLEMENTATION PATHWAYS    	OVERARCHING GOALS ANALYSIS <table border="0"> <tr> <td>GOAL 1</td> <td>GOAL 2</td> <td>GOAL 3</td> <td>GOAL 4</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> </tr> </table>	GOAL 1	GOAL 2	GOAL 3	GOAL 4				
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DEPARTMENT CHAMPION Solid Waste	STRATEGIC PARTNERS Solid Waste Regional Partners Committee, Waste Haulers	IMPLEMENTATION ELEMENTS External Engagement Strategy, GHG Emissions Inventory								

COMMUNITY CONNECTIONS

Reducing the amount of waste that enters the landfill is not only an important goal of Pinellas County in their Solid Waste Master Plan, but one that is well supported by the community. Two of the highest rated sustainability activities Pinellas County residents already participate in include recycling or composting (at 75 percent of all survey respondents) and reducing the use of single use plastics (at 65 percent of all survey respondents). While these numbers reflect general buy-in for residents to reduce their waste, as reflected below, there is tremendous opportunity and desire to increase recycling and composting opportunities. What follows below are a few quotes received in the County's sustainability and resiliency survey.

Community ideas to divert materials from the landfill in support of the County's Zero Waste by 2030 goal

"Increase recycling by providing more cans for different materials and pick up services that come more often while at the same time reducing the number of trash pick-up days."

"Recycling must be implemented in any future developments."

"The beaches should have recycling programs."

"The recycling system is not as efficient as it could be. Education must happen."

"Recycling in apartment complexes needs to happen. Make it work."

"Our recycling and composting programs seem to be in their infancy. Better public education about recycling at elementary school level and starting food composting. If we teach kids they will take that knowledge home as empowered citizens and they will be champions and stewards for sustainability."

EC 10 Implement a Resilient Pinellas visibility and engagement campaign for residents, businesses and organizations to increase knowledge of community-wide sustainability or resilience initiatives

The County’s Sustainability & Resiliency website and social media outlets can be used to create campaigns that share stories of people working toward community or individual sustainability and resiliency goals. The County will continue to review and implement recommendations for public outreach as outlined in the Resilient Pinellas External Engagement Strategy to promote visibility and equitable engagement in sustainability and resiliency initiatives, highlighting the

work that residents and organization are conducting across the county in alignment with the County’s goals and strategies.

The County may focus these efforts in historically underrepresented communities to advance equitable decision-making in its sustainability and resiliency work.

<p>TIMELINE & BUDGET</p> <p> Short </p>	<p>IMPLEMENTATION PATHWAYS</p> <p>  </p>	<p>OVERARCHING GOALS ANALYSIS</p> <table border="0"> <tr> <td>GOAL 1</td> <td>GOAL 2</td> <td>GOAL 3</td> <td>GOAL 4</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> </tr> </table>	GOAL 1	GOAL 2	GOAL 3	GOAL 4				
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<p>DEPARTMENT CHAMPION</p> <p>Office of Resilience and Asset Management</p>	<p>STRATEGIC PARTNERS</p> <p>Sustainability and Resiliency Advisory Committee (SRAC)</p>	<p>IMPLEMENTATION ELEMENTS</p> <p>External Engagement Strategy, Sustainability & Resiliency Story Map</p>								

COMMUNITY CONNECTIONS

Through the development of Resilient Pinellas, the County conducted important public outreach to help residents gain awareness of the County’s Sustainability and Resiliency Program, developing a new webpage and Story Map for the public to receive updates on ongoing work efforts. Through internal outreach, staff also noted that one of the top ways to provide additional visibility for the County’s sustainability and resiliency work was to identify community liaisons, or ambassadors, to provide continued outreach and education. Combining these two efforts, the County may offer a visibility campaign for local sustainability and resiliency champions to showcase the important work they also provide to Pinellas County communities.

Case Study: City of Austin Community Climate Ambassadors Program

To advance awareness and gain continued feedback on the Austin Climate Equity Plan, Austin’s Office of Sustainability established a Climate Ambassador Program. In this program, identified community representatives worked with city staff to learn about climate justice and engage communities in conversations about climate issues. The first 2021-2022 Community Climate Ambassador cohort consisted of 12 individuals whose primary role was to engage people in their network in conversations about resiliency and report insight gained back to staff. Over six months, the Ambassadors held 35 engagement events with over 70 participants through a series of gatherings, one-on-one interviews, personalized surveys, worksheets and more.

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Economic Vitality

Sustainability and resiliency run deeper than environmental health and productivity. A truly sustainable and resilient community must have a thriving economy that is sustainable and resilient. This is tied directly to quality of life and cost of living, which can be greatly impacted by public policy, programs and projects. Economic vitality can be better achieved by encouraging and supporting sustainable business practices, affordable and diverse housing options, and high-quality jobs and wages, community-wide.

Goal 1

We will encourage and engage residents and businesses to adopt proactive sustainable and resilient practices.

Goal 2

We will promote a sustainable housing market, increasing access to stable, attainable, resilient housing.

Goal 3

We will promote and advance a green economy that provides good jobs with a living wage.

EV Goal 01

We will encourage and engage residents and businesses to adopt proactive sustainable and resilient practices.

EV 1 | Create an incentive program for resilient and green building, low-impact design, environmental preservation, and/or implementation of hazard mitigation strategies

EV 2 | Expand the County's Home Repair Loan Program to include a broader suite of weatherization and mitigation retrofits and improvements

EV 3 | Create a business educational and technical assistance campaign that offers local business owners the opportunity to learn about the County's sustainability and resiliency work

Florida-Friendly Landscaping Incentives Program

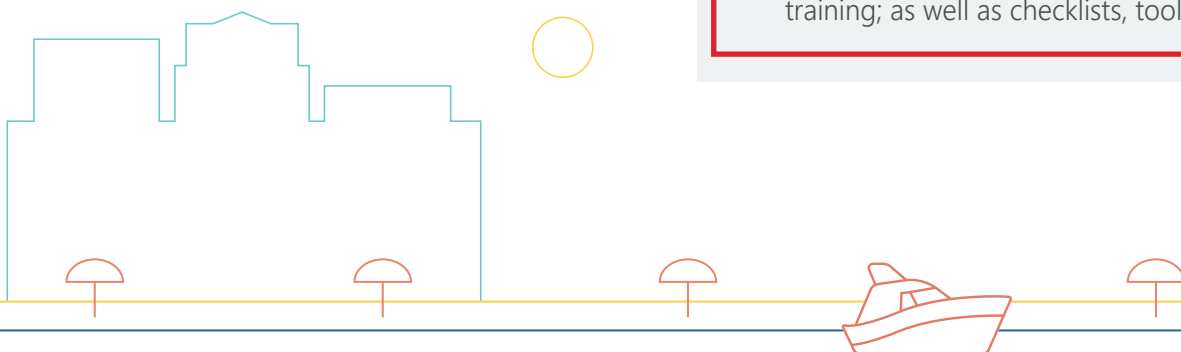
The Florida-Friendly Landscaping Incentive Program (FLIP) is a program designed to reduce the amount of water and fertilizer Pinellas County residents and businesses use on their landscapes. Property owners are eligible for a 50 percent rebate up to \$2,000 for installation of Florida-friendly landscaping after completing educational classes.

Watershed Protection Education & Outreach

Pinellas County has implemented countywide community outreach activities, including public festivals, events, HOA presentations and school presentations to share the importance of watershed preservation. A variety of information pamphlets are available online and in County offices to encourage best management practices.

Florida Small Business Development Center

The Florida Small Business Development Center (FSBDC) is located in the Office of Small Business and Supplier Diversity at Pinellas County Economic Development. FSBDC is designed to help existing and beginning businesses achieve their goals. The center offers confidential, free consulting; low-cost training; as well as checklists, tools and workshops.



EV 1 Create an incentive program for resilient and green building, low-impact design, environmental preservation, and/or implementation of hazard mitigation strategies

The County looks forward to working with private partners to reduce overall energy and water demand toward establishing more resilient and sustainable communities. Through continued collaboration to increase clean, renewable energy options, and practice resource conservation, the County can better ensure needed utility services and healthy ecosystems.

In particular, the County may continue to share its design templates for green infrastructure development and low-impact design features for use in County

easements and rights-of-way (tree wells, green gutters, pervious pavement, and exfiltration trenches), the County will adopt incentives for private developers to incorporate the same in their site plans. This would require the adoption of new land development code that outlines optional incentives for developers to implement green building practices (i.e., incentives that reduce the time to obtain building permits and/or reduce site costs such as minimum required parking reductions).

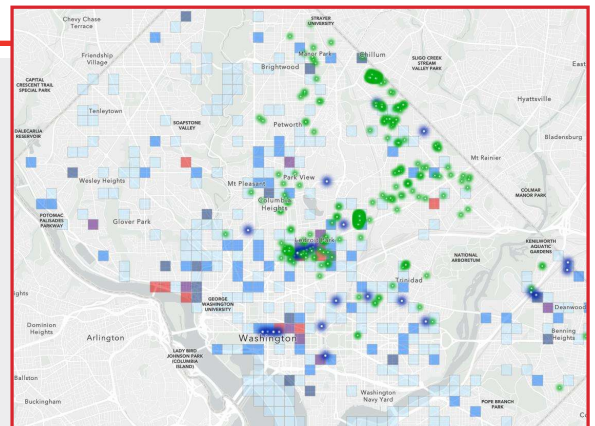
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DEPARTMENT CHAMPION Building and Development Review Services	STRATEGIC PARTNERS Tampa Bay Regional Planning Council, Florida Housing Coalition	IMPLEMENTATION ELEMENTS External Engagement Strategy								

COMMUNITY CONNECTIONS

Studies that show people prefer to live, work, and play in buildings and neighborhoods with sustainability and health-focused design strategies. Natural spaces improve air quality, help to mitigate flooding and promote natural function, all while providing accessibility to active recreation. Extending these natural spaces into the built environment will play an important role in building active, healthy, and safe communities for years to come.

Case Study: DC FloodSmart Homes Resilience Upgrades

In 2023, the City of Washington DC's Department of Energy & Environment released a grant opportunity provide eligible entities with funding to help reduce the loss of life, damage to property, and harm to natural resources from flooding. Grant recipients will receive funds to install upgrades to homes in flood-prone areas throughout the District, including sealing HVAC ducts, installing sump pumps, installing flood vents in crawlspaces, etc. Funds can also be utilized to support emergency assistance needs for anticipated flood events (e.g., sand-bag deployment).




Source: City of Washington DC Department of Energy and Environment FloodSmart Homes Pre-proposal Conference presentation

EV 2 **Expand the County's Home Repair Loan Program to include a broader suite of weatherization and mitigation retrofits and improvements**

The County continues to run a Home Repair Loan Program, which provides home repair loans to low income and moderate-income homeowners at zero percent interest, amortized for 20 years. An expansion of the existing program would provide supplemental education on weatherization or other property mitigation needs to help build more resilient housing.

The County may consider coupling this program with other community-wide energy and water efficiency retrofit programs provided by Duke Energy Florida or Tampa Bay Water for the largest impact on sustainability and resilience for homeowners.

TIMELINE & BUDGET  Long \$\$\$\$	IMPLEMENTATION PATHWAYS     	OVERARCHING GOALS ANALYSIS <table border="0"> <tr> <td>GOAL 1</td> <td>GOAL 2</td> <td>GOAL 3</td> <td>GOAL 4</td> </tr> <tr> <td>V</td> <td>V</td> <td>V</td> <td>V</td> </tr> </table>	GOAL 1	GOAL 2	GOAL 3	GOAL 4	V	V	V	V
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DEPARTMENT CHAMPION Office of Resilience and Asset Management	STRATEGIC PARTNERS Local Municipalities, Tampa Bay Regional Planning Council, Tampa Bay Water, Duke Energy Florida, Solar Energy Loan Fund (SELF)	IMPLEMENTATION ELEMENTS External Engagement Strategy, GHG Emissions Inventory, Clean Energy Roadmap, Sea Level Rise and Storm Surge Vulnerability Assessment								

COMMUNITY CONNECTIONS

A lack of affordable housing was the top stress identified in the public survey, with 55 percent of survey respondents including it as their top choice; and the top community service survey respondents requested was to offer funding opportunities for residents and businesses to improve communities through energy upgrade, community gardens and flood proofing. Together, these concerns speak to the need to harden existing housing stock and provide energy efficiencies and flood proofing measures to protect these homes from continued deterioration and/or harm.

Case Study: **Orange County Senior Climate Efficiency Program**

Orange County Government, Florida established the Senior Climate Efficiency Program (SCEP) through which low-income seniors (60+) can receive air conditioner replacement, service, or system upgrades. This starts with a complete health and safety inspection to identify potential improvements needed in clients' homes to create safer living accommodations for a very vulnerable population. In addition to creating more resilient housing, the program will help to preserve the senior housing stock in Orange County, especially as this number is anticipated to rise. This is an important program that aligns with the County's Age-Friendly Orange County Initiative, which helps to preserve and grow more livable spaces that are adaptable for residents during all stages in life.

EV 3 Create a business educational and technical assistance campaign that offers local business owners the opportunity to learn about the County's sustainability and resiliency work

As a part of Resilient Pinellas, the County will create educational materials and lead an outreach campaign for local businesses to promote best practices for sustainability and resiliency. In particular, this program will be designed in coordination with the adoption of new Land Development Code that provides incentives to developers who implement green building or low-impact development practices (Initiative EV 1), outreach to private property owners (Initiative EC 6), and the County's ongoing waste initiatives (SS 11, SS 12, SS 13).

Let's encourage businesses and government to use natural energy sources, to recycle, cut down on waste, reward conservation and recycling.

TIMELINE & BUDGET  Short 	IMPLEMENTATION PATHWAYS   	OVERARCHING GOALS ANALYSIS <table border="0"> <tr> <td>GOAL 1</td> <td>GOAL 2</td> <td>GOAL 3</td> <td>GOAL 4</td> </tr> <tr> <td>b</td> <td>v</td> <td>v</td> <td>v</td> </tr> </table>	GOAL 1	GOAL 2	GOAL 3	GOAL 4	b	v	v	v
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DEPARTMENT CHAMPION Economic Development	STRATEGIC PARTNERS Sustainability and Resiliency Advisory Committee (SRAC), Local Chambers of Commerce, Local Municipalities	IMPLEMENTATION ELEMENTS External Engagement Strategy								

COMMUNITY CONNECTIONS

Through the public survey, several survey takers expressed their wish to support green enterprise in Pinellas County, building off of the County's tradition of supporting economic opportunity.

Community ideas to support Green Business Practices

- "One big idea is to offer incentives for businesses to adopt sustainable practices."**
- "Resilience means residents, tourists, business owners, and government working together to preserve our natural resources and keep our properties safer from natural and man-made disasters."**
- "Pinellas supports local businesses and promotes events like the Saturday Morning Market. It encourages a local economy and is planning for a more sustainable future."**

Case Study:
City of Seattle Green Your Business Program

The City of Seattle Public Utilities Department established the Green Your Business Program which offers free tools and assistance to help local businesses to conserve resources and prevent pollution. The program outlines how businesses can reduce costs through waste reduction and prevention programs, water pollution prevention, and water conservation techniques. The City partnered with a green business recognition program called EnviroStars, through which local entrepreneurs can gain a competitive edge in attracting eco-conscious buyers. This is in addition to a free excel-based tool that can help track return on investment for waste reduction strategies and a stormwater facility credit program.



EV Goal 02

We will promote a sustainable housing market, increasing access to stable, attainable, resilient housing.

EV 4 | Create design standards to promote sustainability and energy efficiency, encourage healthy environments and lifestyles, and features for climate adaptation

EV 5 | Conduct a community-wide energy burden analysis to create strategies that reduce energy consumption and thus, the cost of living

Advantage Pinellas Housing Compact

The Advantage Pinellas Housing Compact offers a coordinated approach to increase affordable housing linked to transportation, jobs, schools, workforce development and other services. Developed by Pinellas County, Forward Pinellas, and staff from the four largest municipalities (St. Petersburg, Clearwater, Largo, and Pinellas Park), the compact outlines a common set of policies to create more affordable housing countywide.

Penny For Pinellas Housing Program

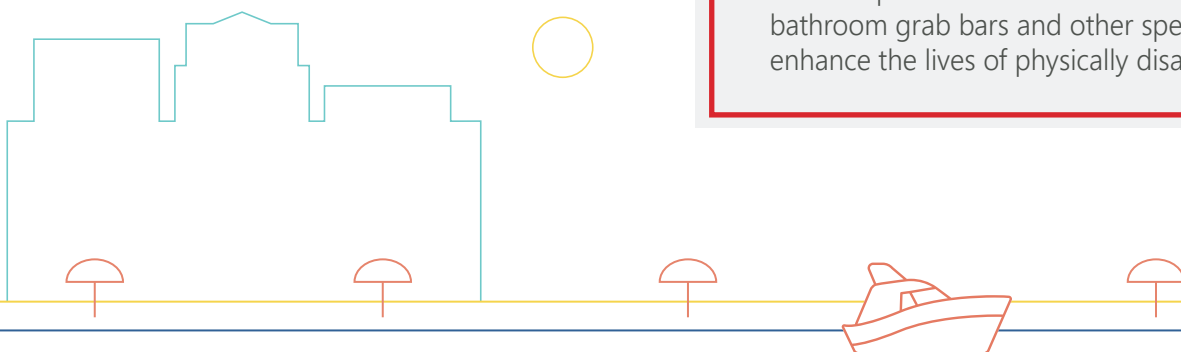
Pinellas County's countywide affordable housing fund is designed to help everyone find an affordable place to live in Pinellas. This fund uses a limited portion of the Penny for Pinellas sales tax (4.15 percent) to invest around \$80 million toward expanding housing options in the next decade through qualified development and rehabilitation projects.

HOME Investment Partnerships Program

Pinellas County receives HOME funds annually, which can be used for grants, direct loans, loan guarantees or other forms of credit enhancement, rental assistance or security deposits. The flexibility of the HOME program allows Pinellas County to use these funds in ways that best fit the needs of our community.

Independent Living Program

The Independent Living Program provides grants of up to \$7,000 to encourage barrier-free, accessible housing. This grant is available to low-income homeowners to cover home improvements such as wheelchair ramps, railings, bathroom grab bars and other special equipment to enhance the lives of physically disabled residents.



EV 4 Create design standards to promote sustainability and energy efficiency, encourage healthy environments and lifestyles, and features for climate adaptation

Building off of the adoption of the Advantage Pinellas Housing Compact, which provides a coordinated approach to increase affordable housing linked to transportation, jobs, schools, workforce development, and other services, develop new design guidelines for the built environment that promote energy efficiency and climate adaptation needs. This will better preserve long-term, affordable housing countywide.

TIMELINE & BUDGET  Short \$\$	IMPLEMENTATION PATHWAYS    	OVERARCHING GOALS ANALYSIS <table border="0"> <tr> <td>GOAL 1</td> <td>GOAL 2</td> <td>GOAL 3</td> <td>GOAL 4</td> </tr> <tr> <td>V</td> <td>V</td> <td>V</td> <td>V</td> </tr> </table>	GOAL 1	GOAL 2	GOAL 3	GOAL 4	V	V	V	V
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DEPARTMENT CHAMPION Housing and Community Development	STRATEGIC PARTNERS Local Municipalities, Tampa Bay Regional Planning Council	IMPLEMENTATION ELEMENTS GHG Emissions Inventory, Clean Energy Roadmap, Sea Level Rise and Storm Surge Vulnerability Assessment								

COMMUNITY CONNECTIONS

Through the public survey, community members shared their big ideas on what will be needed to help Pinellas County become more sustainable and resilient.

Community ideas to support Resilient Housing

“Stronger and safer building codes for new development.”

“Proper building codes & land-use planning has been recognized in reducing disaster risks for a long time.”

“Buildings that are stronger and can handle storms that are getting more intense.”

Pinellas Project: Advantage Pinellas Housing Compact



The County has adopted a compact between the Pinellas County Board of County Commissioners and Forward Pinellas which outlines goals to support the development of affordable housing and to align these development projects along high-employment corridors to support access to jobs, opportunity and enhance livability. The Compact also aligns with healthy community initiatives, promoting proximity to parks and open space, healthy food sources, medical care and safe, active modes of transportation. The Compact also outlines strategies to improve the resiliency of development, reducing the risk of vulnerable populations to future disaster and promoting economic resiliency. The Compact also mentioned the development of a regulatory framework to support regional partnerships and a common understanding of regulatory strategies and standards for a broad definition of housing affordability.



EV 5 Conduct a community-wide energy burden analysis to create strategies that reduce energy consumption and thus, the cost of living

As an extension of its numerous affordable housing initiatives, the County should pursue an energy burden analysis to identify households and communities that are disproportionately burdened by energy costs. Following the collection of community-scale data in the GHG emissions inventory and an analysis of vulnerable populations in the unincorporated area, the County should conduct a study to correlate data to identify energy burdened households. This type of analysis would help Pinellas County to mitigate the energy costs of those with the highest home energy needs,

greatest energy burdens, and least number of available resources, through which the County could implement measures to decrease energy usage. The development of this analysis should coincide with the development of a toolkit and outreach program provide energy burdened households with verified strategies to reduce their overall energy consumption and thus, cost of living. Implementation measures should align with other programs such as a residential tree planting program or affordable housing initiatives.

TIMELINE & BUDGET  Short 	IMPLEMENTATION PATHWAYS     	OVERARCHING GOALS ANALYSIS <table border="0"> <tr> <td>GOAL 1</td> <td>GOAL 2</td> <td>GOAL 3</td> <td>GOAL 4</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> </tr> </table>	GOAL 1	GOAL 2	GOAL 3	GOAL 4				
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DEPARTMENT CHAMPION Office of Resilience and Asset Management	STRATEGIC PARTNERS Sustainability and Resiliency Advisory Committee (SRAC), Duke Energy Florida	IMPLEMENTATION ELEMENTS External Engagement Strategy, GHG Emissions Inventory, Clean Energy Roadmap								

COMMUNITY CONNECTIONS

In the Tampa-St. Petersburg-Clearwater Metropolitan Statistical Area (MSA), median percentage of household income spent on energy bills, known as “energy burden,” for the median household was 3.32 percent, but for low-income households it was 7.28 percent. This statistic mirrors nationwide energy burden analyses, which reveal that on average low-income households face an energy burden three times higher than other households.



Energy burden is the percentage of gross household income that is spent on energy bills for both single- and multifamily households.

Pinellas Project: Lealman Community Redevelopment Area (CRA)

In 2015, Pinellas County Government established the Lealman CRA, which was the first CRA in unincorporated Pinellas County. The following year, the County adopted the Lealman CRA Redevelopment Plan, which serves as a comprehensive framework for long-term growth. The plan as developed in coordination with the community and supported by data and analysis that together would better ensure the successful redevelopment of the blighted area. In accordance with the CRA Plan, the Lealman Redevelopment Trust Fund and Tax Increment Financing (TIF) District was established so that all taxes assessed on future increases in the value of properties within the CRA would be used to support community development. Within the CRA, homeowners and business owners can apply for various grant opportunities to improve the appearance or structural elements of the built environment.

EV Goal 03

We will promote and advance a green economy that provides good jobs with a living wage.

EV 6 | Implement a regional marketing campaign to attract recycling markets and vendors

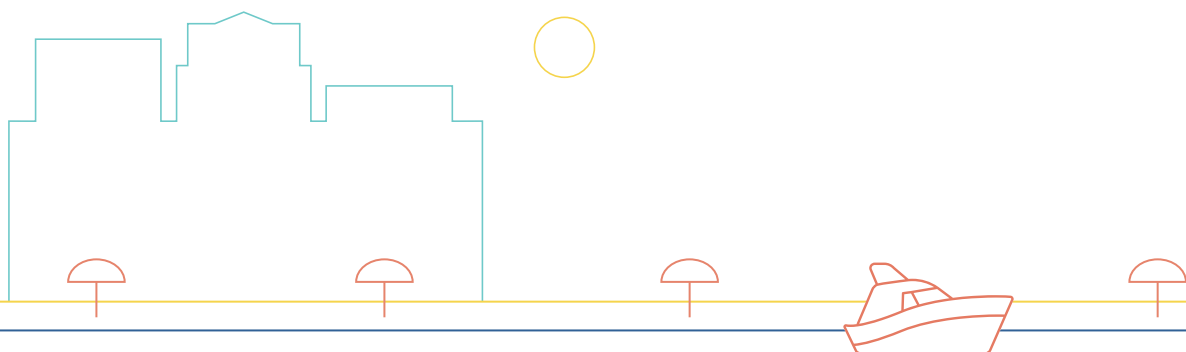
EV 7 | Establish pre-certification programs for contractors and installers who specialize in resilient and/or green building practices

Pinellas CARES Small Business Grants

Through the COVID-19 pandemic, Pinellas County offered grants to assist local businesses that had to close or significantly reduce operations due to the pandemic and the resulting statewide orders to curb the spread of the virus. Grants were limited to businesses with a commercial location in the county. This program offered \$5,000 grants to small businesses to cover expenses such as employee wages, vendor bills and mortgage or rent costs.

Jails to Jobs Utilities Program

The Utilities department has created a recruitment program through which training is provided to people serving time at the Pinellas County Jail. Inmates are thereafter provided options to work in the public utilities industry upon release. This educational program helps to reduce criminal recidivism by improving job placement opportunities and easing the transition into civilian life.



EV 6 Implement a regional marketing campaign to attract recycling markets and vendors

Pinellas County's solid waste system is handled at a regional scale, serving Pinellas County, its 24 municipal partners. As the County continues to grow, the solid Waste division anticipates it will need to manage at least 1.35 million tons out of the 2.5 million tons generated in 2048. The County's Economic Development, Communications, and Solid Waste departments seek to work together to assess local market opportunities in the Tampa Bay region to recycle or reuse materials that are currently being landfilled and/or processed at the Waste-to-Energy (WTE) plant.

