Southeast Florida Regional Climate Action Plan 3.0

Draft v.2

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About the RCAP 3.0

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Glossary of Terms

Adaptation Action Areas (AAAs)	A designation in the coastal management element of a local government's comprehensive plan which identifies areas that experience coastal flooding due to extreme high tides, storm surge, and sea level rise. AAA designation allows such areas to receive prioritized funding for infrastructure needs and adaptation planning.
Allied healthcare	Medical professionals who work to prevent, diagnose and treat diseases and illnesses. They also apply management and administration skills to support health care systems and apply scientific principles and evidence-based practices to assist patients.
Agrivoltaics	Agricultural production, such as crop production, livestock grazing and pollinator habitat that exist underneath solar panels and/or in between rows of solar panels, where co-location allows both the solar panels and agriculture production to perform better.
Carbon farming	The process of changing agricultural and land use practices to increase the amount of carbon stored in the soil and vegetation (sequestration) and to reduce greenhouse gas emissions from livestock, soil, or vegetation (avoidance).
Central and Southern Florida (C&SF) Flood Control Study	The Central and South Florida Project is a multi-purpose project, first authorized by Congress in 1948, that provides flood control, water supply for municipal, industrial, and agricultural uses, prevention of saltwater intrusion, water supply for Everglades National Park and protection of fish and wildlife resources. The primary system includes about 1,000 miles each of levees and canals, 150 water control structures and 16 major pump stations. The C&SF Study would analyze the current Central and South Florida Project, designed 72 years ago, to determine what infrastructure is at the highest risk of impact from a changing climate and address flood vulnerabilities, water supply needs and surge protection.
Climate resilience	The ability to anticipate, prepare for and respond to acute shocks/disruptions/hazardous events or longer-term, chronic stressors related to or exacerbated by climate change. Improving climate resilience involves assessing how climate change will create new, or alter current, climate-related risks, and taking steps to better cope with these risks. Climate resilience includes both adaptation and mitigation strategies.
Community rating system (CRS)	A voluntary incentive program that recognizes and encourages community floodplain management practices that exceed the minimum requirements of the National Flood Insurance Program.
Comprehensive Everglades Restoration Plan (CERP)	The single largest restoration program underway in the South Florida Ecosystem. The CERP, authorized by the Water Resources Development Act (WRDA) of 2000, is implemented by a federal-state partnership to restore, protect and preserve the region's water resources by addressing the quantity, quality, timing and distribution of water.
Complete streets	Streets designed and operated to enable safe use and to support mobility for all users. Those include people of all ages and abilities, regardless of whether they are traveling as drivers, pedestrians, bicyclists, or public transportation riders.
Design storm event	A hypothetical storm event, of a given frequency interval and duration, used in analysis and design.

Energy burden	The percentage of gross household income spent on energy costs. Of all U.S. households, 25% face a high energy burden (i.e., pay more than 6% of income on energy bills) and 13% of U.S. households face a severe energy burden (i.e., pay more than 10% of income on energy).
Exposure-outcome association	An assessment that describes how the likelihood of an adverse health effect (outcome) is related to an environmental hazard (exposure). In the context of climate change, the exposures of interest could directly be weather-related, like ambient temperature, precipitation and extreme weather events; or weather-mediated, like pollen levels or factors affecting the environmental presence of water-borne or vector-borne pathogens.
Flood Protection Level of Service (FPLOS)	A program of the South Florida Water Management District to identify and prioritize long-term infrastructure improvement needs, and develop an implementation strategy to assure that each basin can maintain its designated Flood Protection Level of Service in a technical and cost-effective manner in response to population growth, land development, sea level rise and climate conditions change.
Form-based codes	A way to regulate development that controls building form first and building use second, with the purpose of achieving a particular type of "place" or built environment based on a community vision.
Frontline communities	The term frontline communities/populations is used throughout this document to broadly describe those both highly exposed to climate risks and with fewer resources, capacity, safety nets, or political power to respond to those risks. This includes, but is not limited to, those with low income or low wealth, people of color, the elderly, the unhoused, immigrants, differently-abled people, youth, outdoor workers, non-English speakers and those with chronic health conditions.
Hybrid infrastructure	The integration of green infrastructure, or nature-based systems/features/areas with more traditional, man-made, "gray" infrastructure approaches (e.g. pipes, pumps, seawalls, etc.).
Intelligent transportation systems (ITS)	The application of sensing, analysis, control and communications technologies to ground transportation in order to improve safety, mobility and efficiency. ITS includes a wide range of applications that process and share information to ease congestion, improve traffic management, minimize environmental impact and increase the benefits of transportation to commercial users and the public in general.
Inclusive financing	All individuals and businesses have access to useful and affordable financial products regardless of their personal net worth or company size.
Integrated delivery schedule	A forward-looking snapshot of upcoming design and construction schedules and programmatic costs at a "top" line level for the South Florida Ecosystem Restoration Program. It is a tool that provides information to decision-makers—synchronizing program and project priorities with the State of Florida and achieving the Comprehensive Everglades Restoration Plan objectives at the earliest practicable time, consistent with annual funding updates and the interdependencies between project components.
Integrated water management	An integrated and coordinated approach to managing water that looks holistically at the planning and management of land and water supply, wastewater, and stormwater systems to maximize economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems and the environment.

Just transition	A principle, an inclusive process and a practice that ensures that as we transition towards a low-carbon, more resilient and sustainable economy, the distribution of the benefits and potential costs are shared equitably. A Just Transition puts people at the center, minimizing the burdens decarbonization poses to those who work in or are dependent on carbon-intensive, extractive industries, and bolsters inclusive economic opportunities shared by all.
Last mile connections	This term describes the beginning or end of an individual trip made primarily by public transportation.
Lower East Coast Water Supply Plan	A Plan that presents population and water demand projections through 2040, a review of water supply issues and evaluations, and a list of water source options. It also examines local and regional water supply efforts completed since the 2013 plan update and describes water resource and water supply development projects from 2016 to 2040. The Lower East Coast Water Supply Plan Area covers all of Palm Beach, Broward, and Miami-Dade counties, most of Monroe County, and portions of eastern Hendry and Collier counties.
Low- to moderate-income (LMI)	Families and individuals whose annual incomes do not exceed 80% of the area median income as determined by the U.S. Department of Housing and Urban Development. This definition includes very low-, low-, and moderate-income households.
Micro-mobility	Includes any small, low-speed, human- or electric-powered transportation device, including bicycles, scooters, electric-assist bicycles, electric scooters (e-scooters), and other small, lightweight, wheeled conveyances. Such devices are typically partially or fully motorized, low-speed, and small in size.
Nature-based solutions	Nature-based solutions or approaches are sustainable planning, design, environmental management, and engineering practices that weave natural features or processes into the built environment to promote adaptation and resilience. Nature-based solutions offer significant monetary and non-monetary benefits and can come at a lower cost than traditional "gray" infrastructure. Co-benefits include economic growth, green jobs, increased property values, and better public health. Throughout this document, we also use the term "green infrastructure" as synonymous with nature-based solutions.
Net zero	Cutting greenhouse gas emissions to as close to zero as possible, with any remaining emissions re-absorbed from the atmosphere by oceans and forests. It refers to a balance between greenhouse gas emissions produced and greenhouse gas emissions taken out of the atmosphere
Participatory budgeting	A citizen engagement process through which community members decide how to allocate a portion of a public budget.
Photo-voicing	A participatory method, defined by its creators Wang and Burris 1997 as a "process by which people can identify, represent and enhance their community through a specific photographic technique". It uses images as a tool to deconstruct problems by posing meaningful questions in a community to find actionable solutions.
Precision agriculture	The science of improving crop yields, reducing labor time and assisting management decisions related to fertilizer use and irrigation using high technology sensors and analysis tools.
Purchase of Development Rights (PDR) Programs	Voluntary programs to permanently preserve viable farmland through the acquisition of development rights while retaining private ownership and management.

Renewable energy	Energy derived from natural processes (e.g. sunlight and wind) that are replenished at a higher rate than they are consumed. Solar, wind, geothermal, hydro, and biomass are common sources of renewable energy.
Resilience hubs	Community-serving facilities augmented to support residents, coordinate communication, distribute resources and reduce carbon pollution while enhancing quality of life. Hubs provide an opportunity to effectively work at the nexus of community resilience, emergency management, climate change mitigation and social equity. These facilities also provide opportunities for communities to become more self-determining, socially connected, and successful before, during, and after disruptions.
Resilience standards	Standards developed in accordance with predicted future conditions scenarios intended to ensure that infrastructure meets level of service standards for the expected design life.
Salinity control structures	Structures that control saltwater intrusion along a surface-water channel and assist in controlling saltwater intrusion into shallow aquifers.
Seepage barriers	Structures to control and mitigate the flow, or seepage, of water. Depending on the seepage barrier method employed, they are constructed using soil and bentonite, cement and bentonite, concrete, balanced stable cement grout, or chemical grout.
Soft costs	Costs that are not associated with the hardware components of solar energy systems, including design, siting, permitting, installation, interconnection and financing. They also include the sales, general, and administrative expenses solar companies incur for customer acquisition, workforce training and certification, supply chain and inventory control, and operating overhead.
Solar co-op	A group of property owners who leverage their bulk-purchasing power to decrease the cost of going solar, while still signing individual contracts that ensure the correct system for their application.
Transfer of development rights	A zoning technique used to permanently protect land with conservation value (such as farmland, community open space, or other natural or cultural resources) by redirecting development that would otherwise occur on this land (the sending area) to an area planned to accommodate growth and development (the receiving area). Such programs financially compensate landowners for choosing not to develop some or all of their land.
Transportation demand management	A combination of policies, programs, information, services and tools that work with the transportation infrastructure and operations to support the use of sustainable modes for all trips, encouraging travelers to maximize the efficiency of a transportation system, and leading to improved mobility, reduced congestion, and lower vehicle emissions.
Vehicle-to-grid technology	Technology that allows idle or parked electric vehicles (EVs) to act as distributed sources, which can store or release energy at appropriate times, thus allowing the exchange of power between the network and the EV. This increases the total capacity of electricity generation and improves the stability, reliability and efficiency of the network.
Vision zero	A strategy to eliminate all traffic fatalities and severe injuries, while increasing safe, healthy, equitable mobility for all.