As identified in the public survey, many residents in the area are passionate about recycling and would like to see reduction, reuse, or recycling programming grow. The opening of these businesses will assist the County in reaching its Zero Waste to Landfill goal. In this campaign, the County may recruit existing vendors who may be interested in opening a new location in the Tampa Bay area, as well as identify innovative recycling businesses that may find Tampa Bay an attractive place to establish their business.

TIMELINE & BUDGET  Short 	IMPLEMENTATION PATHWAYS 	OVERARCHING GOALS ANALYSIS <table border="1"> <tr> <th>GOAL 1</th> <th>GOAL 2</th> <th>GOAL 3</th> <th>GOAL 4</th> </tr> <tr> <td></td> <td></td> <td></td> <td></td> </tr> </table>	GOAL 1	GOAL 2	GOAL 3	GOAL 4				
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DEPARTMENT CHAMPION Solid Waste	STRATEGIC PARTNERS Sustainability and Resiliency Advisory Committee (SRAC), Local Chambers of Commerce	IMPLEMENTATION ELEMENTS External Engagement Strategy, GHG Emissions Inventory								

COMMUNITY CONNECTIONS: ARK INNOVATION CENTER

Pinellas County, in partnership with the U.S. Economic Development Administration, the City of St. Petersburg, the Tampa Bay Innovation Center, and ARK Invest, will design, construct and equip a 45,000 square foot state-of-the-art business incubator to promote new business start-ups and entrepreneurship. The new facility will draw entrepreneurs to the business accelerator, to receive dedicated coaching, participate in entrepreneurial programs and expert technical assistance, all in a state-of-the-art facility offering affordable leased space and flexible collaborative workspaces. Programming and visibility offered through the ARK Innovation Center could support growth in the recycling market in particular.

Case Study: City of Orlando Beyond 34 Initiative

In 2017, the City of Orlando was involved in a strategic waste program called the Beyond 34 Initiative (fka "Beyond 34"), which started under a U.S. Chamber of Commerce pilot program. The Beyond 34 initiative established a nation-wide collaborative of multiple stakeholders aimed at advancing the circular economy across the U.S. by providing a scalable model to identify and implement high-impact waste solutions tailored to local needs. The city is continuing vital stakeholder engagement with to advance waste innovation and reach the city's goal to become a "zero waste" community by 2040.



Source: City of Orlando

EV 7 Establish pre-certification programs for contractors and installers who specialize in resilient and/or green building practices

The County will work to establish new training and educational materials for contractors and installers who specialize in the type of development/installation opportunities that will further advance other sustainability and resiliency goals. This includes Pinellas County Government’s ability to increase clean energy opportunities, support the development of missing middle housing, and increase opportunities to provide

building weatherization and storm preparedness renovations, energy efficiency retrofits, rainwater harvesting, and other low-impact development or green infrastructure design.

This program could also create an opportunity for the County to highlight local contractors that integrate green building practices in their projects.

<p>TIMELINE & BUDGET</p> <p> Medium \$\$</p>	<p>IMPLEMENTATION PATHWAYS</p> <p>  </p>	<p>OVERARCHING GOALS ANALYSIS</p> <table border="1"> <tr> <th>GOAL 1</th> <th>GOAL 2</th> <th>GOAL 3</th> <th>GOAL 4</th> </tr> <tr> <td></td> <td></td> <td></td> <td></td> </tr> </table>	GOAL 1	GOAL 2	GOAL 3	GOAL 4				
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<p>DEPARTMENT CHAMPION</p> <p>Contractor Licensing</p>	<p>STRATEGIC PARTNERS</p> <p>Sustainability and Resiliency Advisory Committee (SRAC)</p>	<p>IMPLEMENTATION ELEMENTS</p> <p>External Engagement Strategy, GHG Emissions Inventory, Clean Energy Roadmap</p>								

COMMUNITY CONNECTIONS

Growth in the green job market is strong. Between 2017 and 2019 **energy efficiency jobs grew twice as quickly** as overall nationwide employment to nearly 2.4 million workers. Here in Florida, over **12,000 employees work directly in the solar industry**, making it the second highest employer of solar professionals across the U.S. With increasing demand for solar in the Sunshine State, this number is projected to grow.



Case Study: City of Madison GreenPower Program

The City of Madison’s Engineering Division created the GreenPower program to prepare participants for employment opportunities in the solar energy and electrical industries. In addition to providing jobs that support a living wage, this program provides a valuable conduit through which to the City can better achieve two important goals: to increase the City’s generation of renewable energy and to decrease its carbon footprint. Each year the City hires underemployed or unemployed individuals as trainees to work alongside Engineering Division Electricians to install solar photovoltaic (PV) systems on City facilities. Through the program, trainees receive classroom training in basic PV and gain on-the-job training on the installation process.

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Healthy Ecosystems

Sustainability and resilience are dependent on healthy ecological communities. These systems provide clean water, coastal protection, habitats, and places for relaxation and enjoyment. Protection of the environment will help ensure these and other amenities exist for future generations. Pinellas County is fortunate to host one of the most productive estuaries and to be bound by one of the most beautiful coastlines in the country. As caretakers of the environment, we will consider the impacts of growth and development on local communities. As climate stresses increase, adaptation processes must be instilled to make sure ecosystems are sustained into the future.

Goal 1

We will preserve and increase environmental lands, beaches, parks and waterways.

Goal 2

We will restore and sustain thriving, connected native plant and wildlife habitats.

Goal 3

We will manage natural resources for the benefit of current and future generations.

HE Goal 01

We will preserve and increase environmental lands, beaches, parks and waterways.

HE 1 | Continue a robust land acquisition program, with updates to include land use regulations and/or vulnerability assessment results

HE 2 | Continue conservation of rights-of-way to implement green infrastructure or preserve areas serving natural-beneficial functions

HE 3 | Develop an updated Recreation, Open Space and Cultural Systems Master Plan

Pinellas County Aquatic Preserve: Seagrass and Water Quality Protection

Pinellas County regulates activity in its Aquatic Preserve to prevent seagrass scaring, permanent damage, and water quality violations. Seagrass beds are important to estuarine productivity, providing a protective nursery area for juvenile fish, shrimp, crabs, and other invertebrates by providing natural growing beds for needed food for fish, crustaceans and manatees feed directly on seagrasses. Seagrass roots also bind soils and reduce erosion and turbidity during strong tidal currents or storms, fostering the protection of coastal habitats, property and people.

Wall Springs Park Coastal Addition

Pinellas County recently expanded Palm Harbor's Wall Springs Park with an additional 125 acres of coastal lands added to the existing 84-acre park. The park expansion gives visitors more recreational options and a considerable amount of natural land to enjoy with more amenities. The project earned Pinellas County a 2019/2020 Project of the Year award from the American Public Works Association's (APWA) West Coast Branch in the category of Historic Preservation, Environment and Safety. Because of its location on the Gulf of Mexico, the addition to Wall Springs Park protects a variety of native habitats and associated plant and animal life, including 18 species of fish, 148 species of plants and 127 species of birds.



HE 1 Continue a robust land acquisition program, with updates to include land use regulations and/or vulnerability assessment results

Since 1990, the County has acquired over 4,000 acres of land and is actively looking at 60 additional opportunities. The County has established a working group that evaluates potential property purchases for their ability to improve natural functions, offer floodplain protection, serve underserved communities or provide species protection.

<p>TIMELINE & BUDGET</p> <p> Short </p>	<p>IMPLEMENTATION PATHWAYS</p> <p>    </p>	<p>OVERARCHING GOALS ANALYSIS</p> <table border="1"> <tr> <th>GOAL 1</th> <th>GOAL 2</th> <th>GOAL 3</th> <th>GOAL 4</th> </tr> <tr> <td></td> <td></td> <td></td> <td></td> </tr> </table>	GOAL 1	GOAL 2	GOAL 3	GOAL 4				
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<p>DEPARTMENT CHAMPION</p> <p>Parks and Conservation Resources</p>	<p>STRATEGIC PARTNERS</p> <p>Tampa Bay Estuary Program, Tampa Bay Regional Planning Council, Local Municipalities</p>	<p>IMPLEMENTATION ELEMENTS</p> <p>GHG Emissions Inventory, External Engagement Strategy, Sea Level Rise and Storm Surge Vulnerability Assessment</p>								

COMMUNITY CONNECTIONS

Environmental conservation and the protection of local ecosystems was the top topic chosen in the public survey responses for inclusion in Resilient Pinellas with 73.8 percent of survey respondents making this selection. Additionally, the responsible management of and respect for the natural environment was selected by the County's external advisory committee as the top characteristic that would help make Pinellas County more sustainable and resilient.

Pinellas Project: Land Acquisition and Parks and Environmental Land Scoring Template

The County monitors and assesses opportunities of available lands for acquisition to be used for public use and/or serve as environmental preservation. To acquire land, the County has established a working group that evaluates the potential benefits of the property to improve natural functions, offer floodplain protection, serve underserved communities or offer species protection, etc. The Baypointe Regional Stormwater Park and Wall Springs Park Coastal Addition, shown to the right, are two good examples of the program at work to support environmental stewardship, as well as development and community needs.



HE 2 Continue conservation of rights-of-way to implement green infrastructure or preserve areas serving natural-beneficial functions

The continued conservation of right-of-way space offers opportunities to implement low impact design and green infrastructure. This would also provide opportunities for innovative technologies such as solar harvesting and other demonstration projects. These are highly visible locations and would connect the community to implemented sustainability and resiliency measures.

“ I would like to see more trees in parking lots, sidewalks, and walkways. ”

TIMELINE & BUDGET  Medium \$\$\$	IMPLEMENTATION PATHWAYS   	OVERARCHING GOALS ANALYSIS <table border="0"> <tr> <td>GOAL 1</td> <td>GOAL 2</td> <td>GOAL 3</td> <td>GOAL 4</td> </tr> <tr> <td>b</td> <td>b</td> <td>b</td> <td>v</td> </tr> </table>	GOAL 1	GOAL 2	GOAL 3	GOAL 4	b	b	b	v
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DEPARTMENT CHAMPION Public Works	STRATEGIC PARTNERS Florida Department of Transportation, Forward Pinellas, Local Municipalities	IMPLEMENTATION ELEMENTS External Engagement Strategy, GHG Emissions Inventory								

COMMUNITY CONNECTIONS

The County currently manages over 2,600 lane miles of paved roads and 1,066 miles of sidewalks in unincorporated Pinellas County. With continued growth in the amount of pedestrian connections and the improvement of existing sidewalks or trails, there is ample opportunity to increase green space that bolster natural functions.

Case Study: 59th Street Blue / Green Infrastructure, City of Miami Beach, FL

As a vital part of its commitment to supply more resilient infrastructure, the City of Miami Beach continues to integrate natural resources into local streets. One example is West 59th street, located in the La Gorce neighborhood, which has had historical flooding issues. The bioswale project was placed within the right-of-way of West 59th street, improving stormwater runoff water quality by filtering pollutants through natural root systems and soil. The project provides on-site retention for lawns, driveways and roads within a historically significant residential neighborhood.



Source: City of Miami Beach “Evaluating Blue-Green Infrastructure” presentation

HE 3 Develop an updated Recreation, Open Space and Cultural Systems Master Plan

The County's Parks and Conservation Resources department is currently conducting their Level of Service analysis to determine future needs for parks and open space, including a survey of recreational, cultural and environmental needs. The last Master Plan was adopted in 2005. This update will allow for extensive community engagement with a focus on equity and will support other strategic County initiatives such as the Health in All Policies (HiaP) initiative and the Comprehensive Plan update, PLANPinellas.

“ We like the arts, in all forms, from street to live performances. We love our music ... our walks on the beach ...our sports. ”

TIMELINE & BUDGET  Long \$\$	IMPLEMENTATION PATHWAYS   	OVERARCHING GOALS ANALYSIS <table border="0"> <tr> <td>GOAL 1</td> <td>GOAL 2</td> <td>GOAL 3</td> <td>GOAL 4</td> </tr> <tr> <td>b</td> <td>v</td> <td>v</td> <td>v</td> </tr> </table>	GOAL 1	GOAL 2	GOAL 3	GOAL 4	b	v	v	v
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b	v	v	v							
DEPARTMENT CHAMPION Parks and Conservation Resources	STRATEGIC PARTNERS Tampa Bay Estuary Program, Creative Pinellas, Local Municipalities	IMPLEMENTATION ELEMENTS External Engagement Strategy								

COMMUNITY CONNECTIONS

In 2015, the arts and cultural sector generated over **\$241 million** in direct annual expenditures in Pinellas County, **created over 7,200 jobs** and produced **\$29.8 million** in state and tax revenue.



Pinellas Project: Creative Pinellas

Creative Pinellas works in alignment with the Pinellas County Strategic Plan to foster economic vitality, preserve and support cultural and historical assets, and provide opportunities to build the arts and cultural communities. Established in partnership between the Board of County Commissioners and Visit St. Petersburg/Clearwater, Creative Pinellas is the Local Arts Agency that provides cultural resources for all residents and visitors to Pinellas County. With a mission to foster and sustain a vibrant, inclusive and collaborative arts community, the agency provides support, connection and opportunities to artists, organizations, and the public in order to grow and sustain the arts in Pinellas County. The arts offer creative opportunities to showcase the sustainability and resiliency mission of Pinellas County. In partnership with Creative Pinellas, the County may pursue eco-conscious art installations throughout its sustainability and resiliency work.

HE Goal 02

We will restore and sustain thriving, connected native plant and wildlife habitats.

HE 4 | Align with the Tampa Bay Estuary Program (TBEP) Habitat Master Plan to support habitat migration corridors

HE 5 | Use County-owned park and recreation spaces as living laboratories for sustainability and resilience initiatives

HE 6 | Encourage wider implementation of Florida-friendly landscaping on properties throughout the county

Philippe Park Living Shorelines

Pinellas County has been working on a large-scale living shoreline project at Philippe Park in Safety Harbor. The project includes installation of oyster reefs and native vegetation as well as natural enhancements along the existing seawall. Approximately 800 oyster bags and 1,000 marsh grasses were installed along the south end of the park's shoreline in October 2021, and more features are scheduled to be installed in 2022 and 2023.

Sea Turtle Program

In 2019, Pinellas County marked a record high of 669 sea turtle nests! As the numbers of sea turtles are in decline, every nest is important to grow the population. All seven species of sea turtles are either endangered or threatened. The loggerhead is the most common sea turtle found in Pinellas County, where nesting and hatching occur from May through October. Twelve out of thirteen Pinellas County barrier island municipalities have light ordinances in place to assist our hatchlings in finding their way to the water.

Manatee Protection

Pinellas County recognizes the importance of manatee protection and has policies in place to protect seagrass beds and other habitats for endangered and threatened species. Pinellas County's Comprehensive Plan supports such measures as enforcing no-wake zones, establishing seagrass protection areas and providing manatee caution signage.



HE 4 Align with the Tampa Bay Estuary Program (TBEP) Habitat Master Plan to support habitat migration corridors

The purpose of the Tampa Bay Habitat Master Plan Update is to guide implementation of a number of the strategic steps identified in the Bay Habitats Action Plan. This includes identifying critical habitats and the current and future threats to their health. This initiative assures an alignment with the TBEP Plan, which has been built upon years of research, stakeholder participation and development, with a focus on habitat migration corridors.

Habitat migration corridors may align with other land acquisition programs and/or conservation of rights-of-way, especially to support passive recreation such as walking or biking.

<p>TIMELINE & BUDGET</p> <p> Medium </p>	<p>IMPLEMENTATION PATHWAYS</p> <p>   </p>	<p>OVERARCHING GOALS ANALYSIS</p> <table border="0"> <tr> <td>GOAL 1</td> <td>GOAL 2</td> <td>GOAL 3</td> <td>GOAL 4</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> </tr> </table>	GOAL 1	GOAL 2	GOAL 3	GOAL 4				
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<p>DEPARTMENT CHAMPION</p> <p>Office of Resilience and Asset Management</p>	<p>STRATEGIC PARTNERS</p> <p>Tampa Bay Estuary Program, Florida Fish and Wildlife Conservation Commission</p>	<p>IMPLEMENTATION ELEMENTS</p> <p>Sustainability and Resiliency Story Map, Sea Level Rise and Storm Surge Vulnerability Assessment, External Engagement Strategy</p>								

COMMUNITY CONNECTIONS: TAMPA BAY ESTUARY PROGRAM

The Tampa Bay Estuary Program is a national leader in applying a data-driven approach and compelling storytelling to drive community action for the benefit of cleaner waters, thriving habitats and abundant wildlife. These actions help to bolster economic vitality and environmental stewardship throughout the region.

Pinellas Project: Artificial Reefs

There are 42 artificial reef sites along the Gulf Coast of Pinellas County, providing underwater habitats for marine life and popular tourist destinations to observe the wildlife. These coastal habitats make for more resilient coastlines and improve the local economy, offering opportunities for ecotourism such as fishing and diving.

This program also serves as a means to reduce the amount of waste that goes to the landfill. The reefs are constructed from environmentally safe construction and demolition (C&D) debris. Items such as concrete pipes, steel beams or entire ships are carefully placed on the ocean bottom. Within about two weeks, algae and barnacles attach to the reef material, and coral growth starts in about a year.



HE 5 Use County-owned park and recreation spaces as living laboratories for sustainability and resilience initiatives

County-owned parks and recreation spaces will become sustainability and resilience hubs for the community and serve as education centers. These spaces could exhibit or host events that support a living laboratory environment, offering collaboration and research opportunities to enhance sustainability and resilience for the community. The County's work on living shorelines and artificial reefs are both examples of living laboratory environments

TIMELINE & BUDGET  Medium 	IMPLEMENTATION PATHWAYS   	OVERARCHING GOALS ANALYSIS <table border="0"> <tr> <td>GOAL 1</td> <td>GOAL 2</td> <td>GOAL 3</td> <td>GOAL 4</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> </tr> </table>	GOAL 1	GOAL 2	GOAL 3	GOAL 4				
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DEPARTMENT CHAMPION Parks and Conservation Resources	STRATEGIC PARTNERS Keep Pinellas Beautiful, Local Municipalities, Local Universities and Colleges, Pinellas County Schools, Creative Pinellas	IMPLEMENTATION ELEMENTS External Engagement Strategy, Sea Level Rise and Storm Surge Vulnerability Assessment								

COMMUNITY CONNECTIONS

The County was able to collect information from survey participants on the types of institutions, community groups or local associations that might help the County to carry out its sustainability and resiliency work. A wide array of responses were provided, including local environmental organizations, academic institutions, faith-based organizations and other local nonprofits. Living laboratories offer partnership opportunities with each of these organizations to build capacity for the County's sustainability and resiliency work.

Case Study: USF Student Urban Activation Installations

As part of a series of graduate urban design studios at University of South Florida's (USF) School of Architecture and Community Design, students designed and built urban installations to generate awareness for vulnerable communities in the City of St. Petersburg. These installations served different purposes, but all activated park and recreation spaces as tools for education. While these installations don't explicitly educate, their purpose goes beyond being an art installation. Through interaction and "play," they serve as tools to educate the public about ongoing issues within the city, ranging from environmental resilience to social resilience.

These pieces also serve as a way for students to become active in their community and try to spark change. Although the installations are meant for public use, the creation and conceptualization of the installation strengthens students' understanding of key issues that take place within their own communities.

HE 6 Encourage wider implementation of Florida-friendly landscaping on properties throughout the county

The County will continue to work with partners like UF IFAS to implement native or Florida-friendly landscaping and provide supplemental educational materials to the community. Public Works has created a list of plant species that are known for being highly drought tolerant and/or flood tolerant, with the added benefits of reducing potential runoff and absorbing pollutants. The continued distribution of these materials may increase the use of more drought-tolerant, native plant species on private property.

The County's Stormwater Manual outlines opportunities to receive stormwater credits for implementing best practices in Florida-friendly landscape design, such as retaining large native trees, protecting landscape through conservation easements, and other site standards.

TIMELINE & BUDGET



Medium



IMPLEMENTATION PATHWAYS



OVERARCHING GOALS ANALYSIS

GOAL 1



GOAL 2



GOAL 3



GOAL 4



DEPARTMENT CHAMPION

Parks and Conservation Resources

STRATEGIC PARTNERS

UF/IFAS Extension Pinellas County, Tampa Bay Estuary Program, Keep Pinellas Beautiful

IMPLEMENTATION ELEMENTS

External Engagement Strategy

COMMUNITY CONNECTIONS

Survey responses received through the public engagement period reveal that many residents in the county already follow Florida-friendly planting guidelines and see the value in further implementation of this strategy. Several quotes are reflected below.

Community insight on the importance of Florida-friendly landscaping

"Maintaining natural native plants and animals keeps our ecosystem in balance. Using our natural resources efficiently and conservatively also promotes innovation and healthy living."

"Resilience means creating more green space and designated areas for native trees."

"Resilience means creating more green space and designated areas for native trees."

Case Study:

Mead Botanical Gardens, Winter Park, FL

The Mead Botanical Garden actively implements projects to improve the quality of its park using native plant species. The Lake Lillian forested wetlands revitalization project has proven successful in increasing biodiversity and improving the aquatic habitat. The improvement of the natural wetland included the removal of invasive plant species from the 12 acre wetland. Following the removal, nearly 4,300 native plants and trees were installed and its boardwalk was rebuilt, providing education opportunities of the wetland.

Restoration of the Lake Lillian wetland has been a public-private collaborative effort involving the City of Winter Park, Mead Botanical Garden Inc., US Congressman John Mica and Florida Fish and Wildlife Conservation Commission (FFWCC) leaders and staff and many experts. At least three years of research and project planning preceded the start of construction.



HE Goal 03

We will manage natural resources for the benefit of current and future generations.

HE 7 | Align the enterprise asset management system with mitigation measures that support habitat function (living shorelines, oyster boxes, etc.)

HE 8 | Provide broader, more systematic implementation of green infrastructure and nature-based solutions to reduce natural hazard exposure, especially through the use of design guidelines in capital planning

HE 9 | Continue to implement the Integrated Vegetative Management Program throughout County-owned lands

Pinellas County Mangrove Ordinance

Mangroves are protected by the State's Mangrove Trimming and Preservation Act and cannot be trimmed unless you qualify for an exemption or obtain a permit. Pinellas County biologists and arborists work closely with homeowners and trimmers to ensure all trimming meets the requirements of the County's ordinance for Mangrove Trimming and Preservation.

Walsingham Equestrian Park

The County is evaluating the potential benefits of integrating stormwater management ponds within the park that would provide new aquatic habitat while enhancing the park and trail riding experience. Filtering stormwater through ponds, wetlands and other media would improve the quality of the water that discharges to McKay Creek and the intracoastal waterway. Other improvements could include removal of exotic and invasive vegetation and replanting with more desirable species while maintaining shady trails and a forested backyard aesthetic.

Weedon Island Preserve and Education Center on

Weedon Island Preserve is an expansive 3,190-acre natural area located on Tampa Bay. This coastal system, made up of aquatic and upland ecosystems, is home to numerous species of native plants and animals, an educational facility and a rich cultural history. Indigenous peoples occupied this site for thousands of years. Today, the preserve protects this wide diversity of natural and cultural resources for current and future generations. Weedon Island Preserve is also a well-known birding and fishing site.



HE 7 **Align the enterprise asset management system with mitigation measures that support habitat function (living shorelines, oyster boxes, etc.)**

The County uses an asset management system to improve operational performance, cross-disciplinary collaboration, decision-making and services provided to County residents and visitors. This system will be updated to include a means of tracking the implementation of resilience measures and adaptation strategies, to improve habitat function and coastal resilience.

The system offers cross-departmental guidance to identify specific objectives across six subject areas: strategy and planning; asset management decision-making, asset information, life-cycle delivery, organization, and people; and risk and review. Each of these subject areas offer important performance tracking options to improve sustainability and resiliency across the County's operational footprint.

TIMELINE & BUDGET  Short 	IMPLEMENTATION PATHWAYS    	OVERARCHING GOALS ANALYSIS <table border="0"> <tr> <td>GOAL 1</td> <td>GOAL 2</td> <td>GOAL 3</td> <td>GOAL 4</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> </tr> </table>	GOAL 1	GOAL 2	GOAL 3	GOAL 4				
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DEPARTMENT CHAMPION Office of Resilience and Asset Management	STRATEGIC PARTNERS Tampa Bay Estuary Program	IMPLEMENTATION ELEMENTS GHG Emissions Inventory, Sea Level Rise and Storm Surge Vulnerability Assessment, Clean Energy Roadmap								

COMMUNITY CONNECTIONS

The integration of data related to local coastal resilience and mitigation efforts into the County's Enterprise Asset Management System will prove vital in facilitating the responsible management of and respect for natural environments. The continued review of data was the top characteristic identified by both the public and the SRAC to help make the County more sustainable and resilient, as reflected in the quotes to the right.

We must get reliable, repeatable, meaningful data; then adapt and improve.

Resilience means constantly learning and collecting new data and information.




Pinellas Project: Ozona Living Shoreline and Seawall Restoration

In 2020, Pinellas County staff and volunteers installed elements of a living shoreline along an existing seawall in Ozona. The goal was to strengthen and extend the life of the seawall while improving water quality and providing habitat for wading birds, fish and other marine species. The project is located at the corner of Bayshore Dr. and Bay Street in Ozona.



HE 8 Provide broader, more systematic implementation of green infrastructure and nature-based solutions to reduce natural hazard exposure, especially through the use of design guidelines in capital planning

The County will establish a cross-departmental working group to identify new opportunities to implement the County's design templates for green infrastructure development and low-impact design features (tree wells, green gutters, pervious pavement, and exfiltration trenches) across all County facilities and public utilities. The County will also continue to develop educational materials and tools to encourage green infrastructure and nature-based solutions in private development.