List of Acronyms

AAA	Adaptation Action Area
ALICE	Asset-Constrained, Limited Income, Employed
BFE	Base Flood Elevation
BMPs	Best management practices
CEDS	Comprehensive Economic Development Strategy
CERP	Comprehensive Everglades Restoration Plan
CRS	Community Rating System
C&SF	Central and Southern Florida Flood Control Study
DEO	Florida Department of Economic Opportunity
EPA	Environmental Protection Agency
EV	Electric vehicle
EVSE	Electric vehicle supply equipment
GHG	Greenhouse gas
HHS	Health and Human Services
IPCC	Intergovernmental Panel on Climate Change
FDACS	Florida Department of Agriculture and Consumer Services
FDEP	Florida Department of Environmental Protection
FDOH	Florida Department of Health
FDOT	Florida Department of Transportation
FFS	Florida Forest Service
FPLOS	Flood Protection Level of Service
FWC	Florida Fish and Wildlife Conservation Commission
NFIP	National Flood Insurance Program
NOAA	National Oceanic and Atmospheric Administration
OSHA	Occupational Health and Safety Administration
PSC	Public Service Commission
RCAP	Regional Climate Action Plan

SFWMD	South Florida Water Management District
SLR	Sea level rise
SOV	Single-occupancy vehicle
SOVI	Social Vulnerability Index
TDM	Transportation demand management
TOD	Transit-oriented development
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture
USFS	U.S. Forest Service
USGS	U.S. Geological Survey
V2G	Vehicle to grid
VMT	Vehicle miles traveled

Agriculture

GOAL: Ensure the continued viability, sustainability and equity of agriculture in Southeast Florida in the face of climate change.

Agriculture is consistently one of the three strongest sectors of Florida's economy and serves as a stabilizing contributor to gross state product during cyclical downturns in the other major economic sectors. In 2018, Florida's crop, livestock, forestry and fishery production generated $10.2 billion in sales revenue. Southeast Florida's subtropical and tropical climates create a unique set of growing conditions that allow for the production of 200 to 300 different crops, including temperate crops in the winter, and tropical and subtropical crops year-round. Florida is first in the United States in the value of cucumbers, grapefruit, squash, sugarcane, tomatoes, radishes, guavas, mangoes, passionfruit, watermelon and kumquats. The region contributes to the food security of the nation by supplying the entire East Coast with winter produce.

The agriculture sector is a source of greenhouse (GHG) gas emissions. It is thus a contributor to climate change, but also at risk to the impacts of increasing climate variability and change. Climate change presents a myriad of challenges to the Southeast Florida agricultural sector ranging from increased pests and diseases, frequent and increasingly intense natural disasters and the threat of extreme heat to farm workers. Changes in prevailing rainfall patterns and increasing average temperatures may also adversely affect crop productivity. Policies and best management practices that encourage sustainable production, and improve water efficiency and reliability, can simultaneously bolster the resilience and adaptive capacity of the sector while also decreasing the carbon intensity of production. There is significant opportunity for the industry to also play an integral role in carbon sequestration through "carbon farming," and regenerative practices. Properly managed and protected agricultural land may also confer other benefits such as reducing the urban heat island effect, providing wildlife habitat, enhancing food security and reducing reliance on imported products, preserving local jobs, and guarding across urban sprawl. Urban agriculture plays an important role in improving food security, particularly for those living in food deserts—geographic areas where residents have few to no convenient options for securing affordable and healthy foods, especially fresh fruits and vegetables. Urban gardens encourage social cohesion—providing places for neighbors to come together, build community bonds and connect people with each other, nature and the source of their food.

Recommendations

AG-1 Assess the regional agricultural sector's climate vulnerability and relative contribution to regional emissions, expand research and outreach to address risks, and advance practices to increase resilience and reduce emissions of agriculture in the region.

AG 1.1 Conduct research to ascertain the relative contribution of the agricultural industry to regional emissions and assess the vulnerability of the sector to current and future climate change impacts.
IMPLEMENTER: academic institutions
State/Federal Partners: FDACS

AG 1.2 Review and assess current Florida agricultural best management practices (BMPs) as they relate to the management of current and projected climate conditions and strategies for GHG mitigation relevant to the region. Integrate climate-smart management practices into BMPs.
IMPLEMENTER: academic institutions
State/Federal Partners: FDACS

AG 1.3 Facilitate sharing of climate-related agriculture research with local farmers and the agriculture industry.
IMPLEMENTER: academic institutions, extension offices

AG 1.4 Advocate for increased funding to cost-share programs that assist farmers in implementing climate-smart best management practices.
IMPLEMENTER: local governments, agriculture industry
State/Federal Partners: FDACS, USDA

AG 1.5 Advance research related to the impact of climate change agriculture adaptation in Southeast Florida, such as but not limited to, monitoring systems, best management practices, climate-smart crops, management systems for agriculture, and ecosystem services.
IMPLEMENTER: agriculture industry, professional/trade associations, academic institutions
State/Federal Partners: USDA

AG 1.6 Develop processes with agricultural extension services for regularly identifying the most pressing climate-related data and research needs for the agriculture industry in Southeast Florida with representatives of different agricultural sectors.
IMPLEMENTER: extension offices, agriculture industry

AG-2 Promote policies and programs to strengthen the economic viability and resilience of the regional agriculture industry in the face of increasing climate change impacts and other pressures for the conversion of agricultural lands.

AG 2.1 Advocate for policies that enhance the resilience of the agriculture industry to climate change impacts, including increased drought, increased heat, flooding, sea level rise, groundwater salinization, non-native species invasion and changing rainfall conditions.
IMPLEMENTER: local governments, non-profit organizations, SFWMD, water utilities, advocacy organizations

AG 2.2 Coordinate state advocacy related to advancing resilient agriculture among county and local government officials.
IMPLEMENTER: counties, advocacy organizations

AG 2.3 Implement local land use, zoning, water management and other policies that help the agriculture sector operate effectively and manage climate impacts.
IMPLEMENTER: local governments, SFWMD
State/Federal Partners: FDACS, USACE

AG 2.4 Assess and advocate for potential federal designation avenues that would aid the management of Southeast Florida agricultural lands, such as the Department of Agriculture's Regional Conservation Partnership Program or the Department of Homeland Security's Critical Infrastructure Sectors.

IMPLEMENTER: local governments, agriculture industry, professional/trade associations

AG 2.5 Maintain or expand current state and county Purchase of Development Rights (PDR) program funding, also known as Purchase of Agricultural Conservation Easements, as a strategy to protect agricultural lands. Funding mechanisms include municipal bonds, state funds and federal matching funds through the Agricultural Easement Program. Current Florida PDR programs include:

- Rural and Family Lands Program (Florida Department of Agriculture and Consumer Services)
- Purchase of Development Rights Program (Miami-Dade County)
- Agricultural Reserve (Palm Beach County)

IMPLEMENTER: local governments
State/Federal Partners: FDACS

AG-3 Advance best management practices and technological solutions to support sustainable, resilient and low-emissions agriculture.

AG 3.1 Invest in connectivity to allow the successful implementation of precision agriculture.
IMPLEMENTER: agricultural industry
State/Federal Partners: USDA

AG 3.2 Create education and incentive programs to encourage sustainable food production techniques that preserve soil and water quality, promote water conservation and efficiency and preserve biodiversity.
IMPLEMENTER: academic institutions
State/Federal Partners: FDACS, USDA

AG 3.3 Advocate for incentives and programs to diversify agriculture systems and support the implementation of rotational agriculture, when feasible. Help connect USDA Natural Resource Conservation Service and FDACS programs, such as EQUIP Conservation Innovation grant, with stakeholders.
IMPLEMENTER: local governments, professional/trade associations
State/Federal Partners: FDACS, USDA

AG-4 Continue to meet the water needs of agriculture.

AG 4.1 Review local water management goals against relevant FDACS resources and plans, and consider alignment as appropriate.
IMPLEMENTER: SFWMD, drainage and water control districts
State/Federal Partners: FDACS

AG 4.2 Consider Southeast Florida's agricultural needs when updating current water management infrastructure in order to maintain high-quality agricultural water supply at a reasonable cost, and meet Southeast Florida's irrigation and crop freeze protection needs.
IMPLEMENTER: SFWMD, water utilities

AG 4.3 Invest in mutually beneficial data and shared water infrastructure, such as seepage barriers, forward pumps on salinity control structures and water-use census data.
IMPLEMENTER: SFWMD, local governments
State/Federal Partners: USACE, NPS

AG 4.4 Implement and provide guidance regarding best practices related to efficient irrigation management to conserve water and reduce energy consumption on farms including, but not limited to, drip irrigation, irrigation scheduling, drought tolerant crops, rotational grazing and other strategies.
IMPLEMENTER: agricultural industry, extension offices, academic institutions
State/Federal Partners: FDACS

AG-5 Reduce greenhouse gas emissions associated with agriculture.

AG 5.1 Decrease GHG emissions associated with agriculture through energy and water efficiency improvements and the expanded use of renewable energy to power agricultural operations and transportation, including but not limited to onsite solar and, where appropriate, agrivoltaics.
IMPLEMENTER: agriculture Industry

AG 5.2 Encourage and incentivize the use of best practices for land and soil management for carbon sequestration, and expand research and measurement of existing and future benefits.
IMPLEMENTER: academic institutions, local governments
State/Federal Partners: FDACS

AG 5.3 Disseminate and incorporate best management practices for livestock production systems that minimize GHGs and increase resilience to the impacts of climate change.
IMPLEMENTER: academic institutions, agriculture industry
State/Federal Partners: FDACS

AG-6 Promote locally produced foods and goods to reduce food distribution impacts and promote local economic benefits.

AG 6.1 Develop and disseminate communication campaigns about the value of locally produced food, including:

- Fresh From Florida (Florida Department of Agriculture and Consumer Services)
- Redland Raised (Miami-Dade County)
- Sustainable Floridians training program (Palm Beach County)

IMPLEMENTER: extension offices, local governments, non-profit organizations, community-based organizations
State/Federal Partners: FDACS

AG 6.2 Support farmers markets and other local distribution channels, through reducing regulatory and permitting barriers, and encourage restaurants and food stores to offer locally grown food.
IMPLEMENTER: local governments, economic development organizations, agriculture industry, non-profit organizations, community-based organizations
State/Federal Partners: FDACS

AG-7 Increase urban agriculture, gardening and other backyard agricultural practices.

AG 7.1 Identify and reduce zoning obstacles for urban agricultural practices, such as vertical and rooftop farming, growing and selling produce, and keeping chickens and/or beehives. Steps to reduce obstacles include:

- Amending zoning codes to allow for specific agricultural animals in residential districts
- Establishing a pilot permit program to incrementally increase the number of agricultural animals

- Explicitly excluding agricultural activities in nuisance laws and aesthetic regulations

IMPLEMENTER: local governments

AG 7.2 Establish local networks of urban agriculture practitioners to share resources, knowledge and best practices.
IMPLEMENTER: extension offices, agricultural industry

AG-8 Increase resources for the study and implementation of invasive, non-native pest and pathogen prevention, early detection and rapid response.

AG 8.1 Identify current invasive and non-native pests and pathogens threatening the agriculture sector and review the projected risk exacerbated by climate change.
IMPLEMENTER: academic institutions, local governments
State/Federal Partners: FDACS, FWC

AG 8.2 Prioritize the detection and response required based upon the projected risk, and develop public-private research plans with farmers, academic institutions and local governments.
IMPLEMENTER: academic institutions, local governments
State/Federal Partners: FDACS

AG 8.3 Track and collectively seek state and federal funding opportunities for research of non-native pest and pathogen prevention, based on the documented risk to the local agricultural economy.
IMPLEMENTER: agriculture industry, academic institutions, local governments

AG-9 Expand the integration of native pollinators to bolster the resilience of agriculture.

AG 9.1 Advance research regarding pollinator health and the impacts of climate change on pollinators.
IMPLEMENTER: extension offices, academic institutions
State/Federal Partners: FDACS

AG 9.2 Expand the inclusion of native pollinators in gardens and private, local and state-wide landscaped lands. Include apiaries in community gardens.
IMPLEMENTER: local governments, non-profit organizations, community-based organizations

AG 9.3 Expand leasing of government-owned and -managed natural areas to beekeepers.
IMPLEMENTER: local governments

AG-10 Assess and address public health risks of more frequent and intense high-heat days to farm workers.

AG 10.1 Work with the agricultural industry and public health professionals to identify and quantify risks to farm workers associated with increasing heat.
IMPLEMENTER: academic institutions
State/Federal Partners: FDOH

AG 10.1 Develop and promote heat-stress minimization best practices for farm workers.
IMPLEMENTER: extension offices

State/Federal Partners: FDOH

AG 10.2 Expand and fund education on heat illness for agricultural managers and workers, ensuring educational materials are produced in the native languages of farm workers.

IMPLEMENTER: extension offices, academic institutions, non-profit organizations, community-based organizations

State/Federal Partners: FDACS

AG 10.3 Advocate for the adoption of farm labor safety policies that address heat-related dangers.

IMPLEMENTER: local governments, community-based organizations, non-profit organizations, advocacy organizations

State/Federal Partners: FDACS

Energy

GOAL: Increase regional energy resilience through a just and equitable transition from non-renewable to renewable energy sources and accelerate progress towards net zero greenhouse gas emissions (GHG).

There is scientific consensus[1] that limiting global warming to 1.5 degrees Celsius above pre-industrial levels, the science-based target established by the Intergovernmental Panel on Climate Change (IPCC), is critical to human health, safety, food security, water supply, ecosystem health, and the ability to manage impacts from climate change. Like many local and state governments across the United States, Southeast Florida governments seek to provide leadership in urgently addressing the root causes of global climate change by reducing energy-related GHG emissions and reaching carbon neutrality. Net zero GHG emissions is defined by the United Nations as cutting GHG emissions to as close to zero as possible, with any remaining emissions re-absorbed from the atmosphere by oceans and forests[2] by 2050.

According to the Energy Information Administration, in 2019, Florida was the third largest emitter by state, producing 231 million metric tons of carbon dioxide, which is equivalent to powering 29 million households for one year. In terms of global contribution, the state emits more carbon emissions than many countries, including Bangladesh, Peru and Bolivia. The Southeast Florida region represents roughly a third of the state's economy and thus plays a critical role in ambitious and aggressive action to reduce carbon pollution. The vast majority of the energy consumed in Southeast Florida is used to fuel vehicles and generate electricity for buildings. The path forward requires utilities, local governments and the private sector to set bold targets and undertake dramatic action to improve efficiency, reduce demand, and rapidly transition to zero-carbon energy generation, while reshaping our communities and transportation systems. A just transition to a low-carbon economy will pay dividends to the Southeast Florida region through increased resilience, long-term savings and economic opportunities presented by a new green economy.

Recommendations

EN-1 Reduce GHG emissions by 50% by 2030 and reach net zero carbon emissions by 2050, or sooner.

EN 1.1 Develop local GHG emissions reduction targets through climate action plans that limit warming to 1.5 degrees Celsius and achieve net zero (as defined by the United Nations) by 2050 or sooner, aligned with regional priorities.
IMPLEMENTER: academic institutions, local governments, electric utilities, water utilities, school districts, private sector, regional planning councils, Southeast Florida Clean Cities Coalition

EN 1.2 Support and advocate for strategies to meet net zero electricity generation by 2050, consistent with utility commitments.
IMPLEMENTER: electric utilities, local governments, private sector, advocacy organizations, non-profit organizations, community-based organizations

[1] International Panel on Climate Change (IPCC), AR6 Synthesis Report: Climate Change 2022
[2] https://www.un.org/en/climatechange/net-zero-coalition

EN-2 Advance energy efficiency and conservation through technological solutions, behavioral strategies and policies in order to reduce GHG emissions as referenced in EN-1.

EN 2.1 Create incentives for above code building performance standards that align with GHG emissions reduction targets referenced in EN-1.
IMPLEMENTER: local governments, private sector

EN 2.2 Implement mandatory green building ordinances compliant with Florida laws.
IMPLEMENTER: local governments

EN 2.3 Develop policies to regularly audit, benchmark, and/or retro-commission large, existing government and private buildings and explore building performance standards.
IMPLEMENTER: local governments, private sector, non-profit organizations, community-based organizations

EN 2.4 Advance energy efficiency financing strategies through changes to local ordinances, the development of incentives and education and outreach.
IMPLEMENTER: non-profit organizations, community-based organizations, local governments, community development financial institutions

EN 2.5 Partner with local government and other stakeholders to assess the efficiency of the Florida Energy Code and define the responsibilities of each trade to improve compliance and enforcement, as well as any key synergies or alignment potential with the Florida Building Code.
IMPLEMENTER: local governments, private sector, non-profit organizations, community-based organizations, economic development organizations, professional/trade associations
State/Federal Partners: Florida Building Commission

EN 2.6 Support and advocate the Florida Public Service Commission (PSC) for increased energy savings through utility-sponsored energy efficiency programs, such as but not limited to the Florida Energy Efficiency and Conservation Act, and develop competitive and affordable rates for energy efficiency retrofits and energy conservation measures.
IMPLEMENTER: non-profit organizations, community-based organizations, local governments
State/Federal Partners: PSC

EN 2.7 Advocate for the Florida Building Commission to make changes to promote efficiency, renewable energy and electrification, and direct a portion of the commission's research dollars to energy and water efficiency.
IMPLEMENTER: non-profit organizations, community-based organizations, local governments, advocacy organizations
State/Federal Partners: Florida Building Commission

EN-3 Increase accessibility to energy efficiency solutions for limited-income, energy-burdened households and frontline communities.

EN 3.1 Promote and create local incentive, financing, or loan programs for energy efficiency technologies or building retrofits.
IMPLEMENTER: local governments, financial Institutions, community development financial institutions,

electric utilities, private sector

EN 3.2 Prioritize existing and create new energy efficiency programs for low- to moderate-income (LMI) households that reduce the burden of upfront costs and target the reduction of high energy burden.
IMPLEMENTER: local governments, electric utilities, financial institutions, non-profit organizations, neighborhood associations

EN 3.3 Advocate for innovative incentive mechanisms by which renters and landlords can co-invest in weatherization and building performance improvements.
IMPLEMENTER: insurance industry, local governments

EN-4 Increase accessibility and expand the use of distributed (on-site sources) and utility-scale renewable energy and storage technology, through policies, practices and technological development.

EN 4.1 Set percent renewable energy targets that align with regional and local GHG emissions reduction targets referenced in EN-1.
IMPLEMENTER: local governments, electric utilities, private sector

EN 4.2 Expand affordability of renewable energy purchasing options by investing in inclusive financing and solar co-ops.
IMPLEMENTER: non-profit organizations, local governments, private sector, electric utilities, financial institutions, philanthropic community, community-based organizations

EN 4.3 Seek alternative funding sources for expanding renewable energy purchasing options, including public-private partnerships and regional collaboration on grant opportunities, particularly for historically underserved communities.
IMPLEMENTER: local governments, private sector, philanthropic community, academic institutions

EN 4.4 Develop incentives for new properties to be solar ready or include a minimum amount of solar energy production per property.
IMPLEMENTER: local governments

EN 4.5 Prepare for the use of vehicle-to-grid (V2G) technology.
IMPLEMENTER: local governments, private sector, electric utilities

EN 4.6 Identify and expand opportunities that offer incentives for the private sector and academic institutions to advance research and bring to market strategies for distributed energy technologies.
IMPLEMENTER: academic institutions, private sector, financial institutions, local governments, non-profit organizations

EN 4.7 Advocate for state and federal laws and programs that expand all opportunities for solar energy deployment statewide including rooftop solar on residential, commercial and industrial facilities.
IMPLEMENTER: local governments, non-profit organizations, community-based organizations, private sector, advocacy organizations

EN-5 Enable grid-independent energy and waste-to-energy systems.