TIMELINE & BUDGET  Short 	IMPLEMENTATION PATHWAYS   	OVERARCHING GOALS ANALYSIS <table border="0"> <tr> <td>GOAL 1</td> <td>GOAL 2</td> <td>GOAL 3</td> <td>GOAL 4</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> </tr> </table>	GOAL 1	GOAL 2	GOAL 3	GOAL 4				
GOAL 1	GOAL 2	GOAL 3	GOAL 4							
										
DEPARTMENT CHAMPION Public Works	STRATEGIC PARTNERS <ul style="list-style-type: none"> • Tampa Bay Estuary Program, Southwest • Florida Water Management District, • Tampa Bay Regional Planning Council, • Local Municipalities 	IMPLEMENTATION ELEMENTS <ul style="list-style-type: none"> • GHG Emissions Inventory, Sea Level • Rise and Storm Surge Vulnerability • Assessment 								

COMMUNITY CONNECTIONS

Algal blooms such as red tide were identified as the top shock in the public survey, with 75.6 percent of survey participants selecting it as a major concern. Comparatively the County's Sustainability and Resiliency Advisory Committee (SRAC) identified it as the fourth shock of most concern, following hurricanes, coastal hazards, severe storms and rainfall. The continued application of green infrastructure across the County's projects will have lasting effects in improving surface water quality and reducing the potential for algal blooms.


















"I'm particularly interested in stormwater management, including (a) promoting or requiring onsite infiltration of stormwater in order to mitigate the flood risk and (b) restricting use of stormwater management systems that are minimally effective at removing nitrogen and/or phosphorus and thereby exacerbate algae blooms."

Pinellas Project: Lake Seminole Sediment Removal Project

The Lake Seminole Sediment Removal Project aims to improve water quality by reducing internal nutrient recycling through the removal of organic sediments. The removal of the organic sediments, based on pre-construction sediment analysis, is expected to eliminate 54 tons of total phosphorus and 311 tons of total nitrogen from the lake and reduce nitrogen loads by an estimated 56 percent to Long Bayou and Boca Ciega Bay, which will decrease the likelihood of harmful algal blooms.

HE 9 Continue to implement the Integrated Vegetative Management Program throughout County-owned lands

The County controls invasive and nuisance weeds in stormwater, retention, and mitigation ponds, and in lakes, ditches and other sensitive areas. The Plan provides guidance for anywhere vegetation management is needed, including preserves, coastlines and public rights-of-way. The management plan includes site assessments, recommendations on how to control vegetation, evaluations of the program progress and continued maintenance. The plan also includes selections of native vegetation, which improve wildlife habitats as well as drainage and water quality.

<p>TIMELINE & BUDGET</p> <p> Short </p>	<p>IMPLEMENTATION PATHWAYS</p> <p>  </p>	<p>OVERARCHING GOALS ANALYSIS</p> <table border="0"> <tr> <td>GOAL 1</td> <td>GOAL 2</td> <td>GOAL 3</td> <td>GOAL 4</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> </tr> </table>	GOAL 1	GOAL 2	GOAL 3	GOAL 4				
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<p>DEPARTMENT CHAMPION</p> <p>Parks and Conservation Resources</p>	<p>STRATEGIC PARTNERS</p> <p>UF/IFAS Extension Pinellas County, Tampa Bay Estuary Program, Keep Pinellas Beautiful</p>	<p>IMPLEMENTATION ELEMENTS</p> <p>GHG Emissions Inventory, Sea Level Rise and Storm Surge Vulnerability Assessment, External Engagement Strategy</p>								

COMMUNITY CONNECTIONS

The Pinellas County community is committed to helping with local cleanups and the restoration of local habitats. In 2021 alone, through events hosted by Keep Pinellas Beautiful, volunteers attended 1,260 community projects, removed 166,580 pounds of litter and removed 73,158 pounds of invasive plants. Each event offers residents the opportunity to not only give back to nature and the community, but also learn about conservation needs.

Pinellas Spotlight: Keep Pinellas Beautiful

Established in 1992, nonprofit organization Keep Pinellas Beautiful provides opportunities for meaningful service to bay area residents of all ages. The organization advances partnerships with local governments such as Pinellas County Government, businesses, schools, nonprofits and neighborhood organizations to transform public spaces into beautiful places while learning more about the communities they serve. These volunteer opportunities help to foster unity and strengthen community bonds, building a sense of responsibility and ownership in Pinellas County's public spaces, parks, neighborhoods and shorelines. Working together to clean public spaces advances environmental stewardship, while improving the health and appearance of the valued environmental lands and habitats of Pinellas County.



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Resilient Infrastructure

Communities are reliant on a system of services and infrastructure networks. This includes providing roadways, drinking water, stormwater management, energy distribution, garbage collection, sewer water processing and the many other utilities or infrastructure that cities and counties provide. Additionally, our homes, hospitals and schools are just as important, as are the roads and trails that connect them. Securing these assets is critical to protecting communities from future shocks and stresses to operating more effectively in the here and now.

Goal 1

We will appropriately manage stormwater, storm surge, sea level rise and future land uses to reduce flooding impacts.

Goal 2

We will protect and conserve drinking and surface water resources.

Goal 3

We will implement best practices to make critical service networks more resilient and environmentally friendly.

RI Goal 01

We will appropriately manage stormwater, storm surge, sea level rise and future land uses to reduce flooding impacts.

RI 1 | Adopt an internal policy to apply results of the Sea Level Rise and Storm Surge Vulnerability Assessment to all County-owned assets

RI 2 | Improve community resilience through future land use policy amendments, and other comprehensive plan policy, that reflect future climate impacts and stresses

RI 3 | Identify Adaptation Action Areas that experience coastal flooding and are more vulnerable to future climate impacts to prioritize funding for infrastructure needs and resiliency planning

RI 4 | Implement and provide updates to social and health-based factors within vulnerability assessments of unincorporated areas of Pinellas County

Gulf Beach and Isle of Capri Pump Station Upgrades

The purpose of the Gulf Beach and Isle of Capri Pump Station Upgrades capital improvement projects is to install new potable water pumps and associated equipment and the general redesign of the existing facilities to meet hurricane-hardened standards. The new stations have raised electrical and chemical feeds to mitigate for sea level rise, as well as backup power generation.

Joe's Creek Restoration and Greenway Trail

The Joe's Creek project is located in central Pinellas County within the Lealman Community Redevelopment Area (LCRA) and Kenneth City, along Joe's Creek. Joe's Creek is a 9.8 mile long creek, approximately 23 feet wide by 16 feet deep, which the county maintains for stormwater conveyance capacity and flood risk reduction. Joe's Creek Restoration and Greenway Trail projects are designed to reduce the risk of flooding and improving water quality, connect the community and enhance multi-use recreational opportunities.

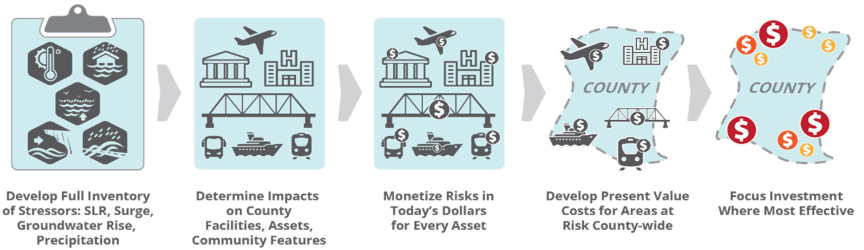
Tide Check Valve Project

Pinellas County has been installing tide check valves in key locations in order to reduce "blue-sky" flooding and prepare for future sea level rise. The valves allow stormwater to drain out under low tide conditions, but during high tide the valves prevent ocean water from backing up into the stormwater pipe network.

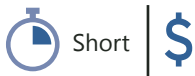
RI 1 Adopt an internal policy to apply results of the Sea Level Rise and Storm Surge Vulnerability Assessment to all County-owned assets

The Sea Level Rise and Storm Surge Vulnerability Assessment includes a detailed technical assessment of future climate conditions and provides a data-driven approach and implementation framework to make the county more resilient to coastal hazards. Where the initial study helped to identify areas of critical concern, such as U.S. Alternate 19 and Gulf Boulevard, continued risk analyses of all County assets will be needed. Findings from this study will be extremely useful in understanding effective

policy options and mitigation measures needed to reduce risk and to better protect our communities against flooding and the effects of severe storms.



TIMELINE & BUDGET



Short

IMPLEMENTATION PATHWAYS



OVERARCHING GOALS ANALYSIS

GOAL 1	GOAL 2	GOAL 3	GOAL 4
v	n	n	b

DEPARTMENT CHAMPION

Office of Resilience and Asset Management

STRATEGIC PARTNERS

Tampa Bay Regional Planning Council, Local Municipalities

IMPLEMENTATION ELEMENTS

Sea Level Rise and Storm Surge Vulnerability Assessment, Sustainability & Resiliency Story Map

COMMUNITY CONNECTIONS

Nearly 70 percent of survey respondents stated that climate change “concerned them a great deal.” Additionally, the top five shocks identified to be of the most concern per the public survey results included 1) algal blooms, 2) hurricanes, 3) coastal hazards, 4) severe storms and rainfall, and 5) inland flooding. This reveals that Pinellas County residents are acutely aware of the potential impacts of water. Protecting the County’s services and assets from future impacts will be crucial in keeping critical systems online in times of need.





Case Study:

Shimberg Flood Hazard + Housing Practitioner Information Network

The University of Florida’s (UF) Shimberg Center for Housing Studies offers data and analysis to help guide Florida’s affordable housing efforts. Through a recent National Science Foundation (NSF) Smart and Connected Communities (S&CC) grant, UF’s researchers are studying the risk of coastal flooding and its effect on affordable housing. Through the project, UF will use new technology to assess the elevation of the structures with respect to past or projected flood depth levels. Innovative technologies will assess residential structures’ lowest floor elevations (LFEs), collecting drone-based infrared imagery. The LFE research will create new methods to seamlessly gather, store and extract relevant physical attributes for flood hazard management. Through continued community engagement activities, the Shimberg team will evaluate how the data can be most useful in Florida coastal communities.

RI 2 Improve community resilience through future land use policy amendments, and other comprehensive plan policy, that reflect future climate impacts and stresses

There is a need to identify communities that are at most risk to climate impacts and to create policies that address future land uses in these at-risk areas, and to correlate data with future land uses and policies in the County’s Comprehensive Plan, PLANPinellas. This may include designating Adaptation Action Areas, new or expanded Opportunity Zones, and other land use regulations that will support smart, resilient development.

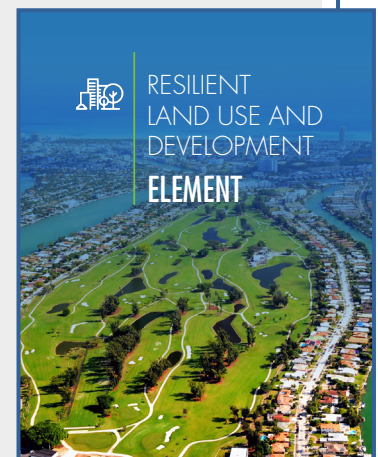
<p>TIMELINE & BUDGET</p>  Medium 	<p>IMPLEMENTATION PATHWAYS</p>   	<p>OVERARCHING GOALS ANALYSIS</p> <table border="0"> <tr> <td>GOAL 1</td> <td>GOAL 2</td> <td>GOAL 3</td> <td>GOAL 4</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> </tr> </table>	GOAL 1	GOAL 2	GOAL 3	GOAL 4				
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<p>DEPARTMENT CHAMPION</p> <p>Housing and Community Development</p>	<p>STRATEGIC PARTNERS</p> <p>Tampa Bay Regional Planning Council, Forward Pinellas, Local Municipalities</p>	<p>IMPLEMENTATION ELEMENTS</p> <p>External Engagement Strategy, Sea Level Rise and Storm Surge Vulnerability Assessment</p>								

COMMUNITY CONNECTIONS

Balancing public infrastructure with development needs is a core function of Pinellas County Government. Through continued updates of land development code and future land use policies, the County will be better able to provide high quality services even when threatened by future climate impacts. Public survey results reveal that 35 percent of people in Pinellas County understand the importance of continued strong leadership and setting bold policy to build more resilient systems.

Case Study: 2040 Miami Beach Comprehensive Plan

The 2040 Miami Beach Comprehensive Plan includes two important elements that will guide the development of resilient communities and being better prepared to withstand future climate conditions. The Resilient Land Use and Development Element (RLU) serves as a guide for future land development and redevelopment in a manner consistent with the City’s vision of a vibrant and resilient Miami Beach. And then the Resiliency and Sustainability Element consolidates the principles of sustainability and resiliency that were previously located in efforts completed by the City establishes a centralized set of objectives and policies regarding climate change and sea level rise. Together, these elements will help to ensure that growth is directed in a manner that is resilient, sustainable, supported by essential services and improves the quality of life of the City and its residents.



Source: City of Miami Beach

RI 3 Identify Adaptation Action Areas that experience coastal flooding and are more vulnerable to future climate impacts to prioritize funding for infrastructure needs and resiliency planning

In coordination with the Tampa Bay Regional Planning Council (TBRPC), the County will work towards identifying specific Adaptation Action Areas in addition to and/or overlaid with repetitive loss areas. Through this strategy, the County would create strategic plans for these areas for the implementation of mitigation strategies and identification of capital investments to combat the effects of climate change.

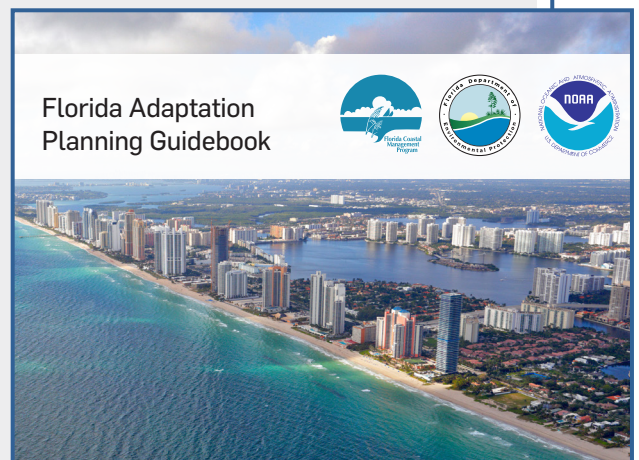
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<p>DEPARTMENT CHAMPION</p> <p>Housing and Community Development</p>	<p>STRATEGIC PARTNERS</p> <p>Tampa Bay Regional Planning Council, Local Municipalities</p>	<p>IMPLEMENTATION ELEMENTS</p> <p>Sea Level Rise and Storm Surge Vulnerability Assessment, External Engagement Strategy, Sustainability & Resiliency Story Map</p>								

COMMUNITY CONNECTIONS

There are more than 1,500 repetitive loss properties in the county, which are defined as any insurable building with two or more claims of more than \$1,000 paid by the National Flood Insurance Program (NFIP) within a ten-year-period.

Case Study: Florida's Adaptation Action Areas

Adaptation Action Areas (AAA) can be approached in many different ways. For example, Jacksonville's Adaptation Action Areas Plan is defined by areas within the category 3 storm surge or within the 500-year flood plain. Miami-Dade County has the Little River AAA, that is susceptible to climate impacts and includes vulnerable populations. AA areas include the City of Miami, the Village of El Portal and two areas in the Unincorporated County. In Yankeetown, Florida, six Adaptation Action Areas were defined for the City. Each constitutes a unique set of attributes related to flooding and sea level rise specifically. At its essence, the AAA allows governments to identify a specific zone to implement policy and programs, and the boundaries can be based on individual preference.



Source: Florida Department of Environmental Protection

RI 4 Implement and provide updates to social and health-based factors within vulnerability assessments of unincorporated areas of Pinellas County

As stated in the 2020 Local Mitigation Strategy (LMS), “the main reason for understanding our vulnerability in advance of a disaster is to identify appropriate strategies that can help address the challenges and stresses that we might face during response, recovery or long-term redevelopment in the aftermath of a major disaster event. It is critical to develop a better understanding of our social vulnerability because a successful redevelopment following a major disaster will be extremely difficult if a large part of our population is struggling to recover.”

During the development of Resilient Pinellas, the Consultant Team used census data to assess community vulnerability and equity considerations based on the parameters set by the CDC’s Social Vulnerability Index. The County has also tracked important health and socioeconomic data through the development of other countywide planning efforts such as the updated LMS, PLANPinellas and Health in All Policies. These type of analyses should continue to be updated in a timely manner after new census data is released to keep equity considerations current.

TIMELINE & BUDGET



Medium

IMPLEMENTATION PATHWAYS



OVERARCHING GOALS ANALYSIS

GOAL 1	GOAL 2	GOAL 3	GOAL 4
b	b	v	v

DEPARTMENT CHAMPION

Office of Resilience and Asset Management

STRATEGIC PARTNERS

Healthy St. Petersburg, Florida
Department of Health, Local Municipalities

IMPLEMENTATION ELEMENTS

External Engagement Strategy, Sustainability & Resiliency Story Map

COMMUNITY CONNECTIONS:

In the public survey, nearly 35 percent of residents stated that lack of access to health care or high health care costs are a top stress to them. Below are a few quotes from survey respondents about how health might be improved.

Community ideas to improve community health

“Focus on low income populations; bring in access to healthy foods; bring in health and mental health care, and then partner with these communities and educate them as to why it is important to have sustainable programs.”

“Increase focus on health-related activities such as bike friendly lanes.”

“An efficient public transportation plan could reduce the cost and congestion of commuting and improve the air quality as well.”

Pinellas Project: Pinellas County LMS Update

The purpose of the Local Mitigation Strategy (LMS) in Florida communities is to reduce death, injuries and property losses caused by natural hazards such as hurricanes. Hazard mitigation is most effective when based on an inclusive, comprehensive, long-term plan developed before disaster occurs. The 2020 Pinellas County update reviews the history of disasters within the county and outlines a set of goals, objectives, strategies and actions for reducing future losses. The continued implementation of planned and cost-effective mitigation measures not only helps to reduce losses to lives, property and the environment but also streamlines the disaster recovery process.

RI Goal 02

We will protect and conserve drinking and surface water resources.

RI 5 | Implement nature-based, green infrastructure demonstration projects in publicly accessible places

RI 6 | Increase adaptability of water and wastewater systems to withstand environmental threats and hazards

Adopt-A-Drain Pilot Program

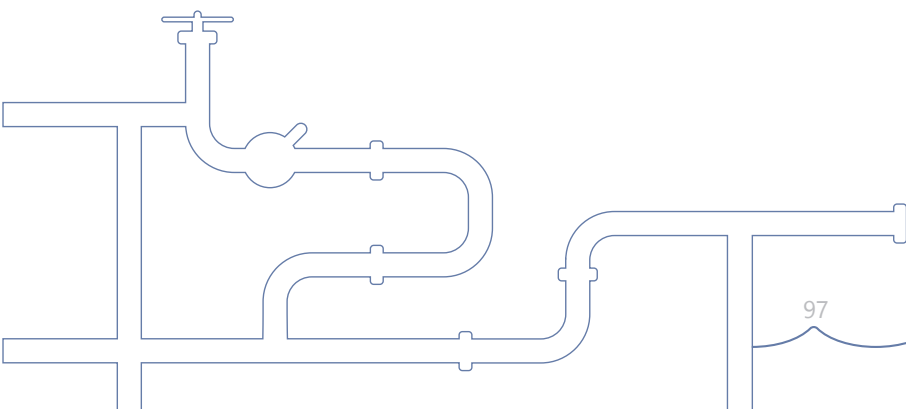
Pinellas County, in partnership with the UF/IFAS Extension, is offering the Adopt-A-Drain program to help reduce the amount of pollutants reaching our waterways. Adopt-A-Drain reduces the potential for flooding and improves water quality by ensuring storm drains are free and clear of debris. The program also helps prevent pollution by reporting illicit discharges, which can be a major source of pollutants and impact water quality.

Find and Fix Gravity Sewer Rehabilitation

Find and Fix provides a targeted reduction of inflow and infiltration (I&I) in Pinellas County Utilities' (PCU) wastewater collection system in selected neighborhoods where this approach is considered cost-effective. This program provides cost-effective, comprehensive rehabilitation and replacement of wastewater collection mains, manholes, and public and private laterals to build more resilient systems

Drinking and Surface Water Quality Monitoring Programs

Pinellas County monitors drinking and surface water quality to provide long-term assessments of water quality, measure success of management efforts and meet regulatory program requirements.



RI 5 Implement nature-based, green infrastructure demonstration projects in publicly accessible places

Through ongoing capital improvement projects, the County will work to develop showcase projects of green infrastructure design such as native or Florida-Friendly landscaping, rainwater harvesting, micro-irrigation, etc. These public amenities should be located in accessible locations for local contractors and interested community members to learn about green infrastructure. The County may also integrate educational materials to generate interest in green building. Particular attention may be given to demonstrations on County-owned facilities, aligning with green certification projects.

TIMELINE & BUDGET  Medium 	IMPLEMENTATION PATHWAYS   	OVERARCHING GOALS ANALYSIS <table border="0"> <tr> <td>GOAL 1</td> <td>GOAL 2</td> <td>GOAL 3</td> <td>GOAL 4</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> </tr> </table>	GOAL 1	GOAL 2	GOAL 3	GOAL 4				
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DEPARTMENT CHAMPION Public Works	STRATEGIC PARTNERS Keep Pinellas Beautiful, Local Municipalities	IMPLEMENTATION ELEMENTS External Engagement Strategy, Sea Level Rise and Storm Surge Vulnerability Assessment, Sustainability and Resiliency Story Map								

COMMUNITY CONNECTIONS

As a part of the public survey, residents and visitors were asked to highlight their favorite spot in Pinellas County. Many of the places selected, including Howard Park, Wall Springs Park, and Allen’s Creek, were mentioned because of their accessibility to trails.

Pinellas Project: Baypointe Regional Stormwater Park

Pinellas County purchased 40 acres of land previously known as the Baypointe Golf Course. The \$1.2 million site will allow the County to provide enhanced stormwater services that improve water quality and storage capacity for the surrounding community that were constructed prior to stormwater regulations. A feasibility study was performed before the purchase to determine the usefulness of the site for stormwater treatment. Further analysis determined the site was a prime candidate for consideration as a brownfield under the Environmental Protection Agency’s Brownfields Program.

Important elements of the stormwater park include a combination of dry ponds and wet ponds while preserving as many mature healthy native trees as possible. Plans also include passive recreation opportunities and enhanced native habitat.

RI 6 Increase adaptability of water and wastewater systems to withstand environmental threats and hazards

Pinellas County Utilities is committed to protecting people and the environment while delivering high-quality wastewater collection and treatment services. The department offers several programs and has spent substantial capital investment to increase the resilience of the County's water and wastewater systems. This was recently highlighted with the development of a Risk and Resiliency Assessment of County Water Systems, through which the County has identified Utilities' 12 most critical water assets, helping to guide future capital investment.

The department has also been working to upgrade the County's sewer systems through a variety of projects and programs. This includes a grant-funded program to eliminate septic systems and require residents to connect to Pinellas County wastewater systems and the establishment of the Private Sewer Lateral Program through which private property owners can receive rebates for the replacement or rehabilitation of private sewer lines. Each of these programs offer opportunities to protect groundwater and surface water quality while increasing the reliability and efficiency of public services.

TIMELINE & BUDGET



IMPLEMENTATION PATHWAYS



OVERARCHING GOALS ANALYSIS



DEPARTMENT CHAMPION

Utilities

STRATEGIC PARTNERS

Local Municipalities, Tampa Bay Regional Planning Council, Tampa Bay Water

IMPLEMENTATION ELEMENTS

External Engagement Strategy, Sustainability & Resiliency Story Map, Sea Level Rise and Storm Surge Vulnerability Assessment

COMMUNITY CONNECTIONS

In 2019, Pinellas County lined and replaced more than 23,000 linear feet of pipe to maintain our utility systems and reduce overflows.

Pinellas Project: Chestnut Park Aquifer Recharge and Recovery Project

Located off Lake Tarpon, the project will increase the lifespan and reliability of the north county reclaimed water system and will also benefit the environment by creating a freshwater bubble that will provide a barrier to saltwater intrusion and freshening of the aquifer underlying the underground source of drinking water (USDW). The project will benefit our region by replacing the saline waters in the aquifer under the USDW in nearby well fields, ensuring a sustainable supply of potable water. It will also reduce the amount of nitrogen discharged into upper Tampa Bay by an estimated six tons per year.



RI Goal 03

We will implement best practices to make critical service networks more resilient and environmentally friendly.

RI 7 | Integrate natural resources in infrastructure that supports safe, active modes of transportation such as trails and sidewalks

RI 8 | Expand the use of the Flood Resiliency Tool for Capital Planning to also assess impacts and inform critical facilities, economic development, affordable housing projects and other strategic County initiatives

Local Mitigation Strategy (LMS) Working Group

The LMS integrates mitigation initiatives established through various policies, programs and regulations into a single, stand-alone working document. The maintenance of the Plan and its various functions is lead by the LMS Working Group that consists of representatives from all the municipalities and various public and private agencies and non-profit organizations. The LMS Working Group, at a minimum, meets quarterly to address the various functions of mitigation planning. The Plan is updated annually and every five years.





Flood Resiliency Tool for Capital Planning

Developed by the Pinellas County Public Works Department, this guidance tool provides a framework for evaluating sea level rise within the capital improvement program process, as well as in maintenance projects. It provides a vulnerability and risk assessment for various assets, such as bridges and roads, by using the latest climate science and then supports adaptation measures to make the assets more resilient against sea level rise. The County received a grant to transition the tool from a Microsoft Excel-based format to an online app, so any local government in the region or state will be able to use it in the future.

RI 7 Integrate natural resources in infrastructure that supports safe, active modes of transportation such as trails and sidewalks

Places used for infrastructure can serve more than utilitarian purposes. They can integrate stormwater collection and storage, habitat and native vegetation, and plantings that provide cooling and comfort. These elements can enrich the urban fabric by creating civic and environmental uses that coincide with urban infrastructure. The program may use the County's design templates for green infrastructure development to provide natural stormwater filtration (tree wells, green gutters, pervious pavement and exfiltration trenches), as well as Florida-friendly landscaping.