EN 5.1 Evaluate and advocate changes in existing land development regulations and development

standards as they relate to allowing the installation and use of energy-efficient and small-scale distributed renewable and modular waste-to-energy systems that are grid independent.
IMPLEMENTER: local governments, non-profit organizations

EN-6 Utilize distributed renewable energy technologies for emergency management and disaster recovery, including vehicle-to-grid (V2G) technologies.

EN 6.1 Partner with stakeholders to pilot distributed solar + distributed storage (such as V2G) energy systems at hurricane shelters, buildings with frontline populations (e.g. nursing homes), or government operations centers for disaster recovery and emergency management.
IMPLEMENTER: local governments, electric utilities, private sector, school districts

EN 6.2 Support and advocate for the development of energy security models for solar + storage during disaster recovery, prioritizing frontline communities.
IMPLEMENTER: local governments, non-profit organizations, community-based organizations, electric utilities, private sector, academic institutions

EN 6.3 Prioritize renewable energy and distributed storage (such as V2G) within emergency management plans that ensure continual energy access during emergencies and disaster recovery.
IMPLEMENTER: local governments, regional planning councils

EN-7 Streamline permitting and administrative processes to reduce the soft costs associated with advancing energy efficiency, renewable energy and storage.

EN 7.1 Adjust zoning policies to provide incentives such as expedited permitting for energy efficient practices and renewable energy.
IMPLEMENTER: local governments

EN 7.2 Reform and innovate permitting processes as they relate to renewable energy and energy efficiency, including expanded training, clarifying and making rules more accessible, expediting permitting processes, reducing or eliminating permitting fees and improving the convenience of inspections for property owners and local businesses.
IMPLEMENTER: local governments, non-profit organizations, private sector

Equity

GOAL: Guide and support Compact stakeholders in understanding, developing and implementing equitable processes and equitable solutions when reducing greenhouse gas emissions and adapting to climate change. To ensure that all can participate and prosper, approaches shall consider systemic socioeconomic and racial inequities and other local factors that have led to historical discrimination and adversity.

As cities and counties across Southeast Florida strive to build a sustainable, resilient and prosperous region, the resulting public policies, programs and projects must produce benefits that are shared by all.

Climate change functions as a "threat multiplier," increasing individuals' exposure and sensitivity to extreme weather, flooding, sea level rise and extreme heat, thus reducing their capacity to respond to current and future climate impacts. This multiplier effect is particularly burdensome for, and at times disproportionately borne by, individuals with low wealth or limited income, and people of color due to structural and institutional forms of racism, such as housing discrimination and segregation. Additional frontline communities, which are frequently highly exposed to climate risks often with fewer resources, capacity, safety nets, or political power include the elderly, the unhoused, immigrants, differently-abled people, youth, outdoor workers, non-English speakers, and those with chronic health conditions. Individuals with multiple vulnerability factors—such as being a person of color, a non-English speaker, and low income—experience cascading climate impacts more acutely.

Stakeholders should identify frontline communities within their own localities and assess how to deliver equitable processes and equitable outcomes. Individuals, neighborhoods and communities in Southeast Florida may experience geographic vulnerability if they have proximity to a current or future hazard (e.g., if they live in a low-lying area prone to flooding or a heat island). Due to structural barriers, some groups have socioeconomic vulnerability because they lack the resources, financial or other, and opportunities to be able to mitigate or avoid a hazard. Frontline communities may be left behind by recent economic booms or displaced from their higher-elevation homes or businesses, resulting in increased challenges to equitably adapting to climate change.

Equity means that policymaking, service delivery and distribution of resources account for the different histories, challenges and needs of the people served. Equity differs from equality, which treats everyone the same despite disparate outcomes. A climate equity framework prioritizes frontline communities and people who contribute least to climate change. Climate equity ensures that these communities play a central role in the transformation of the systems that have established and continue to perpetuate the unequal burden of climate impacts,[3] and that they directly benefit from a just transition to a low-carbon, resilient community.

The Compact shares the Southeast Florida Regional Partnership's definition of equity, as outlined in the Seven50: SE Florida Prosperity Plan[4]:

[3] Derived from San Antonio, https://www.sasustainability.com/category/climate-equity
[4] https://sfregionalcouncil.org/seven50-vision/

Equity: Just and fair inclusion. The goal of equity must be to create conditions that allow all individuals and communities to reach their full potential to the benefit of the individual and the larger regional community. An equitable region is one in which all can participate and prosper in their communities and in the regional economy, and where benefits and burdens are shared fairly.

RCAP 3.0 seeks to provide guidance to center equity as an integral part of climate mitigation and resilience planning, program and policy development, project design and decision-making for budgeting and investments. Efforts to abate carbon pollution and adapt to climate change impacts must actively seek, include and prioritize direction from frontline communities while ensuring that such initiatives reduce existing burdens and produce benefits for these communities.

Recommendations

EQ-1 Ensure that practices, policies, programs and investments addressing climate change are shaped by equitable processes and achieve equitable outcomes.

EQ 1.1 Determine appropriate and locally relevant performance metrics and monitor for climate equity outcomes.
IMPLEMENTER: local governments, tribal governments, community-based organizations, non-profit organizations, regional agencies, Southeast Florida Regional Climate Change Compact

EQ 1.2 Incorporate climate equity considerations and socioeconomic data in fiscal planning, budgeting, project prioritization, and program and policy development. Identify communities that such efforts seek to benefit.
IMPLEMENTER: local governments, tribal governments, regional agencies

EQ 1.3 Incorporate climate equity in comprehensive, strategic and other relevant plans.
IMPLEMENTER: local governments, tribal governments, regional agencies

EQ-2 Intentionally build awareness and capacity in local governments to understand and address the intersectionality of equity and climate change.

EQ 2.1 Ensure that all local government staff and elected officials have the opportunity to participate in ongoing climate equity and environmental justice training.
IMPLEMENTER: local governments, tribal governments, community-based organizations, non-profit organizations, academic institutions

EQ 2.2 Identify existing curricula or training options. If no appropriate training exists, develop curricula for local government staff on topics such as:

- How systemic inequity and racism are threat multipliers for climate change, and
- How to design and implement equitable climate solutions through collaboration among community groups and local government leaders.

IMPLEMENTER: local governments, tribal governments, community-based organizations, non-profit organizations, academic institutions

EQ-3 Build the capacity of existing and future leaders of frontline communities to identify, analyze, communicate and act upon their community's climate resilience needs and priorities.

EQ 3.1 Host trainings or workshops for existing community leaders to access and understand local climate information related to their communities.
IMPLEMENTER: academic institutions, art and cultural organizations, local governments, community-based organizations, non-profit organizations, libraries

EQ 3.2 Support community leaders in developing messaging and selecting a medium relevant to their communities by providing access to regional climate communications materials.
IMPLEMENTER: community-based organizations, non-profit organizations, art and cultural organizations, academic institutions, local governments, tribal governments, Southeast Florida Regional Climate Change Compact

EQ 3.3 Use approaches, such as a community liaison framework, that position community members or leaders to serve as a bridge between government and their communities on climate-related issues and opportunities.
IMPLEMENTER: local governments, tribal governments, Southeast Florida Regional Climate Change Compact, community-based organizations, non-profit organizations, academic institutions

EQ-4 Form mutually beneficial partnerships with community organizations, community leaders and other trusted messengers to co-create engagement, outreach and decision-making processes. Assess frontline community needs and strengths. Elevate diverse voices and community priorities to inform policies, programs and projects.

EQ 4.1 Identify and connect with existing community leaders who serve as representatives of their community's needs and priorities. Formal or informal community leaders could include:

- Faith leaders
- Schools officials
- Leaders of community organizations
- Cultural group leaders
- Student and youth leaders

IMPLEMENTER: local governments, tribal governments, school districts, community leaders

EQ 4.2 Conduct outreach to community members and leaders when there are opportunities for public input in current decision-making processes.
IMPLEMENTER: local governments, tribal governments, community-based organizations, non-profit organizations, consultants/contractors

EQ 4.3 Create opportunities early in decision-making processes for community leaders to help shape the vision and plan for infrastructure, adaptation and mitigation projects that affect their community.
IMPLEMENTER: academic institutions, local governments, tribal governments, regional agencies, consultants/contractors

EQ 4.4 Include representatives of frontline communities in regular comprehensive reviews of critical infrastructure, such as wastewater and stormwater infrastructure, even in the absence of resident complaints.
IMPLEMENTER: local governments, tribal governments, regional agencies, water utilities

EQ 4.5 Develop participatory budgeting processes for resiliency investments.

IMPLEMENTER: local governments, tribal governments, community-based organizations, non-profit organizations

EQ 4.6 Identify and engage with community-based organizations to establish and maintain partnerships, trusting relationships and social capital in the community.
IMPLEMENTER: local governments, tribal governments, academic institutions

EQ 4.7 Co-design, implement and evaluate processes, strategies and materials with communities regarding climate issues that can be shared by trusted partner organizations and that align with community priorities.
IMPLEMENTER: local governments, tribal governments, Southeast Florida Regional Climate Change Compact, community-based organizations, non-profit organizations, academic institutions

EQ-5 Encourage ongoing dialogue between and among local elected officials, local government staff and frontline communities about local climate impacts, community needs and priorities to build awareness and inform decision making.

EQ 5.1 Create opportunities for in-person discussions between local governments and frontline communities about the unique climate challenges and opportunities present or anticipated in their communities. Begin with listening sessions to understand local issues and priorities and identify local leaders. Provide sufficient information and technical assistance in advance to have meaningful dialogue. Identify existing community meetings where climate conversations can be added to agendas.
IMPLEMENTER: local governments, tribal governments, philanthropic community, community-based organizations, faith-based organizations

EQ 5.2 Hold listening sessions, meetings and forums that are accessible to the community and attend existing community meetings and gatherings. Communication venues should be:

- Physically accessible (i.e. places that people can walk and bike/roll to or can be reached by transit)
- Safe for all community members
- Located in places that communities value as gathering spaces (e.g., community centers and cultural centers)
- Led in, or translated into, the primary language(s) of the community
- Scheduled at various times to accommodate different schedules
- Targeted towards various demographics including the young
- Sufficiently staffed with government representation from different departments so that community questions are adequately answered

IMPLEMENTER: local governments; tribal governments, community-based organizations; neighborhood associations, consultants/contractors

EQ 5.3 Provide resources or compensation to remove potential barriers for community participation, including:

- Providing childcare for parents attending
- Providing food if held in the evening
- Providing or facilitating transportation

IMPLEMENTER: local governments, tribal governments, philanthropic community, faith-based organizations, neighborhood associations, non-profit organizations, community-based organizations, consultants/contractors

EQ 5.4 Provide sufficient funding, staff time and resources for community engagement within project

budgets.
IMPLEMENTER: local governments, tribal governments

EQ-6: Integrate and analyze social vulnerability data as part of all local government processes.

EQ 6.1 Review and analyze existing social vulnerability data and projected risks due to climate impacts, ensuring such data is incorporated in vulnerability assessments and applied to local contexts. When integrating and exploring socioeconomic data, disaggregate by race, income, housing tenure, unemployment, disability, transit dependence, etc. Embed locally relevant social vulnerability data and planning tools in decision-making processes and in developing equitable approaches and solutions.
IMPLEMENTER: local governments, tribal governments, consultants/contractors, healthcare sector, regional agencies

EQ 6.2 Use social vulnerability data to drive decision-making for regulatory frameworks, infrastructure locations and relocation costs. Balance the use of cost-benefit analysis or economic valuation approaches, which may result in inequitable investments in areas with relatively high property values, with the valuation of social and environmental factors. Create or amend existing planning documents to ensure sufficient mitigation of local social vulnerabilities exacerbated by climate change.
IMPLEMENTER: local governments, tribal governments, regional agencies

EQ 6.3 Create an accessible, public-facing toolkit of trusted social vulnerability data resources so stakeholders can find usable and actionable data. Some examples are:

- Florida Institute of Health Innovation reports
- Centers for Disease Control and Prevention Social Vulnerability Index and reports
- U.S. Census data
- U.S. Global Change Research Program Climate and Health Assessment
- County and municipal data
- Asset-Constrained, Limited Income, Employed (ALICE) reports
- U.S. Environmental Protection Agency (EPA) Environmental Justice Screening and Mapping Tool

IMPLEMENTER: local governments, tribal governments, community-based organizations, non-profit organizations, regional agencies

EQ-7: Prioritize investments in infrastructure/services that promote economic mobility, health and safety for all community members while cutting greenhouse gas emissions and adapting to climate change.

EQ 7.1 Assess local social vulnerabilities in relation to climate change impacts and the infrastructure services, infrastructure design, land use (including housing) and other built environment components needed to reduce those vulnerabilities over time.
IMPLEMENTER: local governments, tribal governments, academic institutions, non-profit organizations, community-based organizations, regional transportation agencies, regional agencies

EQ 7.2 Prioritize investments that promote economic mobility, health and safety while addressing climate change causes and impacts. Examples are:

- Providing affordable, convenient and reliable transit
- Implementing Complete Streets policies, programs and projects
- Establishing or expanding car-share and micro-mobility programs
- Preserving and adding affordable housing accessible to transit and other public infrastructure, including schools and community spaces
- Using green infrastructure to reduce urban heat, flooding and other climate change impacts
- Maintaining and enhancing community recreation spaces

IMPLEMENTER: local governments, tribal governments, regional transportation agencies, regional agencies

EQ-8: Address economic mobility and equitable economic development as they relate to climate change impacts and solutions.

EQ 8.1 Create workforce opportunities and training programs that advance the just transition to a resilient region.
IMPLEMENTER: local governments, tribal governments, non-profit organizations, community-based organizations, private sector, economic development organizations

EQ 8.2 Develop integrative policies, plans and initiatives that solve multiple challenges—simultaneously addressing climate change, reducing socioeconomic disparities and increasing economic resilience—to ensure that the transition to a low-carbon, resilient economy benefits historically disinvested communities and drives growth in industries that offer living wage jobs across multiple skill levels.
IMPLEMENTER: local governments, tribal governments, economic development organizations

Informed and Engaged Communities

GOAL: Expand the breadth and diversity of organizations and individuals engaged in equitable, collective action on climate change in Southeast Florida by sharing resources and knowledge that support informed communities, and investing in sustained partnerships and community engagement that build the trust, capacity and power to co-create solutions and shape decision making.

Rising to meet the existential challenge presented by climate change in Southeast Florida requires the partnership, engagement and action of a myriad of stakeholders—governments agencies, the business community, civil society and critically, the communities impacted first and worst by climate change and with the least resources to respond. Good governance practices suggest and experience has shown that the hallmark of an equitable, resilient and climate-prepared community is one that is informed and engaged collaboratively and in a sustained manner.

There are several principles that underpin equitable outreach and sustained community-driven engagement. First, such strategies support trustworthy, transparent and effective communication and partnership with the community regarding climate risks and opportunities. Second, it centers the diverse perspectives, priorities and lived experiences of residents. Third, public policy responses meet community needs and reflect community values. Finally, it builds community ownership to ensure communities have a direct say over what is needed to survive and thrive in the face of climate change. Such approaches aim to connect meaningfully, respond to challenges collaboratively, and co-design approaches and solutions with the community in ways that build the power of diverse organizations and individuals to engage in collective action toward shared community goals. Participatory governance, increased collaboration and partnership, and sustained community engagement results in more effective, creative and durable climate solutions that have a greater chance of being widely accepted.

Recommendations

EC-1 Assess community needs, assets and priorities to guide collaboration and co-design of communications, outreach and engagement methods used to inform decision-making related to mitigating and adapting to climate change.

EC 1.1 Map and build relationships with organizations, community leaders and other stakeholders including community-based organizations, advocacy organizations, neighborhood collaboratives, academic institutions, professional associations, the business community and faith-based organizations.
IMPLEMENTER: local governments

EC 1.2 Create accessible and inclusive spaces to convene local stakeholders such as advocacy organizations, neighborhood collaboratives, community-based organizations, academic institutions, professional associations, the business community, and faith-based organizations to understand community needs, priorities, assets and capacities.
IMPLEMENTER: local governments, academic institutions, non-profit organizations, faith-based organizations, private sector, advocacy organizations

EC 1.3 Assess, understand and implement community preferences for communications, outreach and engagement, and capture community priorities to ensure outreach is effective and well received.
IMPLEMENTER: local governments, academic institutions, non-profit organizations, faith-based organizations, private sector, advocacy organizations

EC-2 Advance climate-informed communities by ensuring that those impacted by climate change and government actions/processes to address climate change are provided ample and appropriate educational resources, and are engaged in the co-design and sharing of people-centered communication materials and strategies informed by their own lived experiences.

EC 2.1 Provide clear, direct and open channels of communication and points of contact within local government so as to allow community members to provide input at their convenience.
IMPLEMENTER: local governments

EC 2.2 Create communications and messaging that are easy to understand, and not overly academic or scientific in nature to broaden understanding of the climate issues.
IMPLEMENTER: local governments, academic institutions, news media

EC 2.3 Publish major communications in the languages that represent the local demographics and specifically include the languages of frontline communities.
IMPLEMENTER: local governments

EC 2.4 Develop hyper-localized climate communications by engaging in deep listening, working collaboratively and iteratively with communities to identify trusted messengers, effective modalities for communications and key topics to craft tailored messages for diverse audiences. Support and compensate, as appropriate, trusted messengers and organizations to help facilitate information sharing.
IMPLEMENTER: local governments, academic institutions, non-profit organizations, faith-based organizations, private sector, advocacy organizations

EC 2.5 Create open data platforms and digital tools with communities that allow for increased transparency, accountability and the development of solutions for climate action. Share data sets produced by federal, state and local government, academic research, and community-based participatory research with communities. Qualitative data and stories should be incorporated into the collection and display of quantitative data.
IMPLEMENTER: local governments, academic institutions, community-based organizations, non-profit organizations

EC 2.6 Exchange resources with the community such as maps, photos and personal narratives/stories. Engage the community in the creation of some of the qualitative data and resources such as through photo-voicing projects, story-telling and town hall-style meetings.
IMPLEMENTER: local governments, community-based organizations

EC 2.7 Leverage local and regionally recognized and coordinated communications systems such as the Compact Newsletter, local government newsletters, social media, print media, radio, television, e-blasts, and messages through communications channels of community-based organizations to notify community members of upcoming projects, programs and opportunities for engagement.
IMPLEMENTER: local governments, community-based organizations

EC 2.8 Utilize visual arts, signage, installations and participatory events to creatively communicate the

localized impacts of climate change and avenues for community action, such as the Miami-Dade County's Climate of Art yearly event and the High Water Line Storm Drain public art campaign.
IMPLEMENTER: local governments, community-based organizations, art and cultural organizations

EC 2.9 Design public outreach and messages in a mixture of media, including non-written forms such as verbal videos or graphic signage. Conduct outreach and provide education for varying abilities and in multiple languages, and provide interpreters at public meetings and workshops to engage diverse audiences.
IMPLEMENTER: local governments

EC 2.10 Measure the impact of the communication methods through pre- and post- communication campaigns, outreach and engagement surveys. Track the number of people engaged and the type of engagement such as social media, in-person outreach, or virtual.
IMPLEMENTER: local governments

EC-3. Invest in expanded, culturally-sensitive, collaborative and sustained engagement efforts that connect local climate change issues and solutions to related community-identified urgent needs and long-term challenges.