“ I would also love to see more emphasis on building multi-use trails that connect key parts of the county. The Pinellas Trail is great, but I can't get to it without driving. ”

TIMELINE & BUDGET  Medium \$\$\$	IMPLEMENTATION MEASURES   	OVERARCHING GOALS ANALYSIS <table border="1"> <tr> <th>GOAL 1</th> <th>GOAL 2</th> <th>GOAL 3</th> <th>GOAL 4</th> </tr> <tr> <td>b</td> <td>b</td> <td>b</td> <td>v</td> </tr> </table>	GOAL 1	GOAL 2	GOAL 3	GOAL 4	b	b	b	v
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DEPARTMENT CHAMPION Public Works	STRATEGIC PARTNERS Florida Department of Transportation, Forward Pinellas, Local Municipalities	IMPLEMENTATION ELEMENTS Sea Level Rise and Storm Surge Vulnerability Assessment, Sustainability and Resiliency Story Map								

COMMUNITY CONNECTIONS

As part of the new Sidewalk Management Program Pinellas County Public Works set a goal in June 2021 to complete 587 needed sidewalk repairs over 24 months for enhanced pedestrian safety. As of April 2023, 100% of that goal has been met with Public Works maintenance crews accomplishing this in just 22 months.

Case Study: The Underline – Miami, FL

The Underline was created to activate the under-utilized land below the Miami Metrorail. The Underline extends from the Miami River to the Dadeland South Station, creating a 10 mile long linear park, urban trail and public art destination. In addition to improving connectivity between surrounding neighborhoods, it features green infrastructure and below ground drainage that will help with stormwater flooding and runoff while it serves as an educational tool for sustainability and resilience. Native vegetation is another important aspect of the Underline, which emphasizes the important of pollinators. Preconstruction planning also identified needed efforts to remediate soil and botanical tree tagging to protect existing healthy trees. The Underline also focuses on community health and social needs. Featured areas in phase one include The River Room and The Oolite Room, which both include butterfly gardens and open green space, The Urban Gym and The Promenade. The Promenade is a public walkway that promotes social interaction with game areas, dining and a sound stage. The Urban Gym is an active recreation and flex space for different sports, strength training and group classes.

RI 8 Expand the use of the Flood Resiliency Tool for Capital Planning to also assess impacts and inform critical facilities, economic development, affordable housing projects and other strategic County initiatives

The Flood Resiliency Tool, which is currently being developed by Pinellas County, is a countywide asset database of critical potable water supply, wastewater management, stormwater management, transportation, natural gas and electrical infrastructure that is overlaid with tidal flooding and storm surge inundation maps to determine potential impacts during any sea-level-rise scenario. Through ongoing cost-benefit analyses of these assets, the County is better able to prioritize funds to mitigate potential impacts and disruptions of service. Datasets shared in the Flood Resiliency Tool will be

overlaid with other important County datasets to assess potential impacts to other strategic County initiatives. A broader, community-based approach will continue to help the County prioritize capital improvement needs and make Pinellas County communities more resilient to the impacts of future coastal conditions.

<p>TIMELINE & BUDGET</p>  Short  \$\$\$\$	<p>IMPLEMENTATION PATHWAYS</p>    	<p>OVERARCHING GOALS ANALYSIS</p> <table border="0"> <tr> <td>GOAL 1</td> <td>GOAL 2</td> <td>GOAL 3</td> <td>GOAL 4</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> </tr> </table>	GOAL 1	GOAL 2	GOAL 3	GOAL 4				
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<p>DEPARTMENT CHAMPION</p> <p>Office of Resilience and Asset Management</p>	<p>STRATEGIC PARTNERS</p> <p>Tampa Bay Regional Planning Council, Local Municipalities, Pinellas Suncoast Transit Authority</p>	<p>IMPLEMENTATION ELEMENTS</p> <p>Sea Level Rise and Storm Surge Vulnerability Assessment</p>								

COMMUNITY CONNECTIONS

A number of Pinellas County's critical facilities are vulnerable to storm surge and flooding. More than 250 of the County's critical facilities are located within High Risk Flood Areas, where there is a one-percent or greater-than-one-percent chance of flooding each year.

Pinellas Project: Water and Wastewater Facility Upgrades

William E. Dunn Wastewater Reclamation Facility (WRF) Master Plan | The County is developing a master plan for the Dunn WRF, which will include three interactive workshops to evaluate current plant conditions as well as opportunities to incorporate improvements in the future. The Master Plan will serve as a guide for implementing improvements to help optimize and increase reliability of the plant and system operations as well as its long-term sustainability.

Gulf Beach Pump Station Upgrades | Upgrades to the Gulf Beach Pump Station include the installation of new potable water pumps and associated equipment and the general redesign of the existing facility to meet hurricane-hardened standards.

McKay Creek Reclaimed Water Pump Station Tank Improvement | Through this capital improvement project, Pinellas County has upgraded the reclaimed water ground storage tank, including its valves and accessory structures.



Sustainable Systems

Enhancing the sustainability of the built environment is good not only for environmental health, but also for human health and economic prosperity. Through increased energy efficiency and renewable energy production, improving air quality and using innovative waste management techniques, we will continue to grow as a sustainable and healthy community that people from all over the country and world will learn from. Reducing waste and offering clean, renewable energy will reduce costs over time, all while improving community health and the environment.

Goal 1

We will reduce total energy consumption.

Goal 2

We will increase clean, renewable energy generation.

Goal 3

We will reduce air pollutants and greenhouse gas emissions.

Goal 4

We will reduce air pollutants and greenhouse gas emissions.

SS Goal 01

We will reduce total energy consumption.

SS 1 | Conduct energy audits of County facilities to improve performance through sound investments

SS 2 | Implement resilient and green building demonstration projects in publicly accessible places

SS 3 | Consider sustainability and/or code-plus certification requirements for County-owned and operated buildings

SS 4 | Establish a new administrative policy to include new targets to increase energy and water conservation efforts and reduce water consumption

SS 5 | Continue partnerships with utility providers to strengthen both individual building-level and community-wide energy and water efficiency retrofit programs

Pinellas County's Downtown Central Energy Plant

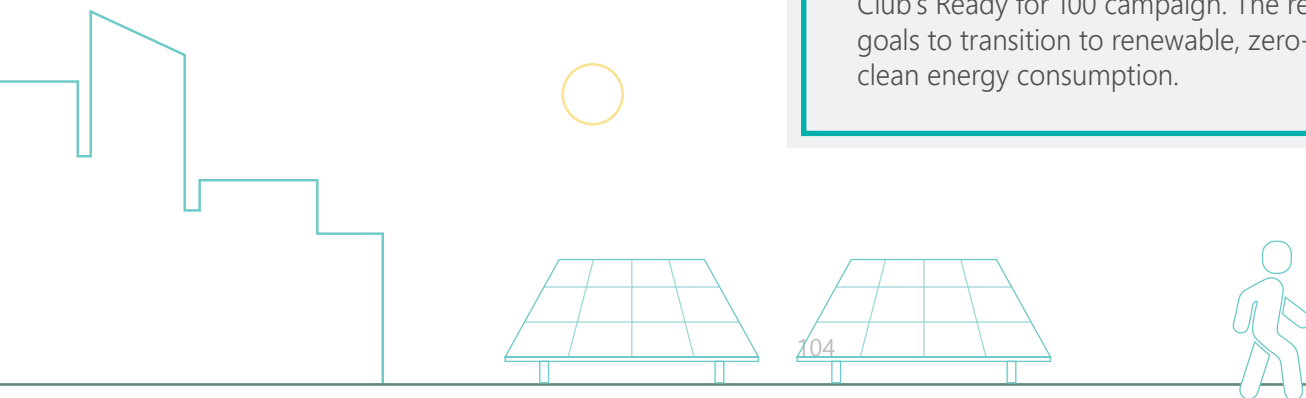
The Downtown Central Energy Plant generates and delivers chilled water through an underground piping network to provide energy efficient air conditioning to several County buildings throughout downtown Clearwater. The plant is currently saving the County more than \$1.5 million in annual operating costs — primarily from reduced energy and water use — and will reduce the County's carbon dioxide footprint equivalent by 35,000 tons over the life of the plant. To further save costs, the County recently installed rooftop solar panels at the facility.

LED Street Light Replacement Program

This program was established to replace all the County-maintained arterial street lights with energy-efficient LED technology, which reduces energy bills and overall maintenance. Transportation Operations staff recently converted the lighting during their routine maintenance on the system.

Board of County Commissioners Clean Energy Resolution

In November 2021, the Pinellas County Board of County Commissioners, adopted a resolution setting clean energy targets as a part of Sierra Club's Ready for 100 campaign. The resolution sets goals to transition to renewable, zero-emission, clean energy consumption.



SS 1

Conduct energy audits of County facilities to improve performance through sound investments

Building off of continued energy performance tracking, the County will work toward Identifying opportunities to enhance the energy efficiency of existing local government facilities through energy audits. Prioritization of energy audits may build off of the space analysis and/or by prioritizing government owned and operated facilities over 500,000 square feet [sf], identifying opportunities for retrocommissioning and/or other retrofits and energy efficiency improvements.

<p>TIMELINE & BUDGET</p> <p> Short </p>	<p>IMPLEMENTATION PATHWAYS</p> <p>   </p>	<p>OVERARCHING GOALS ANALYSIS</p> <table border="0"> <tr> <td>GOAL 1</td> <td>GOAL 2</td> <td>GOAL 3</td> <td>GOAL 4</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> </tr> </table>	GOAL 1	GOAL 2	GOAL 3	GOAL 4				
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<p>DEPARTMENT CHAMPION</p> <p>Office of Resilience and Asset Management</p>	<p>STRATEGIC PARTNERS</p> <p>US Green Building Council, ASHRAE, Tampa Bay Energy Efficiency Alliance</p>	<p>IMPLEMENTATION ELEMENTS</p> <p>GHG Emissions Inventory, Clean Energy Roadmap</p>								

COMMUNITY CONNECTIONS

Many public survey respondents expressed interest in taking their own steps to identify energy reduction solutions. To meet this need, Duke Energy Florida will provide homeowners a free Home Energy Check, providing a comprehensive evaluation of your home’s energy efficiency. At the end of the audit, Duke will provide a custom report showing your home’s past and current energy usage, along with a free energy efficiency kit, and outline of low-cost tips that you can use right away to improve the energy efficiency of your residence. The report will outline recommendations for home improvements that owners can make to both save energy and add value to their home. The program is free to all residential customers, including those who rent or live in an apartment.

Case Study:
City of Orlando Better Buildings Challenge

As a part of its Green Works sustainability program, the City of Orlando continues to identify strategic opportunities to invest in energy and water upgrades where they are needed most. As part of the U.S. Department of Energy’s Better Buildings Challenge, the city undertook \$17.5 million in energy efficiency upgrades at 55 buildings. These upgrades offer savings up to \$2.5 million per year. The city also uses real-time building monitoring via Lucid BuildingOS software to measure the energy and water consumed by all city buildings. Through these important measures, Orlando’s municipal buildings are using 23.4 percent less energy as compared to 2012.

SS 2







Implement resilient and green building demonstration projects in publicly accessible places

The County will work toward providing demonstration projects that showcase sustainable sites, increasing water and energy efficiency, reducing waste and emissions, using eco-friendly building materials and improving indoor environmental quality more efficiently than conventional designs. These demonstration projects when coupled with education provide valuable resources for communities to see what they might do to live more sustainably as well.

Some big ideas residents would like to see:

More demonstration projects for bioswales and rain gardens...

Collecting and storing rain water will drive sustainability.

TIMELINE & BUDGET  Medium \$\$\$	IMPLEMENTATION PATHWAYS     	OVERARCHING GOALS ANALYSIS <table border="0"> <tr> <td>GOAL 1</td> <td>GOAL 2</td> <td>GOAL 3</td> <td>GOAL 4</td> </tr> <tr> <td>v</td> <td>v</td> <td>b</td> <td>v</td> </tr> </table>	GOAL 1	GOAL 2	GOAL 3	GOAL 4	v	v	b	v
GOAL 1	GOAL 2	GOAL 3	GOAL 4							
v	v	b	v							
DEPARTMENT CHAMPION Administrative Services	STRATEGIC PARTNERS UF/IFAS Extension Pinellas County, Local Universities, Local Municipalities, Duke Energy Florida, Creative Pinellas	IMPLEMENTATION ELEMENTS External Engagement Strategy, GHG Emissions Inventory, Sustainability & Resiliency Story Map, Clean Energy Roadmap								

COMMUNITY CONNECTIONS

Public survey results reveal that nearly one out of four survey respondents stated that they did not know what Pinellas County is doing to make our communities more sustainable and resilient, and another 36 percent state that the County is doing “a little” but could be doing more. Providing visibility for the County’s great sustainability and resiliency accomplishments at County facilities, including its system of parks and open spaces, will be an important goal and will reinforce the understanding of the investments being made and the program overall.

Case Study:

Clearwater Marine Aquarium Solar Canopy and EV Charging Stations

Through the ongoing “greening” of its building footprint and operations, the Clearwater Marine Aquarium has partnered with Duke Energy to install 665 solar panels on its parking garage and electric vehicle (EV) charging stations. Key information about the project includes:

- The Dolphin Solar Canopy can produce nearly 250 kilowatts of AC power (kWac).
- Clean energy generated goes directly onto the grid to serve Duke Energy customers.
- Four new public EV charging stations will be installed in CMA’s parking garage.
- Duke Energy’s goal is to have 1,500 megawatts of solar generation in total in Florida by 2024.

SS3

Consider sustainability and/or code-plus certification requirements for County-owned and operated buildings

Through internal engagement with other County staff such as members of the LCAT, the Administrative Services department will work to draft new guidelines that establish third-party certification criteria to advance sustainability across County facilities, both new and old. This initiative may act as a continuation of the work conducted via the grant received by the County in May 2021 from the U.S. Green Building Council (USGBC) to be a part of the LEED for Cities and Communities Local Government Leadership Program.

As a part of this program, the County pulled together data required to meet LEED prerequisites and specific credits. Research may continue to identify applicable scoring criteria to the County such as those included in the LEED or ENVISION rating systems. Where applicable, the County may pursue third party certification for its projects, growing its portfolio of certified projects and/or track the performance of buildings to ensure that specific energy efficiency and/or renewable energy percentages are met in County projects.

TIMELINE & BUDGET



Medium

IMPLEMENTATION PATHWAYS



OVERARCHING GOALS ANALYSIS

GOAL 1	GOAL 2	GOAL 3	GOAL 4
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DEPARTMENT CHAMPION

Administrative Services

STRATEGIC PARTNERS

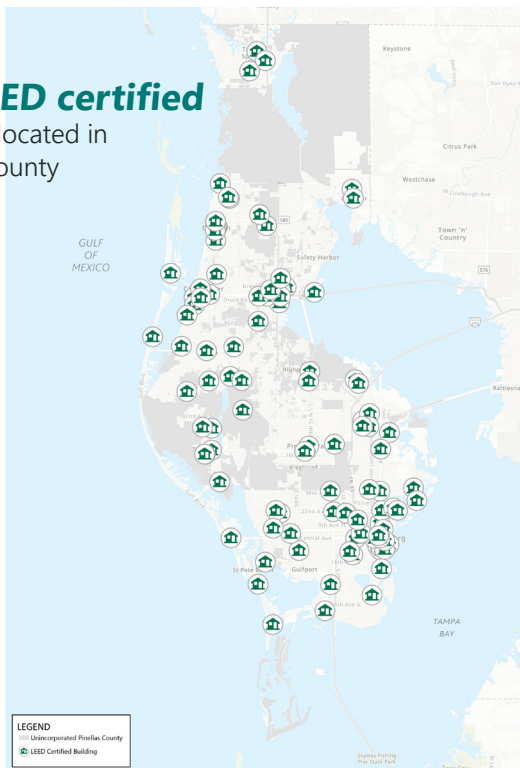
U.S. Green Building Council

IMPLEMENTATION ELEMENTS

- GHG Emissions Inventory, Sea Level Rise and Storm Surge Vulnerability Assessment, Clean Energy Roadmap

COMMUNITY CONNECTIONS

There are **103 LEED certified** buildings located in Pinellas County



Case Study: City of St. Petersburg Ordinance No. 359-H

To support sustainable, resilient systems, the City of St. Petersburg adopted an ordinance that requires:

- LEED Gold or higher certification for new construction or substantial renovations of City buildings 5,000 sf.
- Envision Gold or higher certification for infrastructure projects costing \$2 million and more.
- If certification is not required, projects must follow LEED / Envision guidance.

All City projects must provide documentation that demonstrates consideration of sea level rise, climate effects and overall resilience.*

* The Mayor or a designee may exempt a project from certification or approve an alternative.




















SS 4

Establish a new administrative policy to include new targets to increase energy and water conservation efforts and reduce water consumption

Pinellas County Government has already adopted Administrative Directive (AD) 6-11 to “establish the framework to promote and incentivize energy and water reduction goals and objectives, identify and implement energy and water conservation activities and identify/establish required resources. The County may update Administrative Directive AD 6-11 to include new targets to reduce water and energy consumption.

tool that is compatible with the U.S. Environmental Protection Agency’s online tool ENERGY STAR Portfolio Manager to provide real-time updates about energy and water consumption as well as track performance over time. The energy management tool could be used in addition to the energy tracking tool that the County’s Office of Resilience and Asset Management has developed using the platform Power BI.

The initiative should work in tandem with the development of an utility consumption tracking

TIMELINE & BUDGET  Short 	IMPLEMENTATION PATHWAYS     	OVERARCHING GOALS ANALYSIS <table border="0"> <tr> <td>GOAL 1</td> <td>GOAL 2</td> <td>GOAL 3</td> <td>GOAL 4</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> </tr> </table>	GOAL 1	GOAL 2	GOAL 3	GOAL 4				
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DEPARTMENT CHAMPION Office of Resilience and Asset Management	STRATEGIC PARTNERS Duke Energy Florida, People’s Gas (TECO), Clearwater Gas	IMPLEMENTATION ELEMENTS GHG Emissions Inventory, Clean Energy Roadmap								

COMMUNITY CONNECTIONS

Water conservation was a popular topic in the community survey, with the community identifying numerous ways to conserve water, improve water quality and/or increase water supply. Pinellas County residents’ and visitors’ quality-of-life is greatly improved by ensuring the distribution of safe drinking water, and the efficient and environmentally sound delivery of water. In PLANPinellas, the County outlines several everyday actions people can take to protect water resources. These are outlined below.

Pinellas County recommendations about how to protect our water resources

Water early.

Water lawns **in the early morning**.

Check irrigation systems.

Ensure **proper operation**.

Plant native.

Native plants **use less water**.

Upgrade to water-efficient emitters or smart controllers.

Improve sprinkler systems to provide **more efficient** alternatives.

Don't over fertilize.

Too much **fertilizer increases** water needs.

Turn irrigation down in fall and off in winter.

Water only when needed

Make the most of rainfall.

















Collect rainwater.

SS 5

Continue partnerships with utility providers to strengthen both individual building-level and community-wide energy and water efficiency retrofit programs

The County will continue to collaborate with Duke Energy Florida (DEF) and other utility providers, especially in their role on the Pinellas County Sustainability and Resiliency Advisory Committee to target strategic opportunities to reduce total energy consumption across the County through efficiency improvements, supporting increased electric vehicle (EV) charging needs and increasing renewable energy capacity.

DEF has several programs, such as the Energy Efficiency Program and Clean Energy Connection Program, that the County and its partners already participate in. The first provides rebates for homeowners to make specific upgrades. Together, Pinellas County and Duke should strengthen this option for homeowners and builders to provide front-end, energy-efficient upgrades to energy-burdened households with limited financial resources.

<p>TIMELINE & BUDGET</p>  Short 	<p>IMPLEMENTATION PATHWAYS</p>   	<p>OVERARCHING GOALS ANALYSIS</p> <table border="0"> <tr> <td>GOAL 1</td> <td>GOAL 2</td> <td>GOAL 3</td> <td>GOAL 4</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> </tr> </table>	GOAL 1	GOAL 2	GOAL 3	GOAL 4				
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<p>DEPARTMENT CHAMPION</p> <p>Office of Resilience and Asset Management</p>	<p>STRATEGIC PARTNERS</p> <p>Duke Energy Florida, Clearwater Gas, People’s Gas (TECO), Solar Energy Loan Fund (SELF), Tampa Bay Water</p>	<p>IMPLEMENTATION ELEMENTS</p> <p>GHG Emissions Inventory, Clean Energy Roadmap</p>								

COMMUNITY CONNECTIONS

Providing more affordable housing does not have to end at simply keeping rents low. Utility bills also contribute to cost of living and any reduction in these expenses can make living in Pinellas County more affordable. Furthermore, low income and minority families often face higher energy burdens, paying a larger percentage of their income for electricity bills due to living in older or less efficient buildings. As a lack of affordable housing was the top stress identified in the public survey, with 55 percent of survey respondents including it as their top choice, providing opportunities to reduce other household expenditures will be important to the community.

Case Study:

Tampa Bay Water Wise Regional Rebate Program:

Tampa Bay Water has taken important steps to help everyone throughout the region to reduce their water consumption. To help conserve water, Tampa Bay Water has partnered with their member governments and the Southwest Florida Water Management District to establish Tampa Bay Water Wise, a regional water conservation program that offers rebates to residents, commercial property owners, contractors and builders who take proactive steps to reduce water use and demand on the region’s water supply. The program offers twelve rebates to residents, commercial property owners, contractors and builders in qualifying communities.

SS Goal 02

We will increase clean, renewable energy generation.

SS 6 | Provide back-up and renewable power sources for all County-owned critical infrastructure and facilities

SS 7 | Make investments in renewable energy projects and/or through partnerships with external providers

SS 8 | Conduct solar feasibility studies for County-owned facilities, structures and lands

Renewable Energy Credits (RECs)

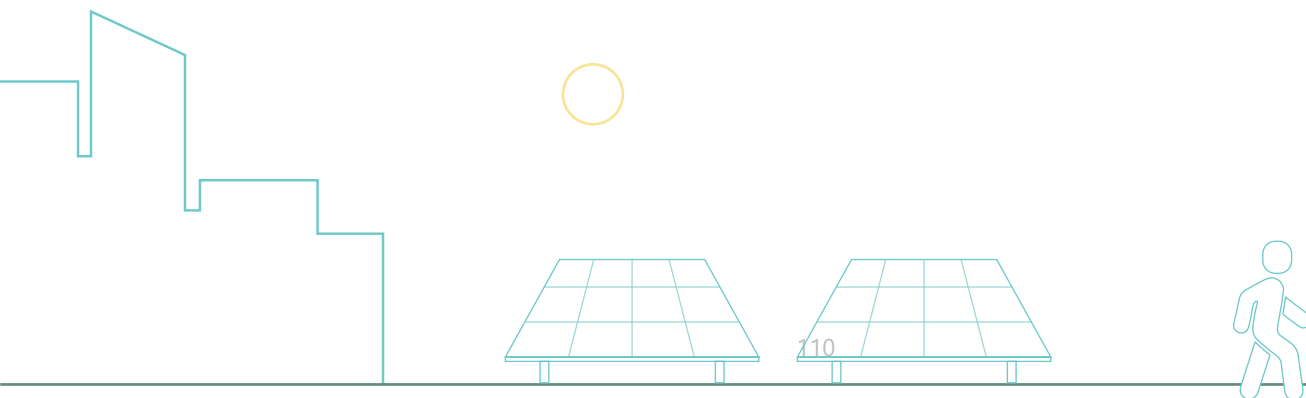
Pinellas County has generated 329,347 Renewable Energy Credits by selling power produced by the Waste-to-Energy Facility. RECs are a market-based tool that represents the property rights to the environmental, social and other non-power attributes of renewable electricity generation. The credits are then sold to multiple entities to balance their organizational carbon footprint.

Regional Resource Recovery Facility (RRRF)

A planned RRRF will reuse biosolids generated by Pinellas County Utilities' wastewater facilities and other regional utility providers to produce alternative products that eliminate the need for landfilling, land application and/or fertilization for disposal. The project will be implemented in partnership with Pinellas County Department of Solid Waste and is mutually beneficial to both departments and the County's Strategic Plans.

Duke Energy Florida (DEF) Clean Energy Connection Program

Pinellas County Government entered Duke Energy Florida's Clean Energy Connection Program in 2022. The program will offset 40 percent of the County's energy consumption through solar power generation. Duke's program provides a pathway for residents, small-scale business owners and local governments to support the utility provider's clean energy transition. Under the program, DEF plans to invest approximately \$1 billion in new solar power plants across Florida, one of which will be in Pinellas County.






















SS 6

Provide back-up and renewable power sources for all County-owned critical infrastructure and facilities

Battery storage technology, when coupled with renewable energy resources such as solar photovoltaics, allow for increased resiliency and reliability to ensure county business continuity during or after major storm events or grid disruptions. These technologies are quickly improving and piloting their use in County facilities will showcase their effectiveness while also providing resiliency benefits in the form of reliable community resources during extended power outages. These strategies can also assist with off-peak load strategies, resulting in lower utility bills for the County.

Future energy resiliency may come with the installation of microgrids. A microgrid, as its name suggests, is an energy system that utilizes distributed energy generation, storage and demand management technology to operate with, or independently from, the main power grid. A smart microgrid takes this concept a step further by incorporating metering and software components to adjust and control power use. Smart microgrids are especially valuable in campus settings, neighborhood-sized areas and particularly when supporting critical facilities.