EC 3.1 Allocate operating budget and staff resources to support sustained community outreach and engagement. Ensure grant applications incorporate budget for such activities. Develop feasible mechanisms and channels to provide compensation to partners as appropriate.
IMPLEMENTER: local governments

EC 3.2 Develop and promote multiple avenues and points of entry to bolster people and communities for collective civic engagement and community action on climate change issues. This could include hosting public meetings or town-halls, hosting charrettes and workshops, community listening sessions, presentations, tabling at public events, and creating communications campaigns that engage residents through multiple channels to maintain and create open dialogues. Attend events that the community is already hosting/has already scheduled.
IMPLEMENTER: local governments, community-based organizations

EC 3.3 Understand and integrate best practices, tools and resources for equitable outreach, engagement and enhanced literacy, such as but not limited to "The Spectrum of Community Engagement[5]."
IMPLEMENTER: local governments, community-based organizations

EC 3.4 Partner with trusted community leaders/messengers in frontline communities to co-create outreach strategies and engagement tools that reflect the culture, values and priorities of the community.
IMPLEMENTER: local governments, community-based organizations

EC 3.5 Include equity accommodations for communications, outreach and engagement, such as interpreters, captions on zoom meetings, providing multiple meeting times, providing childcare, utilizing multiple mediums and compensating participants as appropriate.
IMPLEMENTER: local governments

EC-4 Increase participatory governance through building community ownership regarding the development of, and direct community action on, climate solutions that reflect community vision and

[5]González, R. 2019. *The Spectrum of Community Engagement to Ownership*. Facilitating Power.

values.

EC 4.1 Invest financial and other resources to support the capacity building of community-based organizations engaged in the development and implementation of climate solutions.
IMPLEMENTERS: philanthropic community, non-profit organizations, local governments

EC 4.2 Educate the public on climate change issues, and support community advocacy and civic engagement on such issues, including voter participation.
IMPLEMENTER: community-based organizations, advocacy organizations, academic institutions

EC 4.3 Set forth planning, policy-making and budget processes that explicitly involve community partners at the outset. Develop processes and opportunities for participatory budgeting.
IMPLEMENTER: local governments, community-based organizations

EC 4.4 Improve oversight and democratic governance through the use of citizen advisory boards and oversight committees, particularly as it relates to the allocation of investments and capital projects. Include representatives from community-based organizations in existing committees.
IMPLEMENTER: local governments

EC 4.5 Organize and/or participate in community forums and focus groups that include elected officials.
IMPLEMENTER: community-based organizations

EC 4.6 Partner with community-based organizations to implement pilot projects.
IMPLEMENTERS: local governments, community-based organizations

EC 4.7 Co-create measurable outcomes and milestones in order to increase accountability and drive equitable resilience solutions.
IMPLEMENTERS: local governments, community-based organizations

EC 4.8 Increase transparency and ongoing reporting on progress and metrics related to climate change action.
IMPLEMENTERS: local governments

Natural Systems

GOAL: Protect natural systems and the services they provide to society and Southeast Florida while improving their capacity to support climate adaptation and carbon sequestration.

Southeast Florida's natural areas are globally unique and support a web of life not found anywhere else. These natural areas depend upon specific temperature, water and salinity conditions. Coral reefs and seagrass meadows grow in clear, shallow seawater with abundant sunlight and stable temperatures, while mangroves thrive in brackish areas between the low- and high-tide lines. Freshwater-dependent hardwood hammocks and pine rockland forests support an abundance and diversity of rare plants and animals unique to the region. The Everglades' wetlands and tree islands depend on seasonal rainfall patterns that have existed for centuries, along with adequate freshwater flows. Climate change threatens many of these already stressed natural assets, which are important not only for their inherent value, but for the many cultural, health and economic benefits they provide to society.

These ecosystems are essential to Southeast Florida's local quality of life and economy. Natural areas such as wetlands and forests provide many valuable services, such as holding flood waters and recharging the drinking water aquifer. Coral reefs and mangroves provide critical habitats that are vital to fisheries and support the dive tourism industry. They also serve as the front lines of defense against storms, waves and erosion. Beaches and dunes also protect the coast while providing a key attraction for millions of visitors.

Natural systems also serve as a key solution to climate challenges—increasing adaptive capacity through attenuation of flooding, mitigating heat island effects, improving air and water quality, as well reducing emissions through carbon sequestration. Ensuring that these natural areas survive and thrive into the future is essential to efforts to address the root causes of climate change and to build resilience to impacts.

In the face of mounting climate change impacts, action is needed to ensure that these natural areas and the species they support are not lost. Thoughtful land-use planning, resource management strategies, protection, and restoration efforts can help build the resilience of natural systems and support species and habitats to adapt, migrate, or transition. Further, as we adapt infrastructure to changing climate conditions, intentional planning will be required to ensure connection to and integration of nature-based solutions.

Recommendations

NS-1 Foster public awareness regarding the scale of loss and impacts of climate change on the region's natural systems and ecosystem services, their economic value, and benefits in both mitigating and building resilience to climate change.

NS 1.1 Conduct public opinion research on community values to inform effective communication strategies regarding climate change impacts, and how natural systems can help mitigate climate change and help our community adapt.
IMPLEMENTER: non-profit organizations, philanthropic community, academic institutions

NS 1.2 Create ecosystem education opportunities within urban parks and accessible green spaces. Link educational initiatives with clear action steps to accelerate conservation and restoration and create opportunities for every generation to contribute to solutions.
IMPLEMENTER: non-profit organizations, community-based organizations, philanthropic community, academic institutions, local governments

NS 1.3 Develop communications strategies and materials around climate impacts on ecological sites that have community recognition or significance, and regional ecosystem services affected by climate change including their ecological, economic, health, and intrinsic values.
IMPLEMENTER: non-profit organizations, community-based organizations, philanthropic community, academic institutions, local governments

NS 1.4 Partner with local governments, non-profit organizations, academic institutions, libraries, faith-based organizations, community groups and the private sector to disseminate information on the value of local and regional natural systems and using nature-based approaches to adapting to climate change.
IMPLEMENTER: non-profit organizations, community-based organizations, philanthropic community, academic institutions, local governments

NS-2 Assess the climate-related vulnerabilities of and economic benefits provided by natural systems/ecosystems services within the region.

NS 2.1 Ensure that analysis of natural systems and ecosystem services are included as part of vulnerability assessments.
IMPLEMENTERS: local governments, regional agencies
State/Federal Partners: FDEP, FWC

NS 2.2 Conduct an updated economic valuation study on the region's natural resources and ecosystem services. Ensure climate adaptation, resilience and carbon reduction benefits are included in addition to the myriad of other benefits provided by these systems. Disseminate results widely.
IMPLEMENTER: academic institutions, local governments, non-profit organizations

NS-3 Examine and propose revisions to environmental regulations across multiple levels of government to account for the effects of climate change and to encourage natural systems protection and restoration to adapt to climate change.

NS 3.1 Create a work group to review and propose revisions to current environmental regulations to adapt to or prevent climate impacts. The review should consider current and future conditions related to increasing temperature, drought, extreme rainfall, storm surge, saltwater intrusion and sea level rise. Evaluate secondary and tertiary impacts that may be unaccounted for in current regulations.
IMPLEMENTER: Southeast Florida Regional Climate Change Compact, local governments, non-profit organizations, academic institutions
State/Federal Partners: FDEP, FWC, NPS, USFWS, USFS, EPA, NOAA

NS-4 Protect, restore and ensure proper management of natural systems to bolster resilience objectives, and advance the use of green infrastructure, nature-based solutions or hybrid infrastructure approaches at the regional scale.

NS 4.1 Strengthen protections and ensure best management practices for existing natural systems to minimize the loss of critical habitats and resources such as wetlands, seagrass beds, mangrove forests, coral reefs, fisheries and urban forests.
IMPLEMENTER: local governments, tribal governments, non-profit organizations
State/Federal Partners: FDEP, FWC, USFWS, NPS, NOAA, EPA

NS 4.2 Increase collaboration with Tribes to ensure stewardship and access to sites, and incorporate traditional ecological knowledge into management, restoration and preservation efforts.
IMPLEMENTER: non-profit organizations, academic institutions, local governments, tribal governments
State/Fderal Partners: FDEP, FWC, NPS

NS 4.3 Expand the use of green infrastructure, nature-based solutions or hybrid infrastructure approaches as a best practice when advancing resilience initiatives and projects. These include but are not limited to the use of living shorelines; green or hybrid infrastructure for stormwater management, flood attenuation and water quality improvements; urban green space for mitigating heat; coastal habitat protection and restoration for erosion control and coastal risk reduction.
IMPLEMENTER: local governments, regional agencies, non-profit organizations, water utilities, SFWMD
State/Federal Partners: FDEP, FWC, USACE

NS 4.4 Conduct localized studies and research, and develop appropriate methodologies regarding the opportunities for natural systems, nature-based solutions and hybrid infrastructure to support climate resilience, adaptation and carbon reduction goals within the region. Such studies should include quantifying risk reduction, sequestration, flood attenuation, water quality, and other benefits and recommendations for appropriate application of use. Consider short-term and long-term benefits in such methodologies. Develop a business case that accounts for the return on investment, community cost-savings and other socioeconomic factors.
IMPLEMENTER: non-profit organizations, academic institutions, private sector
State/Federal Partners: FDEP

NS 4.5 Identify specific locations and general conditions that could utilize living shorelines in place of, or in combination with, seawalls, as well as other nature-based approaches.
IMPLEMENTER: non-profit organizations, local governments, academic institutions,
State/Federal Partners: FDEP

NS 4.6 Develop regulations that incentivize the use of nature-based approaches where feasible, and streamline the regulatory and permitting environment to facilitate use. Make any necessary updates to various local and regional plans to ensure alignment and reduce potential barriers to facilitate the expanded use of nature-based solutions. Plans that should be reviewed include, but are not limited to, comprehensive plans, land use plans, stormwater master plans, hazard mitigation plans and transportation plans.
IMPLEMENTER: local governments, regional agencies
State/Federal Partners: FDEP, FWC

NS 4.7 Advocate for the inclusion of nature-based solutions in grant programs.
IMPLEMENTERS: local governments, regional agencies, non-profit organizations, advocacy organizations
State/Federal Partners: FDEP, EPA, NOAA, FEMA

NS-5 Secure and implement sustainable financing for the monitoring, protection, restoration and

management of natural areas and ecosystem services, and to advance nature-based solutions.

NS 5.1 Implement innovative financing mechanisms that provide loans for projects that promote the preservation of natural capital, such as the European Investment Bank's Natural Capital Financing Facility.
IMPLEMENTER: non-profit organizations, philanthropic community, academic institutions, local governments, regional agencies

NS 5.2 Implement natural capital financing through current local financing institutions in Southeast Florida.
IMPLEMENTER: financial institutions, local governments, regional agencies

NS 5.3 Conduct outreach and education efforts to policymakers and the public on the high benefit-cost ratio of investments in natural systems and green and hybrid infrastructure approaches, and ensure the benefits of nature-based solutions are captured in the evaluation of projects.
IMPLEMENTER: non-profit organizations, academic institutions, local governments
State/Federal Partners: FDEP

NS-6 Promote collaborative federal, state and local government conservation land acquisition and easement programs.

NS 6.1 Promote and advocate for sufficient funding for the Florida Forever conservation land acquisition program.
IMPLEMENTER: non-profit organizations, local governments, advocacy organizations
State/Federal Partners: FDEP

NS 6.2 Partner with local state legislators to file legislation for individual land acquisition projects under the Florida Forever program and other programs to demonstrate the demand for land acquisition funding.
IMPLEMENTER: non-profit organizations, local governments
State/Federal Partners: FDEP

NS 6.3 Identify federal funding programs for local land conservation initiatives based on specific ecosystem characteristics and secure funds. Potential federal land conservation programs include:

- Land and Water Conservation Fund (National Park Service, U.S. Fish and Wildlife Service)
- Cooperative Endangered Species Fund (U.S. Fish and Wildlife Service)
- Forest Legacy Program (U.S. Forest Service)
- Agricultural Conservation Easement Program (U.S. Department of Agriculture)

IMPLEMENTER: academic institutions, non-profit organizations, local governments
State/Federal Partners: NPS, USFWS, USFS, USDA

NS-7 Advocate for continued implementation and funding for the Comprehensive Everglades Restoration Plan at the state and federal level.

NS 7.1 Provide political and financial support to the Comprehensive Everglades Restoration Plan (CERP) and its updated version, which is fundamental to Everglades restoration. Integrate both climate change mitigation and adaptation considerations into CERP implementation.
IMPLEMENTER: local governments, SFWMD, non-profit organizations, academic institutions, philanthropic community

State/Federal Partners: USACE, FDEP

NS 7.2 Contribute to the ongoing implementation of the CERP including land acquisition and updates to the implementation plans (such as the Integrated Delivery Schedule) through the South Florida Ecosystem Restoration Task Force and relevant working groups. Ensure that plans are responsive to input from Tribal Nations and other key stakeholders.
IMPLEMENTER: local governments, SFWMD, tribal governments, non-profit organizations, academic institutions
State/Federal Partners: USACE, FDEP

NS 7.3 Continue to educate key stakeholders about the multiple benefits of the CERP, including benefits to water supply and flood protection.
IMPLEMENTER: local governments, SFWMD, non-profit organizations, academic institutions
State/Federal Partners: USACE, FDEP

NS 7.4 Identify opportunities to use passive restoration methods or innovative technologies to reduce the use of fossil fuels in the CERP projects.
IMPLEMENTER: SFWMD, non-profit organizations, academic institutions
State/Federal Partners: USACE, FDEP

NS 7.5 Study and quantify the coastal storm risk reduction benefits of aquatic ecosystem restoration projects and analyze the additional benefits, beyond ecosystem restoration, of the RECOVER mission to evaluate and assess the Southern Coastal Systems region.
IMPLEMENTER: SFWMD, local governments, non-profit organizations, academic institutions
State/Federal Partners: USACE, FDEP

NS-8 Implement coordinated regional wildland fire management efforts that account for climate change.

NS 8.1 Integrate projected climate impacts on wildland fires into fire management strategies. Fire management practices may need to address increased availability of fuel from increased undergrowth, altered wildfire or prescribed burning seasons, and sea level rise.
IMPLEMENTER: private property owners, non-profit organizations
State/Federal Partners: FFS, USFS

NS 8.2 Provide education on the ecological value of fires and the public safety benefits of prescribed burns.
IMPLEMENTER: local governments, non-profits organizations
State/Federal Partners: FFS, USFS

NS 8.3 Support ecological adaptation measures that facilitate better fire management. Adaptation measures critical to managing fires based on climate impacts include increasing landscape and biological diversity, and maintaining and preserving watersheds.
IMPLEMENTER: local governments, private property owners, non-profit organizations
State/Federal Partners: FFS, USFS

NS-9 Coordinate planning for adaptation corridors, living collections, and other approaches to species dispersal and conservation.

NS 9.1 Convene representatives of appropriate agencies, the non-profit community, land trusts, and biodiversity and land conservation programs across Southeast Florida as a regional working group for coordination.
IMPLEMENTER: non-profit organizations, academic institutions, local governments
State/Federal Partners: FDEP, FWC

NS 9.2 Review FWC's State Wildlife Action Plan and other relevant plans to encourage appropriate species dispersal and biodiversity, prioritizing the sites and measures of greatest regional importance, including migratory corridors.
IMPLEMENTER: local governments, non-profit organizations, academic institutions
State/Federal Partners: FDEP, FWC

NS 9.3 Engage local communities and businesses such as landscaping companies to help implement coordinated land biodiversity measures through citizen-driven programs, such as the Florida-Friendly Landscaping program and the Florida Yards & Neighborhoods Homeowner program.
IMPLEMENTER: non-profit organizations, academic institutions, local governments, extension offices

NS-10 Improve understanding of the potential for novel invasive species and their possible impact given changing climate conditions, and develop early detection, monitoring and management strategies.

NS 10.1 In partnership with the University of Florida Institute of Food and Agricultural Sciences, academic institutions and other entities, conduct a predictive assessment of current and potential invasive species, their ranges, and potential biodiversity, social and economic impacts based on changing climate conditions.
IMPLEMENTER: academic institutions, extension offices, local governments, non-profit organizations
State/Federal Partners: FWC, FDACS

NS 10.2 Work with the South Florida Ecosystem Restoration Task Force to advance funding, early detection, monitoring and management of invasive species.
IMPLEMENTER: local governments, regional agencies, non-profit organizations, academic institutions
State/Federal Partners: FDEP, NOAA, EPA, FWC

NS-11 Protect, restore, and ensure the sustainable use and management of interdependent coastal habitats, including coral reefs, seagrasses, mangroves and wetlands to minimize climate change impacts to Florida's coral reefs and fisheries.

NS 11.1 Develop integrated management strategies, programs, policies and regulations to mitigate negative human impacts on coral reefs. These should include but are not limited to:

- GHG emissions reduction
- Water quality improvements
- Investment in research to identify corals most tolerant of changing marine conditions
- Responsible boating, snorkeling and diving practices
- Sustainable, low-impact fishing practices
- Reduction of pollution/runoff, pesticides and fertilizers

IMPLEMENTER: non-profit organizations, local governments, regional agencies, academic institutions, private sector, water utilities
State/Federal Partners: FDEP, FWC, NOAA, NPS

NS 11.2 Support and advance coordinated, science-based marine management and protection through the mosaic of marine protected areas, sanctuaries, aquatic preserves, and national and state parks in the region.
IMPLEMENTER: local governments, regional agencies, non-profit organizations, marine-dependent industries, academic institutions
State/Federal Partners: FDEP, FWC, NOAA, NPS

NS 11.3 Improve water quality and habitats such as seagrass and mangroves that support fisheries in order to minimize climate impacts on fisheries.
IMPLEMENTER: local governments, regional agencies
State/Federal Partners: FDEP, FWC, NOAA, NPS

NS 11.4 Develop and implement adaptation plans for the regional ocean economy by convening and coordinating among stakeholders in the fishing and dive industry, marine research/academia, coastal management, and federal, state and local governments.
IMPLEMENTER: non-profit organizations, academic institutions, local governments
State/Federal Partners: FDEP, FWC, NOAA, NPS

NS 11.5 Advance coordinated efforts to restore genetically diverse breeding populations of threatened staghorn and elkhorn corals to degraded reefs throughout South Florida, and associated research to improve understanding of corals most resilient to increasing temperatures and acidification.
IMPLEMENTER: non-profit organizations, academic institutions, counties, regional agencies
State/Federal Partners: FDEP, FWC, NOAA, EPA

NS-12 Protect and restore freshwater and estuarine wetlands, open space buffer areas and connectivity between freshwater and estuarine waters.