TIMELINE & BUDGET  Medium 	IMPLEMENTATION PATHWAYS     	OVERARCHING GOALS ANALYSIS <table border="1"> <tr> <th>GOAL 1</th> <th>GOAL 2</th> <th>GOAL 3</th> <th>GOAL 4</th> </tr> <tr> <td></td> <td></td> <td></td> <td></td> </tr> </table>	GOAL 1	GOAL 2	GOAL 3	GOAL 4				
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DEPARTMENT CHAMPION Administrative Services	STRATEGIC PARTNERS Pinellas County Schools, Florida Department of Emergency Management, Duke Energy Florida	IMPLEMENTATION ELEMENTS Sea Level Rise and Storm Surge Vulnerability Assessment, GHG Emissions Inventory, Clean Energy Roadmap								

COMMUNITY CONNECTIONS

Pinellas County's population is aging, a trend with significant implications in terms of community vulnerability. Providing redundant and resilient energy systems is critical in disaster situations, especially for elderly populations. Persons age 65 or above are more likely to have a disability, chronic illnesses or mobility issues which can impede their ability to evacuate. Continued electric service through and after the storm is often life-saving for persons with these type of pre-existing health conditions, providing continued cooling, access to social networks and even energy supply to life sustaining medical supplies. For the population as a whole, connectivity to social networks is critically important through hurricanes and other severe storms. Lack of connectivity can severely limit our ability to access critical information or instructions related to evacuation, preparedness or resources needed to rebound in a post-disaster environment.

Case Study:
Johns Hopkins Middle School Solar-Plus-Battery Microgrid Project

Duke Energy Florida and Johns Hopkins Middle School entered a Memorandum of Understanding (MOU) to provide a solar-plus-battery-microgrid project designed to provide backup power to the school in the event of a power outage. The battery stores energy for use and the solar power will be used to recharge the battery in the event of a prolonged outage due to a severe storm or other event.

SS7

Make investments in renewable energy projects and/or through partnerships with external providers

Building off of solar feasibility studies, green fleet analyses, increases in emergency shelter capacity and resiliency hubs, and through opportunities created through collaborative partnerships, including Duke Energy Florida, the County will continue to make investments in renewable energy sources. In 2020, Pinellas County joined the Sierra Club's "Ready for 100 Campaign", making a commitment to achieve 100% clean, renewable energy for county government facilities and operations.

The resolution marks the beginning of a journey to develop a strategy that will best fit the specific challenges of Pinellas County and capitalize on existing opportunities to reach clean energy goals, building off of previous energy, water, and conservation commitments. The Ready for 100 commitment is a growing national trend of 182 cities and 15 counties across the U.S.

TIMELINE & BUDGET

 Medium | **\$\$\$\$**

IMPLEMENTATION PATHWAYS



OVERARCHING GOALS ANALYSIS

GOAL 1	GOAL 2	GOAL 3	GOAL 4
v	v	b	v

DEPARTMENT CHAMPION

Office of Resilience and Asset Management

STRATEGIC PARTNERS

Duke Energy Florida, Solar United Neighbors

IMPLEMENTATION ELEMENTS

Clean Energy Roadmap, GHG Emissions Inventory

COMMUNITY CONNECTIONS

Locally, Pinellas County joins the cities of St. Petersburg, Largo, Dunedin and Safety Harbor in its commitment to 100% clean and renewable energy through the Ready for 100 Resolution. These future-focused commitments offer Pinellas County Government and staff a timely opportunity to create strategic partnerships among their other clean energy cohorts in the region, further advancing a local culture of collaboration, sustainability and innovation.

Case Study: Florida's Floating Solar Potential

With the passing of House Bill 1411, floating solar facilities can now be constructed on wastewater treatment ponds, abandoned mine areas, stormwater or reclaimed water ponds and other water storage reservoirs. This increases the market potential for floating solar options, especially given ample supply of water resources in the County. Floating solar installations often use double-sided solar panels that capture the sunlight's reflection on the water, which can produce up to 30 percent more energy than traditional panels. Tampa Electric is working on the installation of a one-megawatt floating solar project on a pond at the Big Bend Power Station, located in Hillsborough County. The installation consists of 3,200 double-sided solar panels and is the first of its kind project in Tampa Bay.





















SS 8

Conduct solar feasibility studies for County-owned facilities, structures and lands

The County will utilize the new Solar PV System Feasibility Guidance to identify economical and beneficial locations for solar photovoltaics. The study will include analysis of building solar orientation, energy use intensity, solar production estimates and rough solar PV layouts and project costs. The can be evaluated on a portfolio level department building level, or on an individual basis to allow for the integration of solar projects in department annual budgets, capital planning and potential federal/state grant opportunities.

“ One big idea is to have clean energy in public service sectors, such as schools, transportation and buildings owned by the county. ”

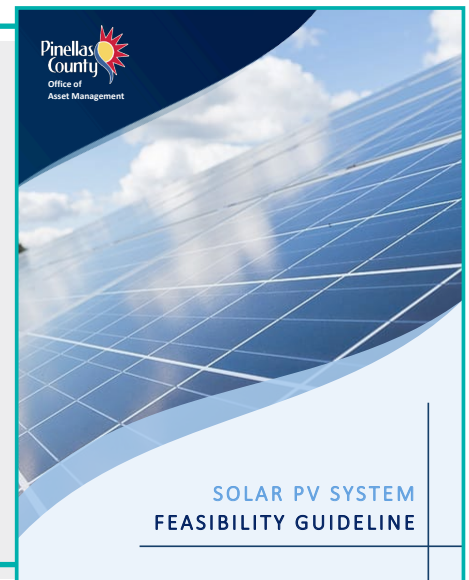
TIMELINE & BUDGET  Short 	IMPLEMENTATION PATHWAYS    	OVERARCHING GOALS ANALYSIS <table border="0"> <tr> <td>GOAL 1</td> <td>GOAL 2</td> <td>GOAL 3</td> <td>GOAL 4</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> </tr> </table>	GOAL 1	GOAL 2	GOAL 3	GOAL 4				
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DEPARTMENT CHAMPION Office of Resilience and Asset Management	STRATEGIC PARTNERS Duke Energy Florida, Solar United Neighbors	IMPLEMENTATION ELEMENTS GHG Emissions Inventory, Clean Energy Roadmap								

COMMUNITY CONNECTIONS

Two of the top barriers identified by residents in their own ability to live more sustainably include a lack of technical of financial support for energy and water conservation techniques, and a lack of technical and financial support to make homes more resilient. Leading by example, as the County implements its own clean energy solutions, residents can see the results of tangible efforts in renewable energy solutions.

Pinellas Project: Solar PV System Feasibility Guideline

Pinellas County’s Office of Resilience and Asset Management recently created the Solar Photovoltaic (PV) System Feasibility Guideline, which provides guidance about how to identify which County-owned assets that might benefit from PV systems. The guideline explores different elements of PV systems to better understand if these systems are feasible for Pinellas County. The study will explore different PV array options, including the limitations, cost, feasible locations, life cycle and estimated generation capacity. It includes a high-level overview of mounting options, as well as future maintenance needs, and concludes with a checklist that should be used by County departments to assess the feasibility of installing new solar to increase clean, renewable energy options.



SS Goal 03

We will reduce air pollutants and greenhouse gas emissions.

SS 9 | Convert internal combustion engine vehicles to alternative-fueled vehicles and install infrastructure to meet internal needs and demand

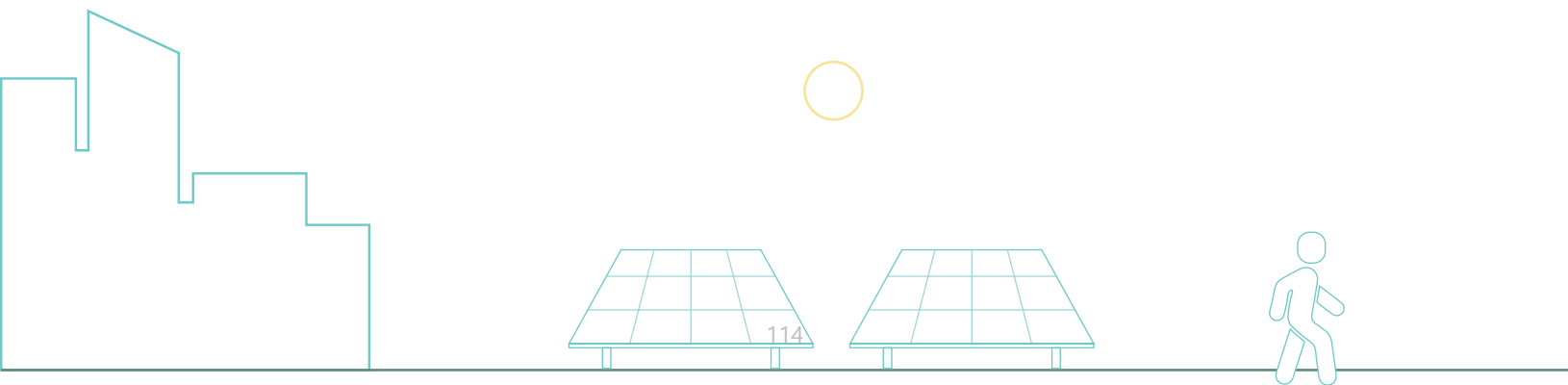
SS 10 | Conduct new greenhouse gas (GHG) emissions inventories every five years to track performance and adjust standards

Continued Investment in Electric Vehicles

To reduce our carbon footprint and stay current with emerging technologies, Pinellas County is gradually replacing our gas-powered vehicles with electric vehicles. We currently have seven fully electric vehicles (EVs) and three hybrid vehicles for County operations, and plan to transition our whole light-duty vehicle fleet to EVs over the next 10 years. In addition, we are developing an electric vehicle charging infrastructure master plan for both County operations and public use. There are currently eight publicly accessible electric vehicle charging stations at County facilities as part of Duke Energy's Park & Plug program.

Air Quality Monitoring Program

Pinellas County's Air Quality Program is dedicated to preserving, protecting and enhancing our local air quality for the health and welfare of Pinellas County's citizens and visitors. National and state air quality standards are health-based standards the program strives to achieve and maintain for the health of all county residents. Program operations include maintaining a county-wide air monitoring network and laboratory, ensuring proper management of asbestos-containing materials in renovation and demolition projects, and maintaining a business compliance program to ensure proper management and control of air pollution.



SS 9 Convert internal combustion engine vehicles to alternative-fueled vehicles and install infrastructure to meet internal needs and demand

Pinellas County's automobile fleet presents opportunities for clean energy savings through management, maintenance, tracking and technology improvements. In 2021, the County hired a consultant to conduct a fleet analysis and provide a roadmap to convert its fleet to fuel efficient, hybrid, and alternative fuel vehicles. The purpose of this assessment was to clearly articulate the cost/benefit of vehicle electrification and inform future policy deliberations. Currently, the County does not have a policy that ensures the implementation of a vehicle electrification

plan. The County should start by adopting such a policy to ensure the complete phase out of internal combustion engine vehicles. As EVs are procured, Pinellas County should develop ways to charge electric vehicles with renewable energy, such as by solar PV installations and/or biogas options.

TIMELINE & BUDGET

 Short | 

IMPLEMENTATION PATHWAYS



OVERARCHING GOALS ANALYSIS

GOAL 1	GOAL 2	GOAL 3	GOAL 4
			

DEPARTMENT CHAMPION

Administrative Services

STRATEGIC PARTNERS

Duke Energy Florida, Local Municipalities

IMPLEMENTATION ELEMENTS

GHG Emissions Inventory, Clean Energy Roadmap

COMMUNITY CONNECTIONS

Today, there are nearly 170 public charging station locations located in Pinellas County, and several others that are privately owned by networks, such as ChargePoint. As the County continues to upgrade its fleet operations to reflect clean energy solutions it should also open these facilities for public use to encourage more broad buy-in in electric vehicle use.

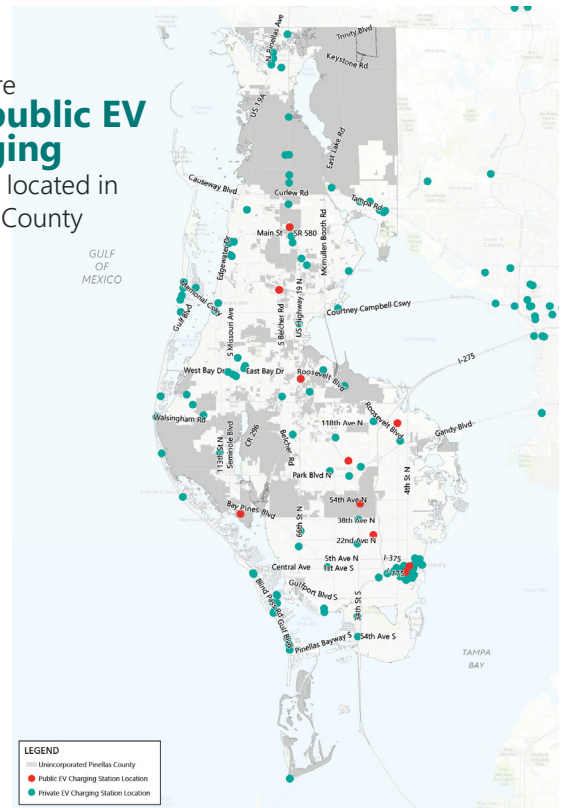
Community Support for Electric Vehicles

"One of the limiting factors holding back electric vehicles is the lack of easy-to-access charging stations."

"Look at bold moves on energy efficiency initiatives and explore fleet electrification to EV for transit and County vehicles as well. Develop infrastructure that supports charging requirements for new builds and plans for infrastructure needs for medium and heavyweight EV charging."

"I would like to see more EV charging infrastructure across the County."

There are **170 public EV charging** stations located in Pinellas County



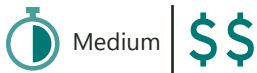
SS 10

Conduct new greenhouse gas (GHG) emissions inventories every five years to track performance and adjust standards

Primarily through policy enactment, enforcement and the implementation of projects and programs, local governments yield a significant amount of control and influence over GHG emissions from community activities, such as those associated with stationary energy use, transportation and waste. GHG emissions inventories are developed to help organizational leaders and stakeholders understand how, and in what quantities, their activities generate GHG emissions. Continued GHG emissions assessments will help Pinellas County reach its goal to become a

more sustainable and resilient community. The 2019 baseline assessment and analysis of future data will assist in identifying strategic opportunities to improve building standards, reduce waste, increase efficiencies in capital improvement projects, implement clean energy solutions and provide outreach and education to residents about reducing their carbon footprint alongside Pinellas County government. Documenting continued GHG emissions reductions over time is an important overarching goal for Resilient Pinellas.

TIMELINE & BUDGET



IMPLEMENTATION PATHWAYS



OVERARCHING GOALS ANALYSIS



DEPARTMENT CHAMPION

Office of Resilience and Asset Management

STRATEGIC PARTNERS

- Duke Energy Florida, People's Gas,
- Pinellas Suncoast Transportation Authority, St. Pete-Clearwater
- International Airport, Local Municipalities

IMPLEMENTATION ELEMENTS

- Clean Energy Roadmap,
- Sustainability and Resiliency Story Map

COMMUNITY CONNECTIONS

It is scientific consensus that the Earth's climate is warming due to human activity, and that this warming will lead to significant and long-term negative impacts on our communities and ecosystems. As global temperatures rise, Pinellas County and its residents will be at increased risk of future threats that can affect the community's health and economy. The continued assessment of greenhouse gas (GHG) emissions produced by the daily activities of local government operations and the community will be important in reducing the level of threat of extreme events, as well as supporting more sustainable and affordable living in the coastal community. Many of the big ideas collected through community engagement conducted, as a part of plan development, align with GHG emissions reduction potential, as shared in the graphic below.

Community ideas for the action plan and their effect on community GHG emissions

"Incentives to assist homeowners with energy efficiency upgrades"

Energy efficiencies can deliver a **reduction in annual energy-related emissions of 12 percent on average.**

100% clean energy commitment

Renewable energy could help **reduce the electricity sector's emissions by approximately 81 percent**

More compact, dense communities centered around walkability, biking and transit

A typical passenger vehicle emits about **4.6 metric tons of carbon dioxide per year**

Recycling and composting collection

Globally, food loss and waste represents **8 percent of anthropogenic GHG emissions**

Cool block or cool city challenge

Annually, America's urban trees absorb an estimated **21 million tons of carbon, a value of \$1.5 billion.**

SS Goal 04

We will reduce waste.

SS 11 | Analyze the diversion of organic materials from the solid waste stream

SS 12 | Evaluate a curbside recycling program for unincorporated areas of Pinellas County

Solid Waste Master Plan

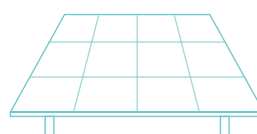
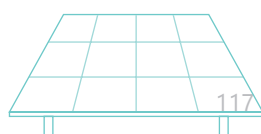
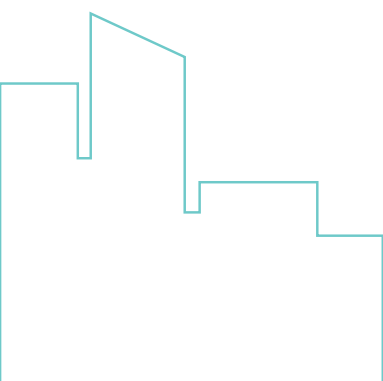
In February 2020, Pinellas County adopted a Solid Waste Master Plan. The vision of the 30-year Master Plan is to achieve the programmatic goal of Zero Waste to Landfill by 2050. The Master Plan provides an evaluation of the current solid waste system and identify activities, programs, facilities and technologies that will best support sustainable solid waste management consistent with the Pinellas County Strategic Plan's Mission, Vision and Values. The planning process includes an evaluation of current and future technologies, availability and capacity of end-material markets, public outreach and education, and changes to existing policies.

Pinellas County Solid Waste Complex

Pinellas County, along with all 24 municipal partners, participate in the solid waste system. In all, the County's service area covers approximately 274 square miles. The 24 municipalities manage their programs independently, with all waste collected by the municipalities, or their franchised haulers, delivered to the County's Solid Waste Complex. The Complex includes the Waste-to-Energy (WTE) facility, landfill, leachate and surface water treatment facilities, free mobile collections and disposal of household electronics and chemicals for residents, Business Waste Assessment and Cutting Waste at Work programs for businesses, trash collection services in the Lealman community, free recycling drop-off locations and extensive outreach and education programs.

Waste and Recycling Tracking

In 2022, Pinellas County recycled 47 million pounds of metal, turned 81 million pounds of yard waste into mulch and diverted 1.3 million pounds of household electronics and chemicals from the municipal solid waste stream.




SS 11

Analyze the diversion of organic materials from the solid waste stream

As identified in the County’s Solid Waste Master Plan, there is an opportunity to collect organics to compost in order to help the County reach their Zero-Waste-to-Landfill goal. Compost created from this program can be used by local urban farms and gardens. Starting with a pilot program, the County may implement a neighborhood-scale yard and food waste pick up service. This would require collection and processing at an expanded composting operation at the Complex or new site. Alternatively, the county may pursue a program in which residents of the unincorporated area

may receive a backyard composter to collected organic waste. The Solid Waste Master Plan outlines several steps leading toward this roll-out of this medium-long term initiative, starting with customer and hauler outreach and the implementation of franchising systems. Programming will require the identification of compostable materials and educational materials for the community, with the commercial composting program building off of the existing educational program to donate edible food.

<p>TIMELINE & BUDGET</p> <p>Medium \$\$</p>	<p>IMPLEMENTATION PATHWAYS</p> 	<p>OVERARCHING GOALS ANALYSIS</p> <table border="1"> <tr> <th>GOAL 1</th> <th>GOAL 2</th> <th>GOAL 3</th> <th>GOAL 4</th> </tr> <tr> <td>b</td> <td>v</td> <td>b</td> <td>v</td> </tr> </table>	GOAL 1	GOAL 2	GOAL 3	GOAL 4	b	v	b	v
GOAL 1	GOAL 2	GOAL 3	GOAL 4							
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<p>DEPARTMENT CHAMPION</p> <p>Solid Waste</p>	<p>STRATEGIC PARTNERS</p> <p>Waste Haulers, UF/IFAS Extension Pinellas County, Florida Department of Agriculture and Consumer Services, Keep Pinellas Beautiful</p>	<p>IMPLEMENTATION ELEMENTS</p> <p>External Engagement Strategy, GHG Emissions Inventory</p>								

COMMUNITY CONNECTIONS

Currently, nearly 31 percent of waste delivered to the Solid Waste Complex, approximately 372,000 tons, is comprised of compostable materials including yard waste, food scraps and compostable paper. This material could be diverted via a residential or commercial composting program, freeing up vital future capacity for the Waste to Energy facility and helping the County to reach its Zero-Waste-to-Landfill goal.

Case Study:

Cities of Largo, Dunedin, Clearwater and St. Petersburg Residential Composting Programs

At least four municipalities in Pinellas County have taken a proactive approach in support of the regional waste reduction goal by offering residential composting programs. Residents who live in single-family homes in these cities can request backyard composting bins that are delivered along with educational materials, for free. The City of Clearwater’s program even encourages interested residents to enroll in an online class called “Create Compost” that will teach the basics and benefits of backyard composting. Each of these programs offer a way for homeowners to create nutrient rich soil to use in gardening or landscaping practices while reducing our carbon footprint.



SS 12

Evaluate a curbside recycling program for unincorporated areas of Pinellas County

Similar to the composting initiative, the Solid Waste Master Plan considers the implementation of a mandatory curbside recycling program for unincorporated residents. The program would be a part of a larger organized collection program, starting with customer and hauler outreach, the establishment of a non-exclusive franchising system, followed by exclusive franchises. Organized collection would include curbside recycling as part of the standard service for residents and may include separate yard waste collection.

“Provide better access to a single stream recycling program. Develop policy to reduce waste and provide job programs to turn that waste into new products or raw materials to be used sustainably.”

TIMELINE & BUDGET  Medium 	IMPLEMENTATION PATHWAYS     	OVERARCHING GOALS ANALYSIS <table border="0"> <tr> <td>GOAL 1</td> <td>GOAL 2</td> <td>GOAL 3</td> <td>GOAL 4</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> </tr> </table>	GOAL 1	GOAL 2	GOAL 3	GOAL 4				
GOAL 1	GOAL 2	GOAL 3	GOAL 4							
										
DEPARTMENT CHAMPION Solid Waste	STRATEGIC PARTNERS Recycle Across America, Keep Pinellas Beautiful, Waste Haulers	IMPLEMENTATION ELEMENTS External Engagement Strategy, GHG Emissions Inventory								

COMMUNITY CONNECTIONS

Limited recycling opportunities was identified as a top barrier to living more sustainability in the public survey results.

Community Support for Recycling

“I would like to see the county run its own, county-wide curbside recycling program with vastly expanded list of materials accepted, the same for every resident of the county.”

“It pains me that in 2021 in a gorgeous coastal community there is no easy recycling program.”

“Living in an apartment means I have limited opportunities for recycling or composting. I would love to participate in both. Recycling needs to be made simpler and more accessible.”

Pinellas Project: Household Electronics and Chemical Collection Center (HEC3)

At the HEC3, residents can drop off a variety of unwanted materials that are then offered for free to residents. The Center is conveniently located at the Solid Waste Complex and offers another solution to divert materials from incineration or the landfill. The swap shop provides a brick-and-mortar solution for residents to drop-off unused or partially used materials such as electronics, textiles and chemicals or hazardous waste such as common home improvement materials.



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Thriving Communities

Fair access to places and commodities that meet our basic needs throughout a community including housing and employment helps people thrive. Characteristics of thriving communities include safe, affordable housing in stable neighborhoods; healthy ecosystems and access to nature; basic resources for health and freedom from hazards; meaningful work and good standards of living; opportunities for education and lifelong learning; reliable, safe, and accessible transportation; and, a sense of belonging and involvement within the community.

Goal 1

We will promote smart growth and development where jobs, housing and other basic community needs coexist.

Goal 2

We will provide fair access to safe, multimodal transportation options.

Goal 3

We will provide historically underserved areas with modern, healthy community amenities.

TC Goal 01

We will promote smart growth and development where jobs, housing and other basic community needs coexist.

TC 1 | Conduct a Mobility Study for unincorporated areas of Pinellas County

TC 2 | Implement an urban agriculture program that facilitates the creation of urban farms and neighborhood-based community gardens within unincorporated communities and/or parks, including edible and pollinator gardens

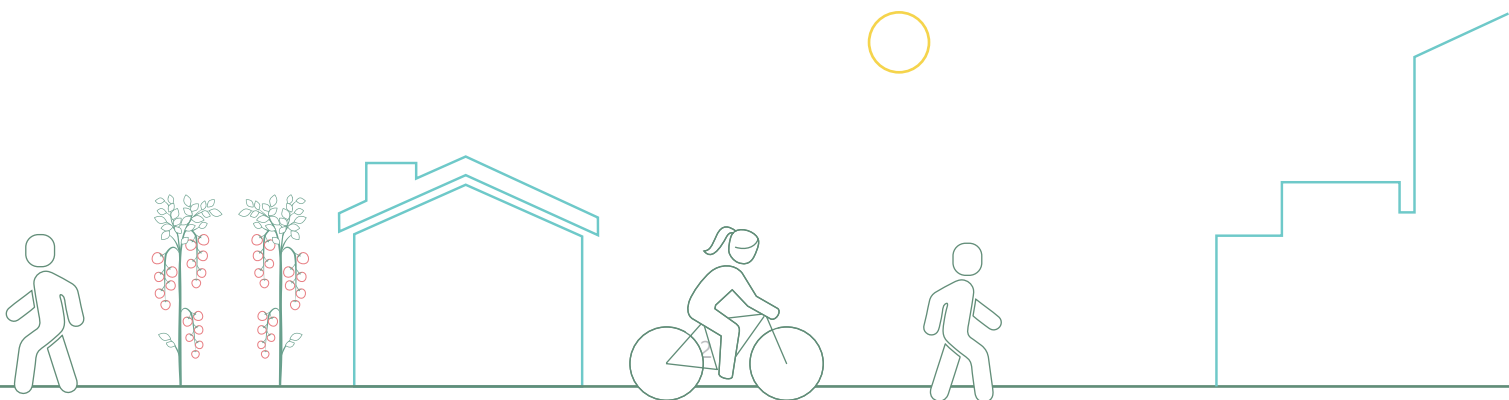
TC 3 | Develop Opportunity Zones outside of Coastal High Hazard Areas, where development incentives encourage compact, urban growth in areas with reduced future risk

Pinellas County Stormwater Manual

The Board of County Commissioners adopted the Stormwater Manual in 2017 and approved updates to the manual in October 2021. The Stormwater Manual is the County's adopted code for the regulation of stormwater discharge. The manual provides guidance and support for green infrastructure alternatives that maximize development opportunities while improving water quality and drainage conditions.

Pinellas County's Land Development Code (LDC)

Pinellas County's Land Development Code includes a wide range of rules and regulations pertaining to various aspects of development, such as zoning, historic preservation, impact fees, site development, right-of-way improvements, subdivisions and platting, floodplain management and environmental and natural resource protection. The Code is implemented through various County Departments and Divisions. Pinellas County recently adopted updates to six Land Development Code chapters.



TC 1 Conduct a mobility study for unincorporated areas of Pinellas County

An equitable Pinellas County is one that provides equitable access to goods and services and ensures the same quality of life among all residents, especially for the more vulnerable population of roadway and sidewalk users in our area. A mobility study should be conducted for unincorporated communities in the County to outline recommendations about

how to improve areas with low levels of service and connectivity. The mobility study may include external engagement, conceptual planning and the evaluation of multimodal improvement options, leading to the prioritization of future capital improvement projects that better provide equitable access.

TIMELINE & BUDGET



Medium



IMPLEMENTATION PATHWAYS



OVERARCHING GOALS ANALYSIS



DEPARTMENT CHAMPION

Housing and Community Development

STRATEGIC PARTNERS

Forward Pinellas, Florida Department of Transportation, local municipalities

IMPLEMENTATION ELEMENTS

External Engagement Strategy, GHG Emissions Inventory

COMMUNITY CONNECTIONS

The Sustainability and Resiliency Public Survey results revealed that equitable, sustainable transportation solutions are a top priority among Pinellas County residents. The responsible management of public infrastructure was the second highest ranked characteristic to include in Resilient Pinellas, and nearly 60 percent of all survey participants identified smart growth and livability as topics they wanted included in the action plan. Continued growth in safe multimodal options that are proximate to high quality jobs will help to reduce traffic, create more healthy, walkable communities, and reduce overall GHG emissions.

Case Study:

Downtown St. Petersburg (DTSP) Mobility Study

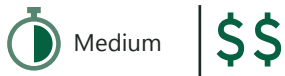
As downtown St. Petersburg continues to grow and offer a vibrant mix of employment and housing options, it's become critical to identify new ways to improve the transportation network and provide better connectivity, mobility and access to opportunity. Forward Pinellas, the City of St. Petersburg and the Florida Department of Transportation (FDOT) worked together on an analysis of the Downtown St. Petersburg (DTSP) transportation network as part of the DTSP Mobility Study. Through this project, the team grew to better understand future opportunities for multimodal mobility that would best fit the unique context of DTSP. The project team considered how different improvements might affect the overall transportation network in DTSP, including roadway capacity, operations, safety and connectivity for pedestrians, bicyclists, transit users and drivers, as well as accessibility to hospitals and travel times for emergency responders. This led to the development of conceptual rendering and evaluation of multimodal improvement options, leading to the prioritization of short- and long-term projects.

TC2 Implement an urban agriculture program that facilitates the creation of urban farms and neighborhood-based community gardens within unincorporated communities and/or parks including edible and pollinator gardens

With the establishment of local urban farms or community gardens, the County can support many of its overarching sustainability and resiliency goals. Urban farming provides local sources of fresh, healthy foods that can benefit food-insecure households, especially those without access to reliable transportation. Urban farms can also support local economies, creating opportunities for entrepreneurship and job creation. Increasing growing areas can also better protect or restore the environment, offering transport-related energy savings, soil enhancement and important wildlife

habitat (e.g., pollinators). Lastly, these community spaces strengthen neighborhood connections, supporting communities with opportunities for social interaction. The County's urban farm program should align with a regional food recovery program to help ensure efficient food distribution to food-insecure households.

TIMELINE & BUDGET



IMPLEMENTATION PATHWAYS



OVERARCHING GOALS ANALYSIS

GOAL 1	GOAL 2	GOAL 3	GOAL 4
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DEPARTMENT CHAMPION

Parks and Conservation Resources

STRATEGIC PARTNERS

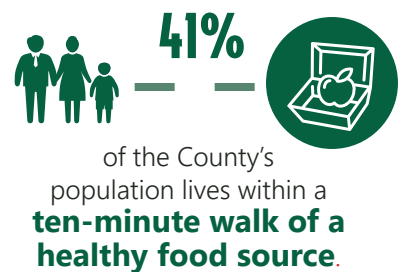
UF/IFAS Extension Pinellas County,
University of South Florida
Interdisciplinary Team for Food
Systems in Tampa Bay

IMPLEMENTATION ELEMENTS

External Engagement Strategy,
Sustainability & Resiliency
Story Map

COMMUNITY CONNECTIONS

Increasing access to healthy food options, especially locally grown food, was a popular topic in the public survey results. People want to "create more community gardens, especially in food desert neighborhoods", "access to healthy food and education concerning wellness", and a "a concerted effort to eliminate homelessness and food insecurity, especially for children." Together, these type of strategies are important to providing better livability and supporting smart growth, two of the top three elements people wanted to see in Resilient Pinellas.



Case Study:

Forward Pinellas's Urban Agriculture Knowledge Exchange Series

Forward Pinellas partnered with the City of St. Petersburg to create a set of online resources for communities looking to expand their knowledge on urban agriculture. Drawing from the experience of local governments, farm owners, educators and others, the resource guide provides an introduction to the spectrum of agricultural activities in the urban environment; discusses potential benefits, challenges and opportunities; and provides successful examples from communities across Florida and the U.S.

TC3

Develop Opportunity Zones outside of Coastal High Hazard Areas, where development incentives encourage compact, urban growth in areas with reduced future risk

Given the coastal resilience factors of sea level rise and storm surge and the implications for vulnerable populations, the development of Opportunities Zones with higher density and intensity growth should be limited to locations outside of the coastal high hazard area (CHHA). The County will work with residents, businesses and other community stakeholders in Opportunity Zones to develop regulating plans that reflect appropriately scaled smart growth.

“Resilience means less focus on development and more focus on enhancing natural and pervious areas to help offset flooding.”

TIMELINE & BUDGET

Long | \$\$

IMPLEMENTATION PATHWAYS



OVERARCHING GOALS ANALYSIS

GOAL 1	GOAL 2	GOAL 3	GOAL 4
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DEPARTMENT CHAMPION

Housing and Community Development

STRATEGIC PARTNERS

Forward Pinellas, Tampa Bay Regional Planning Council, Local Municipalities

IMPLEMENTATION ELEMENTS

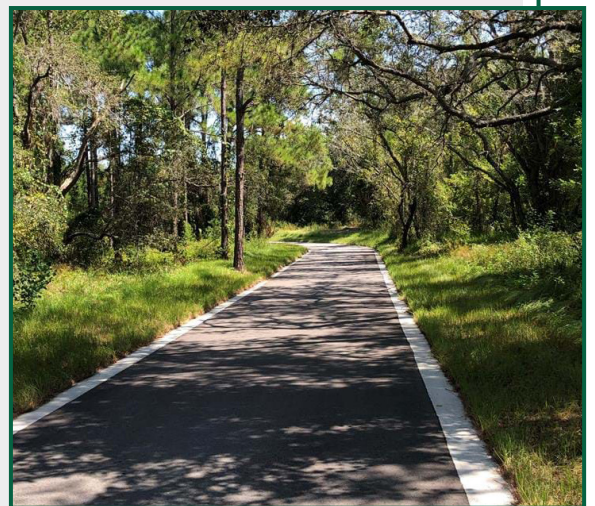
External Engagement Strategy, Sustainability & Resiliency Story Map, Sea Level Rise & Storm Surge Vulnerability Assessment

COMMUNITY CONNECTIONS

Pinellas County’s property owners have filed more than 22,000 insurance claims with the National Flood Insurance Program (NFIP) since 1977. In total, this has created more than \$183 million in federal payments to assist with rehabilitating flooded properties. Over \$80 million of the NFIP payouts have gone to the County’s 1,500 repetitive loss properties.

Pinellas Project: Land Acquisition at Wall Springs Park

Wall Springs Park is a historic, natural spring that is 210 acres and connects to the Fred Marquis Pinellas Trail. The park includes expansion projects, with the most recent being the coastal addition. The Coastal Addition plan added 125 acres of land to the park, which was 84 acres at the time. The expansion focused on the wide variety of coastal native habitats found in the area and included a paved trail that would connect the new and old portions of the park. The County pursued acquiring the land starting in the early 1990s, and the addition to the park was funded with the help of a Florida Communities Trust grant associated with the Forever Florida program. The goal of this program is to protect natural resources and preserve Florida’s waterfronts.



TC Goal 02

We will provide fair access to safe, multimodal transportation options.

TC 4 | Increase miles of multipurpose trails to the existing trail network to increase community connectivity

TC 5 | Collaborate with regional partners to increase transit and rideshare options

TC 6 | Further the Vision Zero and Move Safe Pinellas initiatives by identifying and implementing engineering and design solutions in high-traffic corridors to provide safe routes and reduce transportation-related fatalities and injuries

Pinellas Trail Loop Projects

The Pinellas Trail Loop is a 75-mile regional trail network that provides Pinellas County residents and visitors with an additional safe, reliable and affordable transportation option for recreation and access to many county amenities. When complete, the Loop will be a continuous multi-use pathway stretching from Tarpon Springs to St. Petersburg, with connections to Palm Harbor, Dunedin, Clearwater, Safety Harbor, Largo, Seminole, South Pasadena and Gulfport. The Loop will also provide regional connections to Hillsborough and Pasco County trail networks and link to the western end of the Florida Coast-to-Coast Connector Trail, a 250-mile multi-use trail that will cross the width of Florida.

Pinellas Connected Community Project

The Transportation Division of Public Works received \$4.6 million in grant funding through the Federal Highway Administration (FHWA) that will be used toward the implementation of the Pinellas Connected Community Project. The project will involve the installation of connected vehicle devices on existing transportation infrastructure and aims to enhance regional mobility and safety, reduce the number and severity of traffic crashes and increase driver, passenger and pedestrian safety.

Smart Tracs Transportation System

Smart Tracs incorporates concepts to enhance the County's Advanced Transportation Management System/Intelligent Transportation System (ATMS/ITS) and regional Smart City enterprise technology. The integration of information and communication technology with various connected smart devices improves safety and enhances mobility for motorists, transit, pedestrians and bicyclists. Bluetooth sensors, closed-circuit television (CCTV) cameras and mobile platforms transmit real-time data to the County's Traffic Management Center where it is used to monitor the transportation system, optimize signal patterns and control traffic flow.



TC 4 Increase miles of multipurpose trails to the existing trail network to increase community connectivity

One of Pinellas County's greatest assets are its trails systems, which connect to the County's popular natural amenities and commercial destinations, while providing options for recreational activity. The County's system of trails and greenways improve community health and connectivity by providing people of all ages with attractive, safe, accessible and low- or no-cost places to cycle, walk, hike, jog or skate. In addition to providing a safe place for people to enjoy recreational activities, the County's trails increase multi-modal transportation system options. Many areas of the country incorporate

trails and similar facilities into their mobility plans, relying upon trail facilities to connect people to important community assets such as transit stations and commercial hubs. The ability to avoid congested streets and highways and travel through natural areas on foot or by non-motorized means provides an vital way to improve Pinellas County's overall livability.

TIMELINE & BUDGET  Medium \$\$\$	IMPLEMENTATION PATHWAYS    	OVERARCHING GOALS ANALYSIS <table border="1"> <tr> <th>GOAL 1</th> <th>GOAL 2</th> <th>GOAL 3</th> <th>GOAL 4</th> </tr> <tr> <td>b</td> <td>v</td> <td>v</td> <td>b</td> </tr> </table>	GOAL 1	GOAL 2	GOAL 3	GOAL 4	b	v	v	b
GOAL 1	GOAL 2	GOAL 3	GOAL 4							
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DEPARTMENT CHAMPION Public Works	STRATEGIC PARTNERS Forward Pinellas, Local Municipalities	IMPLEMENTATION ELEMENTS External Engagement Strategy, Sustainability & Resiliency Story Map, Sea Level Rise & Storm Surge Vulnerability Assessment, GHG Emissions Inventory, Clean Energy Roadmap								

COMMUNITY CONNECTIONS

As part of the public survey, people were able to drop a pin on a location that they love in Pinellas County and share attributes about why. Many of the places where people dropped pins were locations where there was access to trails that connect people to nature and one another, such as John Chestnut Park, Allen's Creek Park and Wall Springs Park. , Allen's Creek Park and Wall Springs Park. Some of the quotes below reflect people's love for trails and the growing need for them throughout the County.

Pinellas County's Love for Trails

"The beauty and proximity of Pinellas County's beaches are two reasons my husband and I chose to retire here. The parks and trails as well as cultural resources are almost as important to us."

"People are friendly and happy to make new friends while walking the trails. It feels like a great community."

"I would like to see more bike paths and trails for commuting and less cars on roads."

Pinellas Project: Safe Streets Pinellas Action Plan

The County recently adopted a Vision Zero Action Plan to promote transportation safety to reduce roadway fatalities and serious injuries to zero. On average, more than two people per day were killed or seriously injured on roadways in Pinellas County (2014-2019). The plan outlines collision trends using crash data to identify the County's most unsafe roadways (termed High Injury Network) where specific countermeasures (engineering, enforcement, education, etc.) may be implemented to reduce and eventually eliminate crashes. In partnership with Forward Pinellas, several demonstration projects could be implemented in the near term, and a series of engineering countermeasures could be permanently installed to counteract specific types of high-count crashes.



TC 5 Collaborate with regional partners to increase transit and rideshare options

As the County implements transportation planning projects and sees continued economic growth, continue to collaborate with regional partners to increase transit and ride-share options, providing improvements to existing service lines and increased connectivity. Increased transit connectivity reduces the reliance on automobile use, reduces vehicular emissions/idling time, increases access to employment opportunities and improves future smart mobility choices, such as autonomous vehicles, rideshare, and micro mobility.

“ We need to find ways let go of fossil fuels and rely on renewables here in Pinellas. I’d love to see us transition to self driving, electric cars and buses. ”

TIMELINE & BUDGET  Medium 	IMPLEMENTATION PATHWAYS    	OVERARCHING GOALS ANALYSIS <table border="0"> <tr> <td>GOAL 1</td> <td>GOAL 2</td> <td>GOAL 3</td> <td>GOAL 4</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> </tr> </table>	GOAL 1	GOAL 2	GOAL 3	GOAL 4				
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DEPARTMENT CHAMPION Public Works	STRATEGIC PARTNERS Forward Pinellas, Local Municipalities	IMPLEMENTATION ELEMENTS External Engagement Strategy, GHG Emissions Inventory, Clean Energy Roadmap, Sustainability & Resiliency Story Map								

COMMUNITY CONNECTIONS

The continued growth of trails, especially with access to public transit options was a popular topic among the community, according to the public survey. Survey participants seemed to strongly support the growth of free public transit along with improving infrastructure that encourages people to make fewer trips by car.

Case Study: Pinellas Suncoast Transit Authority (PSTA) Sustainable Strategic Plan (SSP)

In March 2021, PSTA adopted a Sustainable Strategic Plan (SSP), creating a roadmap through which the transit authority could reach its vision to become “a more sustainable, resilient agency to better serve Pinellas County and its many local jurisdictions.” The SSP document outlines specific goals, strategies and an energy roadmap to reach their Triple Bottom Line (TBL) goal while delivering robust public transit services for the region. The document is organized by three TBL categories:

- Healthy Community and Workforce,
- Environmental Sustainability
- Economic Vitality

To achieve their goal of transitioning the entire fleet to a zero-emissions fleet, officials announced the purchase of 60 electric buses and an expansion of their charging network over a five year period.

TC 6 Further the Vision Zero and Move Safe Pinellas initiatives by identifying and implementing engineering and design solutions in high-traffic corridors to provide safe routes and reduce transportation-related fatalities and injuries

As the County implements transportation planning projects and sees continued economic development, continue to increase miles of roads that serve multiple mobility options, including walking, biking, micromobility options, transit, etc. The County recently adopted a Vision Zero Action Plan to promote transportation safety to reduce roadway fatalities and serious injuries to zero. The plan outlines collision trends using crash data to identify the County's most unsafe roadways (termed High Injury Network) where specific countermeasures (engineering, enforcement, education,

etc.) may be implemented to reduce and eventually eliminate crashes. In partnership with Forward Pinellas, several demonstration projects could be implemented in the near term, and a series of engineering countermeasures could be permanently installed to counteract specific types of high-count crashes.

TIMELINE & BUDGET  Medium \$\$\$\$	IMPLEMENTATION PATHWAYS 	OVERARCHING GOALS ANALYSIS <table border="0"> <tr> <td>GOAL 1</td> <td>GOAL 2</td> <td>GOAL 3</td> <td>GOAL 4</td> </tr> <tr> <td>b</td> <td>v</td> <td>v</td> <td>v</td> </tr> </table>	GOAL 1	GOAL 2	GOAL 3	GOAL 4	b	v	v	v
GOAL 1	GOAL 2	GOAL 3	GOAL 4							
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DEPARTMENT CHAMPION Public Works	STRATEGIC PARTNERS Forward Pinellas, Local Municipalities	IMPLEMENTATION ELEMENTS External Engagement Strategy, Sustainability & Resiliency Story Map, GHG Emissions Inventory, Clean Energy Roadmap								

COMMUNITY CONNECTIONS

Utilizing American Rescue Plan Act (ARPA) funding, Pinellas County has nearly \$33.5 million to address community priorities for construction by 2026, including community parks in High Point and Dansville, new trails to connect Ridgecrest to local parks, expanding a stormwater facility in Palm Harbor, Ray Neri Park amenities, new sidewalks for safe routes to schools and improving stormwater systems.

Case Study: Forward Pinellas Complete Streets Program

The Forward Pinellas Complete Streets Program provides competitive funding for the planning and construction of complete streets projects countywide. Forward Pinellas, as the unified MPO/PPC, has been tasked by a special act of the state legislature to coordinate transportation and land use planning in Pinellas County. One way to strengthen this coordination is to incentivize transportation investments so they serve as a catalyst for transformative redevelopment, particularly through the implementation of complete streets projects. Complete Streets are designed, operated and maintained for all users, regardless of age or ability, based on the context of the roadway and its surrounding area. Through collaboration with its committees and board, Forward Pinellas has developed an incentive program to assist local governments in planning, designing and constructing Complete Streets projects. Example: Pinellas County Whitney Road Complete Street from US 19 to Bolesta Road.

TC Goal 03

We will provide historically underserved areas with modern, healthy community amenities.

TC 7) Expand access to healthy foods for unincorporated areas of Pinellas County to foster better health outcomes and reduce food waste

TC 8) Implement a residential coastal habitat and tree canopy program to enhance quality of life and reduce stresses such as heat island effects, flooding impacts, and erosion

TC 9) Conduct Level of Service analyses to ensure fair access to services such as parks, bicycle infrastructure and educational and cultural centers

TC 10) Conduct a heat impact analysis and establish recommendations to reduce the effects of extreme heat to people and structures

Health Care for the Homeless Program

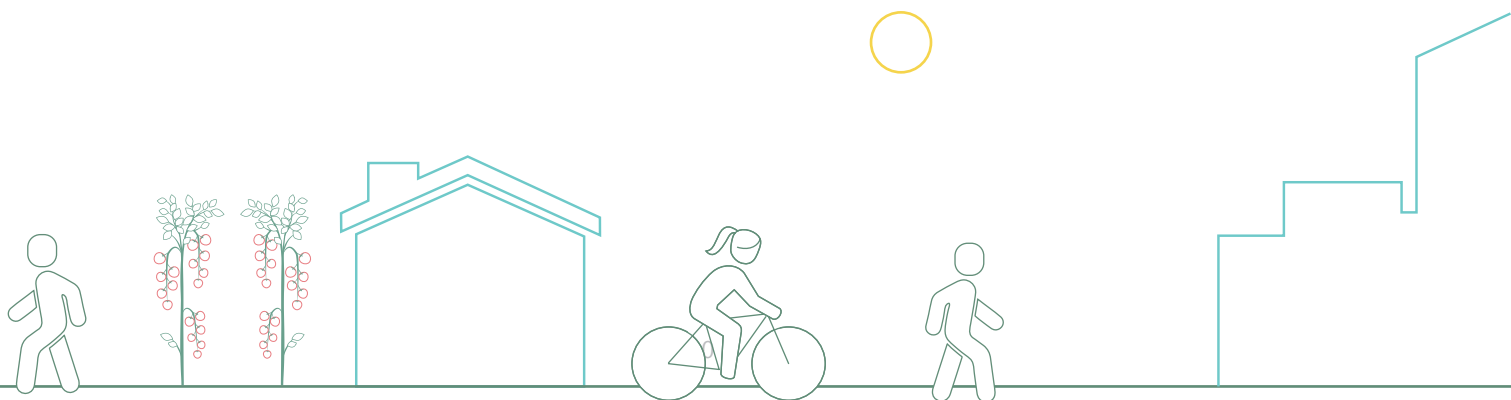
The Health Care for the Homeless (HCH) program provides medical services, otherwise known as primary care, which includes treatment of illness or injury as well as preventive care, education, limited prescription coverage and referrals for lab work, specialty care, dental assistance, behavioral-mental health assistance and substance abuse treatment.

Pinellas Mobile Medical Unit

The mobile unit is a medical office on wheels. It has provided basic care for more than 20 years. Pinellas County homeless can receive free basic health care on the mobile medical unit. Emergency services are not provided. The unit travels to multiple locations in Pinellas County to serve uninsured homeless residents.

Joe's Creek Greenway Project

The Joe's Creek Greenway project corridor is bordered by under-served low to medium income (LMI) communities with very limited transportation modes. The Joe's Creek Greenway project will provide an economic catalyst to support desired redevelopment and affordable housing in the low-income area and connect LMI-households to available public transit amenities and other points of service locations like schools, parks and public service agencies.



TC7 Expand access to healthy foods for unincorporated areas of Pinellas County to foster better health outcomes and reduce food waste

Through 2024, Pinellas County's Housing and Community Development department will develop a Food Access Study that will address healthy food access issues for Unincorporated Pinellas County. This study will help the County to better understand existing food access limitations due to a variety of factors such as the geographic locations of places that provide healthy food and land use regulations. Using the outcomes of the baseline assessment, the County will identify short, medium and long term solutions to improve access to healthy food. Each of these solutions

will help the County to reach other goals, including the reduction of food waste and support the County's health community initiatives. Pending the results of this study, recommendations may include growth in food recovery programs, transportation to grocery stores, installation of urban gardens, pop-up or mobile markets where food can be placed in proximity to food insecure households and continuing partnerships with local non-profits, academic institutions or health agencies toward establishing these programs. This initiative will also support the work of the TBRPC to reduce food insecurity.

TIMELINE & BUDGET  Medium 	IMPLEMENTATION PATHWAYS    	OVERARCHING GOALS ANALYSIS <table border="0"> <tr> <td>GOAL 1</td> <td>GOAL 2</td> <td>GOAL 3</td> <td>GOAL 4</td> </tr> <tr> <td>b</td> <td>v</td> <td>v</td> <td>b</td> </tr> </table>	GOAL 1	GOAL 2	GOAL 3	GOAL 4	b	v	v	b
GOAL 1	GOAL 2	GOAL 3	GOAL 4							
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DEPARTMENT CHAMPION Human Services	STRATEGIC PARTNERS Local Non-Profits, Tampa Bay Regional Planning Council	IMPLEMENTATION ELEMENTS External Engagement Strategy								

COMMUNITY CONNECTIONS

In November 2022, the Tampa Bay Regional Planning Council (TBRPC) released its Regional Resilience Action Plan, a living document of strategies to tackle the region's resilience challenges. The plan outlines opportunities to create more resilient food systems by expanding access to healthy food and supporting disaster relief. Example actions include the identification of incentives to increase sustainable local food production, the implementation of sustainability outreach and education efforts to reduce food waste, outreach to large commercial producers of food waste to discuss and define onsite reduction and the exploration of grants to develop hyper-local grocery store/neighborhood markets.



In the 2021-2022 school year, more than **16,000 students received free lunch** and an additional **1,100 received lunch at a reduced price** in Pinellas County.



















Case Study: County of San Diego Commercial Edible Food Recovery Program

Food recovery networks both provide vital food resources for people who need it the most while simultaneously mitigating the impact food waste has on landfill capacity. According to NRDC 40% of the food in America goes uneaten. Edible food recovery programs help save businesses money while also having positive environmental and societal impacts. San Diego County recently adopted policy that requires a minimum donation percentage for Large Food Waste Generators (LFWGs) and food scraps to be recycled. The County also supports local gleaning groups that pick fruit and veggies from backyard gardens and urban farms for delivery to organizations that deliver food to needy families.

TC 8 Implement a residential coastal habitat and tree canopy program to enhance quality of life and reduce stresses such as heat island effects, flooding impacts, and erosion

The County will work to establish a program through which residents can purchase or receive free canopy trees to grow on private property. The program will be beneficial to many Resilient Pinellas goals including reduced heat island effect, energy consumption, and associated energy costs. The program should include the development of a listing of tree species that also serve to reduce the impacts of flooding and erosion.

Another important benefit of canopy trees is shade, which makes walking and biking more comfortable during our hotter months. Residents would be offered canopy tree species selected by a certified arborist or urban forester for hardiness, drought-tolerance and wildlife benefits.

TIMELINE & BUDGET  Short 	IMPLEMENTATION PATHWAYS    	OVERARCHING GOALS ANALYSIS <table border="1"> <tr> <th>GOAL 1</th> <th>GOAL 2</th> <th>GOAL 3</th> <th>GOAL 4</th> </tr> <tr> <td></td> <td></td> <td></td> <td></td> </tr> </table>	GOAL 1	GOAL 2	GOAL 3	GOAL 4				
GOAL 1	GOAL 2	GOAL 3	GOAL 4							
										
DEPARTMENT CHAMPION Public Works	STRATEGIC PARTNERS UF/IFAS Extension Pinellas County, Tampa Bay Estuary Program, Keep Pinellas Beautiful	IMPLEMENTATION ELEMENTS External Engagement Strategy, Sea Level Rise and Storm Surge Vulnerability Assessment, GHG Emissions Inventory, Clean Energy Roadmap								

COMMUNITY CONNECTIONS

As part of the Community-wide GHG emissions inventory completed for 2019, the consultant team used the United States Department of Agriculture (USDA) Forest Service’s online model i-Tree to calculate potential annual carbon sequestration due to Pinellas County’s trees. Using this tool, the project team was able to estimate that in 2019, the estimated total carbon sequestered within the unincorporated areas of Pinellas County amounted to 200,320 MT CO₂e. That means that nearly 17 percent of the total metric tons of CO₂ is due to stationary energy use in the unincorporated area. On top of this, the community shared their thoughts on the other benefits of trees:

Community thoughts on the importance of trees:

“Resilience means creating more green space and designated areas for native trees. Community involvement in conservation areas is critical to their maintenance and preservation.”

“Increase the planting of trees to encourage walking/biking by providing shade.”

“Trees need to be incorporated into design.”

“Canopy trees would reduce exposure to heat and high temperatures in these areas, improve air quality and increase property value for these vulnerable communities.”



TC 9 Conduct Level of Service analyses to ensure fair access to services such as parks, bicycle infrastructure and educational and cultural centers

As a part of the County's Concurrency Management System, several public services require ongoing Level of Service (LOS) analysis including recreation and open space, multimodal and mass transit services, etc. Particular attention should be made to update deteriorating facilities and ensure equitable access to facilities for areas where there are higher concentrations of vulnerable populations through the concurrency review process.

Continued LOS analyses will provide a method for identifying deficiencies and future needs for public facilities and services that support, enhance and foster thriving communities, including equitable distribution of these public goods in identified environmental justice communities. The results of the LOS analyses will inform the update of the Pinellas County Recreation, Open Space & Cultural Systems Master Plan and support other strategic County initiatives such as Health in All Policies and comprehensive plan implementation.

TIMELINE & BUDGET

 Medium | 

IMPLEMENTATION PATHWAYS



OVERARCHING GOALS ANALYSIS

GOAL 1	GOAL 2	GOAL 3	GOAL 4
b	b	v	v

DEPARTMENT CHAMPION

Housing and Community Development

STRATEGIC PARTNERS

Forward Pinellas, Pinellas Suncoast Transit Authority

IMPLEMENTATION ELEMENTS

Sea Level Rise & Storm Surge Vulnerability Assessment

COMMUNITY CONNECTIONS

Ensuring equitable access to services was an important community topic expressed in the public survey and an important goal for Pinellas County Government.

“ More emphasis is needed on environmental justice work. Including support for low-income people, and support for elders and people with disabilities. ”

Case Study:

Forward Pinellas Equity Assessment Action Plan and Environmental Justice Report

In March 2022, the Forward Pinellas Board unanimously approved the adoption of an Equity Action Plan to meet the agency's goals of inclusion and equity for all. The plan outlines strategic best practices for Forward Pinellas staff, the governance and committee structure and Forward Pinellas work products to advance equitable outcomes for the entire community. To develop the plan, Forward Pinellas conducted an equity assessment of the agency's operations and planning activities. Research and stakeholder engagement provided an overview of the systems, policies, and practices that have resulted in inequity, particularly among ethnic minorities in Pinellas County. Additionally, in January 2023, Forward Pinellas released an Environmental Justice Report to establish Equity Emphasis Areas (EEAs). EEAs are used to assess future projects in the 2050 Long Range Transportation Plan (LTRP) and put strategies in place so that there are no disproportionately high and adverse human health or environmental effects of its programs among minority groups.

TC 10 Conduct a heat impact analysis and establish recommendations to reduce the effects of extreme heat to people and structures

The County will look to hire a consultant or seek a grant opportunity to conduct an urban heat island analysis. The resulting data sets a foundation on which to determine where to implement best practices to keep residents and the built environment cool, especially as extreme heat events are on the rise. Through such an analysis, the County would be provided with a GIS-based set of data, that when overlaid with other data sets, can better help the County to understand the effects of extreme heat on the community and target mitigation or adaptation measures accordingly.

In particular, the County may align urban forestry plans or target the planning and replacement of trees in areas exacerbated by the heat island effect and/or known to have poor air quality, especially in areas with higher concentrations of vulnerable or low-income populations. The County may then target tree planting and replacement of trees in these areas.

TIMELINE & BUDGET



Short



IMPLEMENTATION PATHWAYS



OVERARCHING GOALS ANALYSIS

GOAL 1	GOAL 2	GOAL 3	GOAL 4
V	V	V	V

DEPARTMENT CHAMPION

Office of Resilience and Asset Management

STRATEGIC PARTNERS

Local Municipalities

IMPLEMENTATION ELEMENTS

Sea Level Rise & Storm Surge Vulnerability Assessment, External Engagement, GHG Emissions Inventory, Clean Energy Roadmap

COMMUNITY CONNECTIONS

According to public survey results, 1 out of 3 respondents identified extreme heat as a top climate threat to Pinellas County. As stated by one survey respondent, "year by year our planet is getting hotter and many are suffering from heat stroke and many other health complications."



Case Study:

National Integrated Heat Health Information System (NIHHIS) Urban Heat Island studies

Several cities throughout the U.S. have been involved in the National Integrated Heat Health Information System (NIHHIS) Urban Heat Island program in the last few years. The program offers sensors that are easily affixed to vehicles to capture air temperatures along pre-determined routes. Through the program, interested volunteers are recruited to capture heat data while learning more about the effects of extreme heat and areas of their communities prone to more severe impacts of extreme heat. Data collected is compiled to create a heat map of the hottest areas throughout the study area. Prior participants in this program aligned with local NGOs, environmental justice groups, partnering cities, etc., to provide visibility for the campaign and align the results with other environmental, social or economic concerns.



CHAPTER 4

Initiative Matrix

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EMPOWERED CITIZENS

Initiative ID	Initiative Title	Department Champion	Partners	Time-line	Budget	Implementation Pathways
Goal 1: We will provide residents with resources to help them live sustainably and address future adversity in a coastal Florida community.						
EC1	Analyze publicly accessible health data and trends to inform policy, projects, and programs that address the health and well-being of county residents in need of assistance	Human Services	Forward Pinellas, Florida Department of Health, Healthy St. Pete, Tampa Bay Regional Planning Council		\$\$	Workplan, Data, Partnership
EC2	Enhance the flood information portal application to incorporate cumulative impacts from sea level rise within current flood-prone areas to support community conversations	Public Works	Tampa Bay Regional Planning Council, FEMA, Local Municipalities		\$	Workplan, Partnership, Community
EC3	Increase resilience and capacity of existing and future emergency shelters	Emergency Management	Pinellas County Schools, Florida Department of Emergency Management		\$\$\$\$	Workplan, Partnership, Community
EC4	Transition the Lealman Exchange into a Neighborhood Resilience Hub to provide community-serving facilities that coordinate disaster, social and revitalization programs	Office of Resilience and Asset Management	Local Municipalities, Pinellas County Public Schools, Tampa Bay Regional Planning Council		\$\$\$\$	Workplan, Policy, Data, Financial, Partnership
EC5	Provide awareness of incentives to private property owners for resilient, green building and/or low-impact development (density bonuses, expedited permitting, etc.)	Building and Development Review Services	Local Municipalities, Pinellas County Schools		\$	Workplan, Policy, Partnership, Community
EC6	Continue to provide updates to the Post Disaster Redevelopment Plan and regional collaboration toward identifying recovery and redevelopment needs	Emergency Management	Local Municipalities		\$\$	Workplan, Partnership, Community
Goal 2: We will provide opportunities for leadership and participation in Pinellas County's sustainability and resiliency work.						
EC7	Expand the County's "Embassador" program to assist with residents' emergency preparedness training and education for all hazards	Emergency Management	Local Municipalities, Sustainability and Resilience Advisory Committee (SRAC)		\$	Workplan, Policy, Partnership, Community
EC8	Provide a public education and volunteer campaign to reduce and/or remove invasive exotic plants and species from public lands	Parks and Conservation Resources	Local HOAs		\$	Workplan, Partnership, Community
EC9	Provide updates to local recycling guidance given to residents reflecting new regional recycling processes identified by the Solid Waste Regional Partners Committee	Solid Waste	Solid Waste Regional Partners Committee, Waste Haulers		\$	Workplan, Data, Partnership, Community
EC10	Implement a Resilient Pinellas visibility and engagement campaign for residents, businesses and organizations to increase knowledge of community-wide sustainability or resilience initiatives	Office of Resilience and Asset Management	Sustainability and Resiliency Advisory Committee (SRAC)		\$	Workplan, Partnership, Community



ECONOMIC VITALITY

Initiative ID	Initiative Title	Department Champion	Partners	Time-line	Budget	Implementation Pathways
Goal 1: We will encourage and engage residents and businesses to adopt proactive sustainable and resilient practices.						
EV 1	Create an incentive program for resilient and green building, low-impact design, environmental preservation, and/ or implementation of hazard mitigation strategies	Building and Development Review Services	Tampa Bay Regional Planning Council, Florida Housing Coalition		\$	Workplan, Policy, Partnership
EV 2	Expand the County's Home Repair Loan Program to include a broader suite of weatherization and mitigation retrofits and improvements	Office of Resilience and Asset Management	Local Municipalities, TBRPC, Tampa Bay Water, Duke Energy Florida, Solar Energy Loan Fund (SELF)		\$\$\$\$	Workplan, Data, Financial, Partnership, Community
EV 3	Create a business educational and technical assistance campaign that offers local business owners the opportunity to learn about the County's sustainability and resiliency work	Economic Development	Sustainability and Resiliency Advisory Committee (SRAC), Local Chambers of Commerce, Local Municipalities		\$	Workplan, Partnership, Community
Goal 2: We will promote a sustainable housing market, increasing access to stable, attainable, resilient housing.						
EV 4	Create design standards to promote sustainability and energy efficiency, encourage healthy environments and lifestyles, and features for climate adaptation	Housing and Community Development	Local Municipalities, Tampa Bay Regional Planning Council		\$\$	Workplan, Policy, Partnership, Community
EV 5	Conduct a community-wide energy burden analysis to create strategies that reduce energy consumption and thus, the cost of living	Office of Resilience and Asset Management	Sustainability and Resiliency Advisory Committee (SRAC), Duke Energy Florida		\$\$	Workplan, Data, Financial, Partnership, Community
Goal 3: We will promote and advance a green economy that provides good jobs with a living wage.						
EV 6	Implement a regional marketing campaign to attract recycling markets and vendors	Solid Waste	Sustainability and Resiliency Advisory Committee (SRAC), Local Chambers of Commerce		\$\$	Workplan, Partnership
EV 7	Establish pre-certification programs for contractors and installers who specialize in resilient and/or green building practices	Contractor Licensing	Sustainability and Resiliency Advisory Committee (SRAC)		\$\$	Workplan, Partnership, Community



HEALTHY ECOSYSTEMS

Initiative ID	Initiative Title	Department Champion	Partners	Time-line	Budget	Implementation Pathways
Goal 1: We will preserve and increase environmental lands, beaches, parks and waterways.						
HE 1	Continue a robust land acquisition program, with updates to include land use regulations and/or vulnerability assessment results	Parks and Conservation Resources	Tampa Bay Estuary Program, Tampa Bay Regional Planning Council, Local Municipalities		\$\$\$	Workplan, Financial, Data, Partnership, Community
HE 2	Continue conservation of rights-of-way to implement green infrastructure or preserve areas serving natural-beneficial functions	Public Works	Florida Department of Transportation, Forward Pinellas, Local Municipalities		\$\$\$	Policy, Financial, Data
HE 3	Develop an updated Recreation, Open Space and Cultural Systems Master Plan	Parks and Conservation Resources	Tampa Bay Estuary Program, Creative Pinellas, Local Municipalities		\$\$	Workplan, Data, Partnership
Goal 2: We will restore and sustain thriving, connected native plant and wildlife habitats.						
HE 4	Align with the Tampa Bay Estuary Program (TBEP) Habitat Master Plan to support habitat migration corridors	Office of Resilience and Asset Management	Tampa Bay Estuary Program, Florida Fish and Wildlife Conservation Commission		\$	Workplan, Data, Partnership, Community
HE 5	Use County-owned park and recreation spaces as living laboratories for sustainability and resilience initiatives	Parks and Conservation Resources	Keep Pinellas Beautiful, Local Municipalities, Local Universities and Colleges, Pinellas County Schools, Creative Pinellas		\$\$	Workplan, Partnership, Community
HE 6	Encourage wider implementation of Florida-friendly landscaping on properties throughout the county	Parks and Conservation Resources	UF/IFAS Extension Pinellas County, Tampa Bay Estuary Program, Keep Pinellas Beautiful		\$\$	Workplan, Partnership, Community
Goal 3: We will manage natural resources for the benefit of current and future generations.						
HE 7	Align the enterprise asset management system with mitigation measures that support habitat function (living shorelines, oyster boxes, etc.)	Office of Resilience and Asset Management	Tampa Bay Estuary Program		\$\$	Workplan, Policy, Data, Financial
HE 8	Provide broader, more systematic implementation of green infrastructure and nature-based solutions to reduce natural hazard exposure, especially through the use of design guidelines in capital planning	Public Works	Tampa Bay Estuary Program, Southwest Florida Water Management District, Tampa Bay Regional Planning Council, Local Municipalities		\$\$	Workplan, Partnership, Community
HE 9	Continue to implement the Integrated Vegetative Management Program throughout County-owned lands	Parks and Conservation Resources	UF/IFAS Extension Pinellas County, Tampa Bay Estuary Program, Keep Pinellas Beautiful		\$\$\$	Workplan, Partnership, Community



RESILIENT INFRASTRUCTURE


Initiative ID	Initiative Title	Department Champion	Partners	Time-line	Budget	Implementation Pathways
Goal 1: We will appropriately manage stormwater, storm surge, sea level rise and future land uses to reduce flooding impacts.						
RI 1	Adopt an internal policy to apply results of the Sea Level Rise and Storm Surge Vulnerability Assessment to all County-owned assets	Office of Resilience and Asset Management	Tampa Bay Regional Planning Council, Local Municipalities		\$	Workplan, Partnership, Community
RI 2	Improve community resilience through future land use policy amendments, and other comprehensive plan policy, that reflect future climate impacts and stresses	Housing and Community Development	Tampa Bay Regional Planning Council, Forward Pinellas, Local Municipalities		\$	Workplan, Policy, Community
RI 3	Identify Adaptation Action Areas that experience coastal flooding and are more vulnerable to future climate impacts to prioritize funding for infrastructure needs and resiliency planning	Housing and Community Development	Tampa Bay Regional Planning Council, Local Municipalities		\$	Workplan, Policy, Data, Partnership, Community
RI 4	Implement and provide updates to social and health-based factors within vulnerability assessments of unincorporated areas of Pinellas County	Office of Resilience and Asset Management	Healthy St. Petersburg, Florida Department of Health, Local Municipalities		\$	Workplan, Data, Partnership, Community
Goal 2: We will protect and conserve drinking and surface water resources.						
RI 5	Implement nature-based, green infrastructure demonstration projects in publicly accessible places	Public Works	Keep Pinellas Beautiful, Local Municipalities		\$\$\$	Workplan, Policy, Partnership
RI 6	Increase adaptability of water and wastewater systems to withstand environmental threats and hazards	Utilities	Local Municipalities, Tampa Bay Regional Planning Council, Tampa Bay Water		\$\$\$\$	Workplan, Financial, Data, Partnership
Goal 3: We will implement best practices to make critical service networks more resilient and environmentally friendly.						
RI 7	Integrate natural resources in infrastructure that supports safe, active modes of transportation such as trails and sidewalks	Public Works	Florida Department of Transportation, Forward Pinellas, Local Municipalities		\$\$\$	Workplan, Policy, Partnership
RI 8	Expand the use of the Flood Resiliency Tool for Capital Planning to also assess impacts and inform critical facilities, economic development, affordable housing projects and other strategic County initiatives	Office of Resilience and Asset Management	Tampa Bay Regional Planning Council, Pinellas Suncoast Transit Authority, Local Municipalities		\$\$	Workplan, Data, Financial, Partnership



SUSTAINABLE SYSTEMS

Initiative ID	Initiative Title	Department Champion	Partners	Time-line	Budget	Implementation Pathways
Goal 1: We will reduce total energy consumption.						
SS1	Conduct energy audits of County facilities to improve performance through sound investments	Office of Resilience and Asset Management	U.S. Green Building Council, ASHRAE, Tampa Bay Energy Efficiency Alliance		\$\$	Workplan, Policy, Financial, Data
SS2	Implement resilient and green building demonstration projects in publicly accessible places	Administrative Services	UF/IFAS Extension Pinellas County, Local Universities, Local Municipalities, Duke Energy Florida, Creative Pinellas		\$\$\$	Workplan, Data, Financial, Partnership, Community
SS3	Consider sustainability and/or code-plus certification requirements for County-owned and operated buildings	Administrative Services	U.S. Green Building Council		\$	Workplan, Policy, Data, Financial
SS4	Establish a new administrative policy to include new targets to increase energy and water conservation efforts and reduce water consumption	Office of Resilience and Asset Management	Duke Energy Florida, People's Gas (TECO), Clearwater Gas		\$	Workplan, Policy, Financial, Data, Partnership
SS5	Continue partnerships with utility providers to strengthen both individual building-level and community-wide energy and water efficiency retrofit programs	Office of Resilience and Asset Management	Duke Energy Florida, Clearwater Gas, People's Gas (TECO), Solar Energy Loan Fund (SELF), Tampa Bay Water		\$	Workplan, Financial, Partnership
Goal 2: We will increase clean, renewable energy generation.						
SS6	Provide back-up and renewable power sources for all County-owned critical infrastructure and facilities	Administrative Services	Pinellas County Schools, Florida Department of Emergency Management, Duke Energy Florida		\$\$\$\$	Workplan, Policy, Data, Financial, Partnership
SS7	Make investments in renewable energy projects and/or through partnerships with external providers	Office of Resilience and Asset Management	Duke Energy Florida, Solar United Neighbors		\$\$\$\$	Workplan, Data, Partnership
SS8	Conduct solar feasibility studies for County-owned facilities, structures and lands	Office of Resilience and Asset Management	Duke Energy Florida, Solar United Neighbors		\$\$	Workplan, Data, Financial, Partnership

Goal 3: We will reduce air pollutants and greenhouse gas emissions.

SS 9	Convert internal combustion engine vehicles to alternative-fueled vehicles and install infrastructure to meet internal needs and demand	Administrative Services	Duke Energy Florida, Local Municipalities		\$\$\$	Workplan, Policy, Financial, Data, Partnership
SS 10	Conduct new greenhouse gas (GHG) emissions inventories every five years to track performance and adjust standards	Office of Resilience and Asset Management	Duke Energy, Florida People's Gas, Pinellas Suncoast Transportation Authority, St. Pete-Clearwater International Airport, Local Municipalities		\$\$	Workplan, Data, Partnership

Goal 4: We will reduce waste.

SS 11	Analyze the diversion of organic materials from the solid waste stream	Solid Waste	Waste Haulers, UF/IFAS Extension Pinellas County, Florida Department of Agriculture and Consumer Services, Keep Pinellas Beautiful		\$\$	Policy, Data, Financial, Partnership, Community
SS 12	Evaluate a curbside recycling program for unincorporated areas of Pinellas County	Solid Waste	Recycle Across America, Keep Pinellas Beautiful, Waste Haulers		\$\$	Policy, Data, Financial, Partnership, Community



THRIVING COMMUNITIES

Initiative ID	Initiative Title	Department Champion	Partners	Time-line	Budget	Implementation Pathways
Goal 1: We will promote smart growth and development where jobs, housing and other basic community needs coexist.						
TC1	Conduct a mobility study for unincorporated areas of Pinellas County	Housing and Community Development	Forward Pinellas, Florida Department of Transportation, Local Municipalities		\$\$	Workplan, Data, Partnership
TC2	Implement an urban agriculture program that facilitates the creation of urban farms and neighborhood-based community gardens within unincorporated communities and/or parks including edible and pollinator gardens	Parks and Conservation Resources	UF/IFAS Extension Pinellas County, University of South Florida Interdisciplinary Team for Food Systems in Tampa Bay		\$\$	Workplan, Data, Partnership
TC3	Develop Opportunity Zones outside of Coastal High Hazard Areas, where development incentives encourage compact, urban growth in areas with reduced future risk	Housing and Community Development	Forward Pinellas, Tampa Bay Regional Planning Council, Local Municipalities		\$\$	Workplan, Data, Partnership
Goal 2: We will provide fair access to safe, multimodal transportation options.						
TC4	Increase miles of multipurpose trails to the existing trail network to increase community connectivity	Public Works	Forward Pinellas, Local Municipalities		\$\$\$\$	Workplan, Data, Partnership, Community
TC5	Collaborate with regional partners to increase transit and rideshare options	Public Works	Forward Pinellas, Local Municipalities		\$\$	Workplan, Data, Partnership, Community
TC6	Further the Vision Zero and Move Safe Pinellas initiatives by identifying and implementing engineering and design solutions in high-traffic corridors to provide safe routes and reduce transportation-related fatalities and injuries	Public Works	Forward Pinellas, Local Municipalities		\$\$\$\$	Workplan, Data, Partnership, Community
Goal 3: We will provide historically underserved areas with modern, healthy community amenities.						
TC7	Expand access to healthy foods for unincorporated areas of Pinellas County to foster better health outcomes and reduce food waste	Human Services	Local Non-Profits, Tampa Bay Regional Planning Council		\$\$	Workplan, Data, Partnership, Community
TC8	Implement a residential coastal habitat and tree canopy program to enhance our quality of life and reduce the impacts of stressors such as extreme heat, flooding and erosion	Public Works	UF/IFAS Extension Pinellas County, Tampa Bay Estuary Program, Keep Pinellas Beautiful		\$\$\$\$	Workplan, Data, Partnership, Community
TC9	Conduct Level of Service analyses to ensure fair access to services such as parks, bicycle infrastructure, and educational and cultural centers	Housing and Community Development	Forward Pinellas, Pinellas Suncoast Transit Authority		\$\$	Workplan, Data, Partnership
TC10	Conduct a heat impact analysis and establish recommendations to reduce the effects of extreme heat to people and structures	Office of Resilience and Asset Management	Local Municipalities		\$\$	Workplan, Data, Partnership

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Appendix



List of Definitions

The list of key definitions below was created using standard language from reputable federal, state or non-profit organizations, such as the U.S. Environmental Protection Agency, U.S. Department of Energy, U.S. Department of Homeland Security, Centers for Disease Control and Prevention, National Oceanic and Atmospheric Administration and Florida State Statutes.

Accessory dwelling unit: A smaller, independent residential dwelling unit located on the same lot as a stand-alone (i.e., detached) single-family home.

Adaptation Action Area (AAA): A designation in the coastal management element of a local government's comprehensive plan which identifies one or more areas that experience coastal flooding due to extreme high tides and storm surge and that are vulnerable to the related impacts of rising sea levels for the purpose of prioritizing funding for infrastructure needs and adaptation planning.

Adaptive capacity: The ability of a human or natural system to adjust to climate change by moderating potential damages, taking advantage of opportunities or coping with the consequences.

Alternative fuel vehicle: Vehicles that use non-petroleum-based fuels, such as biofuel, hydrogen or natural gas, to improve operating efficiency.

Back-up energy supply: Technology used to store electrical energy so it can be available to meet demand in case of a disruption of electricity distribution.

Carbon dioxide: A colorless, odorless gas produced by the respiration and combustion of carbon-containing fuels, used by plants as food in the photosynthesis process. Represented as CO₂.

Carbon dioxide equivalent (CO₂e): A unit of measurement that allows the effect of different greenhouse gases (GHG) and other factors to be compared using carbon dioxide as a standard unit for reference. CO₂e are commonly expressed as "million metric tons of carbon dioxide equivalents (MMT CO₂e)" for large generators.

Carbon sequestration/capture: The process of storing carbon in a carbon pool. Carbon dioxide is naturally captured from the atmosphere through biological, chemical and physical processes. Natural carbon sinks that sequester carbon include forests, grasslands and soils.

Clean energy: Energy that comes from renewable, zero emissions sources that do not pollute the atmosphere when used.

Climate adaptation: Taking action to prepare for and adjust to both the current and projected impacts of climate change.

Climate stresses: Any significant change in the measures of climate lasting for an extended period of time that cause impact on the environment. These can be due to major changes in temperature, precipitation or wind patterns, among others, that occur over several decades or longer.

Coastal flooding: When water inundates or covers normally dry coastal land as a result of high or rising tides or storm surges.

Coastal High Hazard Areas (CHHAs): Special Flood Hazard Areas (SFHAs) along the coasts that have additional hazards due to wind and wave action. These areas are identified on Flood Insurance Rate Maps (FIRMs) as zones V, V1-V30 and VE.

Community: A specific group of people, often living in a defined geographic area, who share a common culture, values and norms and who are arranged in a social structure according to relationships the community has developed over a period of time. The term “community” encompasses worksites, schools and health care sites.

Community resilience: The ability of a community to prepare for anticipated natural hazards, adapt to changing conditions and withstand and recover rapidly from disruptions.

Comprehensive Plan: A local land use plan that provides principles, guidelines, standards and strategies for the orderly and balanced future economic, social, physical, environmental and fiscal development of the area that reflects community commitments to implement the plan and its elements. These principles and strategies shall guide future decisions in a consistent manner and shall contain programs and activities to ensure comprehensive plans are implemented.

Cost of living: The cost to maintain a standard of living associated with things such as transportation, housing, healthcare or other goods and services and the salary needed to reach that standard.

Critical infrastructure or facility: Systems and assets, whether physical or virtual, so vital that the incapacity or destruction of such may have a debilitating impact on the security, economy, public health or safety, environment or any combination of these matters. Critical infrastructure includes any system or asset that, if disabled or disrupted in any significant way, would result in catastrophic loss of life or catastrophic economic loss. Typical critical facilities include hospitals, fire stations, police stations, storage of critical records and similar facilities.

Demonstration project: These projects are short-term, low-cost, temporary projects for roadways, parks or buildings used to pilot potential long-term design solutions to improve public spaces.

Dwelling unit: A house, an apartment, a mobile home, a group of rooms, or a single room that is occupied (or if vacant, is intended for occupancy) as separate living quarters. Separate living quarters are those in which the occupants live and eat separately from any other persons in the building and which have direct access from the outside of the building or through a common hall.

Electric vehicles (EVs): Vehicles that use electricity, in part or in total, to improve operating efficiency.

- › **All-EVs:** Also called battery electric vehicles, have a battery that is charged by plugging the vehicle in to charging equipment. These vehicles always operate in all-electric mode.
- › **Plug-in Hybrid EVs:** PHEVs are powered by an internal combustion engine and an electric motor that uses energy stored in a battery. PHEVs can operate in all-electric (or charge-depleting) mode.
- › **Hybrid EVs:** HEVs are powered by an internal combustion engine and one or more electric motors that uses energy stored in a battery. The vehicle is fueled with gasoline to operate the internal combustion engine, and the battery is charged through regenerative braking, not by plugging in.

Emission Scopes: In addressing reduction of GHGs, emissions are defined in terms of “ownership:”

- › **Scope 1 emissions:** Includes direct emissions from sources that are owned and controlled by an entity, such as stationary sources and mobile sources.
- › **Scope 2 emissions:** Refers to indirect emissions associated with purchased electricity for heating, cooling and powering facilities.
- › **Scope 3 emissions:** Refers to indirect emissions that are generated by sources that are owned and controlled by others.

Emissions Sectors: Sectors assessed in GHG inventories include:

- › Emissions associated with the **Stationary Energy sector** result from the use of electricity, natural gas and fuel oil within the city's boundaries. Stationary energy serves residential, commercial and industrial uses, as well as other needs including street & highway lighting.
- › **Transportation sector** emissions are a combination of on-road vehicle activity and aviation travel. On-road vehicle activity includes both personal and commercial vehicles, as well as buses traveling on Pinellas County streets.
- › **Waste sector** emissions are generated from solid waste disposal at landfills, the biological treatment of organic waste (i.e., composting, or anaerobic digestion), the incineration of waste and wastewater treatment.
- › The **Agriculture, Forestry, and Other Land Use (AFOLU) sector** addresses GHG emissions emanating from land use changes and land management practices including nitrous oxide released from fertilizers, as well as methane produced in the digestive processes of livestock.

Energy audit: An "energy assessment" or "energy study" to determine where, when, why and how energy is used in a facility or home, and to identify opportunities to improve efficiency.

Energy burden: The percentage of gross household income spent on energy costs, calculated as annual utility bills divided by annual household income. Researchers define households with a 6% energy burden or higher to experience a high burden.

Energy efficiency measure (EE measure): A single technology, energy-use practice or behavior that, once installed or operational, results in a reduction in the electricity use required to provide the same or greater level of service at an end-use facility, premise or equipment connected to the delivery side of the electricity grid.

Energy efficiency project (EE project): A combination of measures, technologies, and energy-use practices or behaviors that, once installed or operational, result in a reduction in the electricity use required to provide the same or greater level of service.

Environmental justice: The fair treatment and meaningful involvement of all people, regardless of race, color, national origin, or income, with respect to the development, implementation and enforcement of environmental laws, regulations, and policies.

Extreme heat: A period of high heat and humidity with temperatures above 90 degrees for at least two to three days.

Fairness: Means that no population bears a disproportionate share of negative environmental or social consequences resulting from industrial, municipal and commercial operations or from the execution of federal, state, and local laws, regulations and policies.

Flood: A general and temporary condition of partial or complete inundation of 2 or more acres of normally dry land area or of 2 or more properties from the overflow of inland or tidal waters; unusual and rapid accumulation or runoff of surface waters; mudslides or the collapse or subsidence of land along a body of water.

Floodplain: Any land area susceptible to being inundated by floodwaters from any source.

Florida-friendly landscaping: Quality landscapes that conserve water, protect the environment, are adaptable to local conditions and are drought tolerant. The principles of such landscaping include planting the right plant in the right place, efficient watering, appropriate fertilization, mulching, attraction of wildlife, responsible management of yard pests, recycling yard waste, reduction of stormwater runoff and waterfront protection. Additional components include practices such as landscape planning and design, soil analysis, the appropriate use of solid waste compost, minimizing the use of irrigation and proper maintenance.

Food security: A household's access to available food. According to the U.S. Department of Agriculture, a community experiencing "high food security" experiences no reported indications of food-access problems or limitations. A community experiencing "marginal food security" reports two indications—typically of anxiety over food sufficiency or shortage of food in the house.

Green building: A holistic concept that starts with the understanding that the built environment can have profound effects, both positive and negative, on the natural environment, as well as the people who inhabit buildings every day. Green building is an effort to amplify the positive and mitigate the negative of these effects throughout the entire life cycle of a building.

Greenhouse gas (GHG): Gases that trap heat in the atmosphere. They include carbon dioxide (CO₂), methane (CH₄), and nitrous oxide (N₂O). These gases contribute to climate stresses and are reported in units of metric tons (MT) of CO₂ equivalents (CO₂e) based on the appropriate Global Warming Potentials (GWPs).

GHG inventory: A list of emission sources and the associated emissions quantified using standardized methods. The GHG inventory development process consists of four key steps:

- › Review accounting standards and methods, determining organizational and operational boundaries, and choosing a base year.
- › Collect data and quantify GHG emissions.
- › Develop a GHG Inventory Management Plan to formalize data collection procedures.
- › Set a GHG emission reduction target and track and report progress.

Healthy community: A community that is continuously creating and improving those physical and social environments and expanding those community resources that enable people to mutually support each other in performing all the functions of life and in developing to their maximum potential.

Heat island effect: The tendency of large, predominantly darker-colored areas of roofs, asphalt, concrete and paved surfaces to absorb the heat, making urban areas considerably hotter than nearby rural areas.

Incentive: something that incites or has a tendency to incite to determination or action.

Invasive species: A species that causes ecological or economic harm in an environment where it is not native.

Land use: The human use of land, representing the economic and cultural activities (e.g., agricultural, residential, industrial, mining and recreational uses) that are practiced at a given place.

Living laboratory: A place where problem-based teaching, research and applied work combine to develop actionable solutions that make that place more sustainable.

Low impact development: An approach to land development (or re-development) that works with nature to manage stormwater as close to its source as possible. LID employs principles such as preserving and recreating natural landscape features, minimizing effective imperviousness to create functional and appealing site drainage that treat stormwater as a resource rather than a waste product.

Microgrid: A combination of localized electricity generation sources, energy storage devices and multiple loads that acts as a small electric grid with respect to the main electric grid. A microgrid can operate interconnected or isolated from the main electric grid.

Migration corridor: Routes followed by animals, birds or fish that provide vital, natural passage necessary to maintain flourishing wildlife populations.

Mitigation: Capabilities necessary to reduce loss of life and property by lessening the impact of disasters. Mitigation capabilities include, but are not limited to, community-wide risk reduction projects; efforts to improve the resilience of critical infrastructure and key resource lifelines; risk reduction for specific vulnerabilities from natural hazards or acts of terrorism; and initiatives to reduce future risks after a disaster has occurred.

Mobility study: A study and plan which includes mobility and safety projects that can become part of the Pinellas County Capital Improvement Program (CIP).

Natural hazards: Environmental phenomena that have the potential to impact societies and the human environment.

Net zero: Producing, from renewable resources, as much energy on site as is used.

Opportunity Zones: Pinellas County has 16 Opportunity Zones, identified as economically distressed census tracts designated by the U.S. Treasury Department. New development or redevelopment in these areas can apply for incentives for a wide range of investments in real estate and operating companies.

Parametric insurance: A type of insurance contract that insures a policyholder against the occurrence of a specific event by paying a set amount based on the magnitude of the event, as opposed to the magnitude of the losses in a traditional policy.

Preparedness: A continuous cycle of planning, organizing, training, equipping, exercising, evaluating and taking corrective action in an effort to ensure effective coordination during incident response.

Quality of life: Referring to an overall sense of well-being with a strong relation to a person's health perceptions and ability to function. On a larger scale, quality of life can be viewed as including all aspects of community life that have a direct and quantifiable influence on the physical and mental health of its members.

Recovery: Those capabilities necessary to assist communities affected by an incident to recover effectively, including, but not limited to, rebuilding infrastructure systems; providing adequate interim and long-term housing for survivors; restoring health, social and community services; promoting economic development; and restoring natural and cultural resources.

Renewable Energy Certificates (RECs): A market-based instrument that certifies the bearer owns one megawatt-hour (MWh) of electricity generated from a renewable energy resource.

Renewable energy resource: An energy resource that can be replaced as it is used, including solar, wind, geothermal, hydro and biomass. Municipal solid waste (MSW) is also considered to be a renewable energy resource.

Resilience: Ability to adapt to changing conditions and withstand and rapidly recover from disruption due to emergencies.

Resilience hub: Community-serving facility augmented to support residents and coordinate resource distribution and services before, during or after a natural hazard event.

Risk (or vulnerability) assessment: The employment of software programs or recognized expert analysis to assess risk trends. Examples of informal assessments include a manual study of fire loss, burn injuries or life loss over a period of time and the causative factors for each occurrence.

Sea level rise: An increase in the level of the world's oceans.

Shocks: Short-term event that suddenly threaten a community's ability to function and have substantial negative effects.

Social vulnerability: The susceptibility of social groups to the adverse impacts of natural hazards, including disproportionate death, injury, loss or disruption of livelihood.

Solar energy: An energy resource produced by radiation from the sun.

Solar-plus-battery: A battery system that is charged by a connected solar system, such as a photovoltaic (PV) one. This system stores energy for use at night or in the event of a power outage.

Storm surge: The rise in seawater level caused solely by a storm, measured as the height of the water above the normal predicted astronomical tide.

Stresses: Long-term trends that weaken the ability of a community to function and succeed.

Sustainability: Meeting today's needs without compromising the ability of future generations to meet their needs.

Third-party certification: A process in which an independent organization has reviewed the manufacturing process of a product or operations of a facility and has independently determined that the final product complies with specific standards for safety, quality or performance.

Triple bottom line (TBL): A sustainability-based accounting method that focuses on people, profit and the planet. TBL differs from traditional reporting frameworks because it includes ecological and social aspects that are often difficult to measure.

Urban agriculture: Urban agriculture includes the cultivation, processing and distribution of agricultural products in urban and suburban areas. Community gardens, rooftop farms, hydroponic, aeroponic and aquaponic facilities, and vertical production are all examples of urban agriculture.

Vision Zero: Vision Zero is an transportation safety program that seeks solutions to provide safe, healthy and equitable mobility. It focuses on providing a data-driven approach to eliminate traffic fatalities and severe injuries on our roadway network.

Waste-to-Energy (MSW): Municipal solid waste (MSW), often called garbage, is used to produce energy at waste-to-energy plants and at landfills.

Water conservation: Any means of reducing water demand and limiting water use. Water efficiency measures can lead to significant reductions in water and sewer costs.

Weatherization: Measures to reduce household energy costs by increasing the energy efficiency of homes, while improving health and safety. Measures can include upgrades or retrofits to water and electric features, the building envelope or safety testing.



References

References to data and important information included in Resilient Pinellas are listed by page below.

PAGES 16 - 17

Information shared in the timeline reflects information shared in the *Toward a Sustainable and Resilient Pinellas* report (December 2020). Pinellas County Office of the County Administrator. [Sustainability and Resiliency Report - Pinellas County](#)

PAGE 18

Demographic data obtained from PLANPinellas (January 1, 2023). Pinellas County Government. [The Comprehensive Plan - Plan Pinellas](#). Map of incorporated areas of Pinellas County created via datasets from the Pinellas County Enterprise GIS site via [GIS Applications - Pinellas County](#)

PAGE 19

Demographic data obtained from PLANPinellas. Coastal High Hazard Area data obtained from *Toward a Sustainable and Resilient Pinellas*.

PAGE 20

Demographic data obtained from United States Census Bureau via [U.S. Census Bureau QuickFacts: Pinellas County, Florida](#) or PLANPinellas. Map of socioeconomic status indicators of Pinellas County created via datasets from the Pinellas County Enterprise GIS site via [GIS Applications - Pinellas County](#) and the Centers for Disease Control Social Vulnerability Index site via [CDC/ATSDR SVI Data and Documentation Download | Place and Health | ATSDR](#).

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Demographic data obtained from United States Census Bureau via [U.S. Census Bureau QuickFacts: Pinellas County, Florida](#) or PLANPinellas. Map of

socioeconomic status indicators of Pinellas County created via datasets from the Pinellas County Enterprise GIS site via [GIS Applications - Pinellas County](#) and the Centers for Disease Control Social Vulnerability Index site via [CDC/ATSDR SVI Data and Documentation Download | Place and Health | ATSDR](#).

PAGE 22

Demographic data obtained from United States Census Bureau via [U.S. Census Bureau QuickFacts: Pinellas County, Florida](#), *An Equity Profile of Pinellas County, Florida* (April 2019) via [UNITEPinellas-Summary-Report.pdf](#) or PLANPinellas. Map of socioeconomic status indicators of Pinellas County created via datasets from the Pinellas County Enterprise GIS site via [GIS Applications - Pinellas County](#) and the Centers for Disease Control Social Vulnerability Index site c

PAGE 23

Demographic data obtained from *An Equity Profile of Pinellas County, Florida*, The Center for Neighborhood Technology's Housing and Transportation (H+T®) Affordability Index via [H+T Map | H+T Index \(cnt.org\)](#) or PLANPinellas. Map of socioeconomic status indicators of Pinellas County created via datasets from the Pinellas County Enterprise GIS site via [GIS Applications - Pinellas County](#) and the Centers for Disease Control Social Vulnerability Index site via [CDC/ATSDR SVI Data and Documentation Download | Place and Health | ATSDR](#).

PAGE 24

Data on the built environment obtained from *Fast Facts about Pinellas County* via [Fast Facts About Pinellas County - Pinellas County](#). Map of land uses created

via datasets from the Pinellas County Enterprise GIS site via [GIS Applications - Pinellas County](#) and the Southwest Florida Water Management District (SWFWMD) via <https://data-swfwmd.opendata.arcgis.com/>

PAGE 25

Data on natural spaces obtained from *Fast Facts about Pinellas County* via [Fast Facts About Pinellas County - Pinellas County](#). Map of recreational uses created via datasets from the Pinellas County Enterprise GIS site via [GIS Applications - Pinellas County](#).

PAGE 26

Data on economic vitality obtained the Pinellas County 2022 Accomplishments Report via [2022 Accomplishments Report - Pinellas County](#). Map of recreational uses created via datasets from the Pinellas County Enterprise GIS site via [GIS Applications - Pinellas County](#).

PAGE 28

Data on sustainability or resiliency actions residents make obtained via public survey results. The public survey on sustainability and resiliency was released in the fall of 2021 by Pinellas County to inform the development of Resilient Pinellas.

PAGE 29

Data on average daily temperatures, days with maximum temperature, total annual precipitation and average inches of rain through the hurricane season obtained from The Climate Explorer via [Climate Explorer \(nemac.org\)](#)

PAGE 30

Data on public opinion on climate change obtained via public survey results. The public survey on sustainability and resiliency was released in the fall of 2021 by Pinellas County to inform the development of Resilient Pinellas.

PAGE 31

Data on priority shocks and stresses identified by the community obtained via public survey results. The public survey on sustainability and resiliency was released in the fall of 2021 by Pinellas County to inform the development of Resilient Pinellas.

PAGE 32

Data on flooding and sea level rise impacts obtained from *Toward a Sustainable and Resilient Pinellas*. Map of potential storm surge inundation areas created via datasets from the Pinellas County Enterprise GIS site via [GIS Applications - Pinellas County](#) or data prepared through the development of the *Sea Level Rise and Storm Surge Vulnerability Assessment*.

PAGE 33

Data on parameter and selected sea level rise projections obtained from the Pinellas County *Sea Level Rise and Storm Surge Vulnerability Assessment*. Map of tidal inundation areas created via datasets from the Pinellas County Enterprise GIS site via [GIS Applications - Pinellas County](#) or data prepared through the development of the *Sea Level Rise and Storm Surge Vulnerability Assessment*.

PAGES 34-35

GHG emissions data for local government operations and the unincorporated area of Pinellas County reflects the results of the Pinellas County 2019 GHG Emissions Inventory Results prepared as a part of Resilient Pinellas Action Plan development.

PAGE 54

Data reflecting estimates on insurance premiums related to the NFIP program obtained through Pinellas County via [Community Rating System - Pinellas County](#). The quote reflects a free response answer received via public survey results. The public survey on sustainability and resiliency was released in the fall of 2021 by Pinellas County to inform the development of Resilient Pinellas.

PAGE 55

The quote reflects a free response answer received via public survey results. The public survey on sustainability and resiliency was released in the fall of 2021 by Pinellas County to inform the development of Resilient Pinellas.

PAGE 56

Data reflecting the number of emergency shelters received from Pinellas County via email.

PAGE 57

Data reflecting needs for Pinellas County services obtained via public survey results. The public survey on sustainability and resiliency was released in the fall of 2021 by Pinellas County to inform the development of Resilient Pinellas.

PAGE 58

Data reflecting the percent of people to experience hurricanes in their lifetime in Pinellas County received from Pinellas County via email.

PAGE 61

Data reflecting topic areas for Resilient Pinellas obtained via public survey results. The public survey on sustainability and resiliency was released in the fall of 2021 by Pinellas County to inform the development of Resilient Pinellas.

PAGE 62

Data on sustainability or resiliency actions residents make obtained via public survey results. The public survey on sustainability and resiliency was released in the fall of 2021 by Pinellas County to inform the development of Resilient Pinellas. Quotes on community ideas to divert materials from the landfill obtained via public survey results.

PAGE 68

Data on priority stresses identified by the community obtained via public survey results. The public survey on sustainability and resiliency was released in the fall of 2021 by Pinellas County to inform the development of Resilient Pinellas.

PAGE 69

Quotes on community ideas to support green business practices obtained via public survey results. The public survey on sustainability and resiliency was released in the fall of 2021 by Pinellas County to inform the development of Resilient Pinellas.

PAGE 71

Quotes on community ideas to resilient housing obtained via public survey results. The public survey on sustainability and resiliency was released in the fall of 2021 by Pinellas County to inform the development of Resilient Pinellas.

PAGE 72

Data on energy burden in Pinellas County obtained from the U.S. Department of Energy Low-Income Energy Affordability Data (LEAD) Tool via [LEAD Tool | Department of Energy](#).

PAGE 75

Data on green jobs obtained from the Solar Energy Industries Association *National Solar Jobs Census 2020* report via [National Solar Jobs Census 2020 \(seia.org\)](#).

PAGE 78

Data reflecting topic areas for Resilient Pinellas obtained via public survey results. The public survey on sustainability and resiliency was released in the fall of 2021 by Pinellas County to inform the development of Resilient Pinellas.

PAGE 79

Data on paved roads and sidewalks in Pinellas County obtained from *Fast Facts about Pinellas County* via [Fast Facts About Pinellas County - Pinellas County](#).

PAGE 80

Data on the economic vitality of the arts in Pinellas County obtained from the *Regional Arts Dialogue* report prepared by Creative Pinellas via [FINAL-Creative-Pinellas-Regional-Arts-Dialogue-Report-and-Community-Plan-for-Pinellas-County.pdf \(creativepinellas.org\)](#)

PAGE 84

Quotes on community ideas on the importance of Florida-friendly landscaping obtained via public survey results. The public survey on sustainability and resiliency was released in the fall of 2021 by Pinellas County to inform the development of Resilient Pinellas.

PAGE 86

The quote reflects a free response answer received via public survey results. The public survey on sustainability and resiliency was released in the fall of 2021 by Pinellas County to inform the development of Resilient Pinellas.

PAGE 87

Data on priority shocks identified by the community obtained via public survey results. The quote reflects a free response answer received via public survey results.

The public survey on sustainability and resiliency was released in the fall of 2021 by Pinellas County to inform the development of Resilient Pinellas.

PAGE 92

Data on public opinion on climate change and priority shocks for Pinellas County obtained via public survey results. The public survey on sustainability and resiliency was released in the fall of 2021 by Pinellas County to inform the development of Resilient Pinellas.

PAGE 92

Data on repetitive loss areas received from Pinellas County via the Local Mitigation Strategy (LMS).

PAGE 95

Data on priority stresses identified by the community obtained via public survey results. Quotes on community ideas to improve community health obtained via public survey results. The public survey on sustainability and resiliency was released in the fall of 2021 by Pinellas County to inform the development of Resilient Pinellas.

PAGE 100

Data on sidewalk improvements in Pinellas County obtained from Pinellas County via [Public Works Department - Pinellas County](#). The quote reflects a free response answer received via public survey results. The public survey on sustainability and resiliency was released in the fall of 2021 by Pinellas County to inform the development of Resilient Pinellas.

PAGE 101

Data on critical assets in Coastal High Hazard Areas obtained from Pinellas County via the Local Mitigation Strategy (LMS).

PAGE 105

Data on public opinion on Pinellas County obtained via public survey results. The quote reflects a free response answer received via public survey results. The public survey on sustainability and resiliency was released in the fall of 2021 by Pinellas County to inform the development of Resilient Pinellas.

PAGE 106

Map of LEED certified buildings created via datasets from the Pinellas County Enterprise GIS site via [GIS Applications - Pinellas County](#) and the USGBC LEED project directory via <https://www.usgbc.org/projects>.

PAGE 108

Data on priority stresses identified by the community obtained via public survey results. The public survey on sustainability and resiliency was released in the fall of 2021 by Pinellas County to inform the development of Resilient Pinellas.

PAGE 112

The quote reflects a free response answer received via public survey results. The public survey on sustainability and resiliency was released in the fall of 2021 by Pinellas County to inform the development of Resilient Pinellas.

PAGE 114

Quotes on community ideas on electric vehicles obtained via public survey results. The public survey on sustainability and resiliency was released in the fall of 2021 by Pinellas County to inform the development of Resilient Pinellas. Map of electric vehicle charging stations created via datasets from the Pinellas County Enterprise GIS site via [GIS Applications - Pinellas County](#).

PAGE 114

Quotes on community ideas for Resilient Pinellas obtained via public survey results. The public survey on sustainability and resiliency was released in the fall of 2021 by Pinellas County to inform the development of Resilient Pinellas.

PAGE 117

Data on organics in the solid waste stream in Pinellas County obtained from the Pinellas County Solid Waste Master Plan via [Solid Waste Master Plan Document - Pinellas County](#).

PAGE 114

Quotes on community support for recycling obtained via public survey results. The public survey on sustainability and resiliency was released in the fall of 2021 by Pinellas County to inform the development of Resilient Pinellas.

PAGE 122

Data reflecting priority topics for Resilient Pinellas obtained via public survey results. The public survey on sustainability and resiliency was released in the fall of 2021 by Pinellas County to inform the development of Resilient Pinellas.

PAGE 123

Data on people living within a 10-minute walk of a healthy food source obtained from the Florida Department of Health via [Population Living Within ½ Mile of a Healthy Food Source - Florida Health CHARTS - Florida Department of Health \(flhealthcharts.gov\)](#)

PAGE 124

Data on insurance claims obtained from Pinellas County via the Local Mitigation Strategy (LMS).

PAGE 125

Quotes on community support for trails obtained via public survey results. The public survey on sustainability and resiliency was released in the fall of 2021 by Pinellas County to inform the development of Resilient Pinellas.

PAGE 127

The quote reflects a free response answer received via public survey results. The public survey on sustainability and resiliency was released in the fall of 2021 by Pinellas County to inform the development of Resilient Pinellas.

PAGE 128

Data on ARPA funding in Pinellas County obtained from the Pinellas County 2022 Accomplishments Report via [2022 Accomplishments Report - Pinellas County](#).

PAGE 130

Data on free and reduced lunch received from the Florida Department of Education.

PAGE 131

Quotes on community support for trees obtained via public survey results. The public survey on sustainability and resiliency was released in the fall of 2021 by Pinellas County to inform the development of Resilient Pinellas. GHG emissions data reflects the results of the Pinellas County 2019 GHG Emissions Inventory Results prepared as a part of Resilient Pinellas Action Plan development. Data on energy savings due to trees obtained from the U.S. Department of Energy via [Landscaping for Energy Efficiency](#)

PAGE 132

The quote reflects a free response answer received via public survey results. The public survey on sustainability and resiliency was released in the fall of 2021 by Pinellas County to inform the development of Resilient Pinellas.

PAGE 133

Data on priority stresses identified by the community obtained via public survey results. The public survey on sustainability and resiliency was released in the fall of 2021 by Pinellas County to inform the development of Resilient Pinellas. Data on average daily temperatures obtained from The Climate Explorer via [Climate Explorer \(nemac.org\)](#).





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