NS 12.1 Integrate existing mapping databases from all key agencies to improve access to local wetland maps for planning, regulation and zoning purposes. Existing wetland maps can be accessed through the National Wetland Inventory and federal or state agencies.
IMPLEMENTER: local governments, non-profit organizations, academic institutions
State/Federal Partners: FDEP, USFWS, USACE, EPA

NS 12.2 Develop and implement a comprehensive regional strategy to acquire and protect key wetland areas identified through a regional process, with defined goals and a clear articulation of the benefits of protection.
IMPLEMENTER: local governments, non-profit organizations, academic institutions, SFWMD
State/Federal Partners: FDEP, USFWS, USACE, EPA

NS 12.3 Advocate for the development of a formal “wetland” or “conservation” zone designation for all zoning maps that includes freshwater wetlands, buffer areas and critical freshwater connective areas. Include protections for ephemeral wetlands, wetlands outside formally protected areas and upland areas that will facilitate long-term ecosystem migration. Identify ecosystem migration areas.
IMPLEMENTER: local governments, advocacy organizations, non-profit organizations
State/Federal Partners: FDEP, FWC

NS 12.4 Advocate for the creation of regulations for allowable and prohibited use of critical zoning areas.
IMPLEMENTER: local governments, non-profit organizations, academic institutions, advocacy

organizations

NS 12.5 Adopt local incentives and land acquisition programs to protect and conserve local wetland zones.
IMPLEMENTER: local governments, non-profit organizations

NS 12.6 Acquire perpetual conservation easements or conservation land acquisition for critical wetland zones, including protecting short hydroperiod wetlands that have historically been less protected.
IMPLEMENTER: local governments, non-profit organizations

NS-13 Develop and implement long-term, sustainable, regional solutions to beach erosion and sediment supply and enhancement of dune systems.

NS 13.1 Align local and regional beach erosion prevention efforts with Florida's Department of Environmental Protection's Strategic Beach Management Plan for the Southeast Atlantic Coast Region and the U.S. Army Corps of Engineers' recommendations in the South Atlantic Coastal Study.
IMPLEMENTER: local governments
State/Federal Partners: FDEP, USACE

NS 13.2 Continue to enhance dunes and other coastal nature-based approaches to minimize erosion and coastal damage.
Implementer: local governments, non-profit organizations
State/Federal Partners: FDEP

NS-14 Maintain, create and/or restore tree canopy and urban green spaces.

NS 14.1 Map existing tree canopy (inclusive of socio-economic data overlays), set community tree canopy goals, develop and fund a strategic tree canopy program and monitor changes in canopy over time.
IMPLEMENTER: local governments, non-profit organizations, community-based organizations

NS 14.2 Protect existing tree canopy through tools available to local governments via comprehensive plans, zoning ordinances, tree ordinances, the development of tree canopy programs, mitigation banks, and impact fees. Invest in the enforcement of tree protection regulations.
IMPLEMENTERS: local governments

NS 14.3 Prioritize native tree species in current tree planting and shade tree canopy programs. Identify and invest in salt-tolerant tree species that can withstand hurricanes and provide multiple ecosystem services, such as habitat for other native species.
IMPLEMENTER: local governments, non-profit organizations, academic institutions, extension offices

NS 14.4 Prioritize planting efforts in low-income areas and communities of color where the existing tree canopy is disproportionately sparse and heat islands are more severe.
IMPLEMENTER: local governments, non-profit organizations, community-based organizations, academic institutions, extension offices

NS 14.5 Preserve and acquire green spaces in areas of low canopy and areas without access to parks and natural areas with a goal to make green space accessible within a ten-minute walk for all residents. Prioritize equity, community participation, addressing areas with health disparities and anti-displacement when developing green spaces.

IMPLEMENTER: local governments, non-profit organizations, community-based organizations, philanthropic community

Public Health

GOAL: Promote awareness of, and build collaboration and capacity to address climate-related public health impacts and implement solutions that improve community health outcomes.

The COVID-19 pandemic has elevated the importance of health and well-being for communities and the economy. Climate change also has profound impacts on the physical and mental health and well-being of individuals, and will increasingly exacerbate existing health conditions in communities throughout the Compact region and beyond. Climate change affects human health by altering exposure to heat waves, floods, droughts and other extreme events. Risk of vector-, food- and waterborne infectious diseases; changes in the quality and safety of air, food and water; and stresses to mental health and well-being are also exacerbated. Moreover, vehicle-related emissions (emissions from tailpipes, brakes and tire wear) result in particulate matter and ozone pollution, which has been shown to have considerable health impacts, including premature death, increased/aggregated asthma, heart attacks, respiratory illness, and preterm birth.

Exposure to and ability to fully recover from climate impacts vary across populations and communities. Those at greatest risk of adverse health impacts related to climate change include pregnant women, children, older adults, those with pre-existing health conditions, low-income communities, and other under-resourced populations. Low-income and historically excluded populations are less able to bounce back from these events because of a lack of resources and other social determinants of health, which contribute to health disparities and quality of life outcomes. The delivery of health services in Southeast Florida is accomplished by a network of providers including public health departments and various institutions and organizations in the healthcare sector. Leveraging the diverse expertise of these institutions, community leaders and community voices from across Southeast Florida can advance solutions that promote awareness and build capacity to address climate-related impacts.

Recommendations

PH-1 Understand and communicate public health risks associated with climate change.

PH 1.1 Develop and disseminate communications material about the human health risks of climate change, including increased risks for heat illness and pathogenic diseases, vector-borne disease and floodwater pathogens. Ensure communication materials and methods (traditional and social media) are accessible to a wide range of audiences utilizing age-appropriate, culturally appropriate and accessible language.
IMPLEMENTER: local governments, non-profit organizations, community-based organizations, professional/trade associations, healthcare sector, academic institutions, school districts
State/Federal Partners: FDOH

PH 1.2 Determine and identify the populations most at risk of increased exposure to indoor heat, mold and mildew and respiratory illnesses by identifying households that are energy insecure, and by working with community-based organizations, academic institutions and other relevant partners.
IMPLEMENTER: community-based organizations, community action agencies, academic institutions

PH-2 Integrate available climate and public health science into climate action plans and policies.

PH 2.1 Utilize tools and resources related to projected climate impacts on public health to assess capabilities to handle projected impacts and to develop community-specific interventions. Sources for available tools and resources include but are not limited to:

- Centers for Disease Control and Prevention
- National Institutes of Health
- National Institute of Integrated Health, Heat and Information System
- Florida Department of Health
- World Health Organization
- Federal Agencies (Environmental Protection Agency, Federal Emergency Management Agency, National Oceanic and Atmospheric Administration)

IMPLEMENTER: local governments, healthcare sector

State/Federal Partners: FDOH, FEMA, EPA, NOAA

PH 2.2 Engage the local public health workforce in the development of climate-related policies to ensure they consider health.

IMPLEMENTER: healthcare sector, academic institutions, local governments

PH 2.3 Promote awareness of community-wide co-benefits like improved health outcomes and health cost savings associated with the implementation of cross-sector climate resilience policies and programs

IMPLEMENTER: local governments, healthcare sector, academic institutions

PH-3 Implement heat mitigation and management strategies that reduce extreme heat exposure and prioritize interventions in areas most vulnerable to heat and among populations least able to manage heat risks.

PH 3.1 Increase the use of urban tree canopy in addition to other green infrastructure within the urban environment to reduce extreme heat and provide shade.

IMPLEMENTER: local governments, community-based organizations

PH 3.2 Assess current public and private emergency utility assistance funds and supplement funds as needed to reduce the risk of indoor heat exposure. Promote and expand programs that reduce long-term need, such as weatherization assistance.

IMPLEMENTER: community action agencies

State/Federal Partners: DEO

PH 3.3 Require reflective paving and roofing materials, increased vegetation on and around buildings and building practices that promote passive cooling to reduce the urban heat island effect.

IMPLEMENTER: local governments,

State/Federal Partners: Florida Building Commission

PH 3.4 Adopt policies like frequent breaks and increased water access that protect people who work and play outdoors from extreme heat. Local governments should lead by example through consideration of workplace heat standards and protocols.

IMPLEMENTER: local governments, private employers, school districts, organized sports leagues

State/Federal Partners: OSHA

PH 3.5 Conduct a county/citywide heat vulnerability analysis with an emphasis on identifying the populations most vulnerable to heat illnesses.
IMPLEMENTER: local governments

PH 3.6 Revise existing Comprehensive Emergency Management Plans to include an annex on health impacts from a changing climate and ensure it integrates considerations for compounding events that exacerbate extreme heat like power outages. These considerations should also include plans for energy redundancies like backup power for critical areas and facilities.
IMPLEMENTER: local governments

PH 3.7 Ensure awareness regarding availability of, and access to, public cooling centers.
IMPLEMENTER: local governments

PH-4 Ensure local health departments collect and disseminate timely, accessible, climate-related health data to inform public health plans and decision-making.

PH 4.1 Advocate for policy changes and specific funding to increase the frequency of climate-related health data collection and dissemination.
IMPLEMENTER: local governments, academic institutions, non-profit organizations, healthcare sector, advocacy organizations
State/Federal Partners: FDOH, HHS

PH 4.2 Partner with public health departments, academic institutions and community health systems to define the current gap in public health and climate change research, and articulate the value of more coordinated, accessible and frequent data collection.
IMPLEMENTER: local governments, academic institutions, non-profit organizations, healthcare sector
State/Federal Partners: FDOH

PH 4.3 Increase data collection frequency to better inform public and academic climate impact and health research programs. Specifically, advocate for the Florida Department of Health to assess the exposure-outcome association to estimate or quantify the additional burden of health outcomes associated with climate change impacts. Assess the exposure-outcome association that denotes how an increase in exposure affects the health outcome. Since the exposure-outcome associations may vary across different places, use locally available data to the extent practicable to derive quantitative estimates.
IMPLEMENTER: local governments, academic institutions, non-profit organizations, healthcare sector, insurance industry
State/Federal Partners: FDOH

PH 4.4 Partner with the Florida Department of Health to track climate-sensitive stressors (e.g. temperature, humidity, air pollutants) using methods such as real-time sensors placed in various locations and disseminate the results in near real-time or at regular intervals.
IMPLEMENTER: local governments, healthcare sector, academic institutions
State/Federal Partners: FDOH

PH-5 Coordinate with healthcare institutions on health data monitoring systems and tools to evaluate and improve understanding of the potential correlations between emerging and reemerging health conditions, illnesses and diseases, and climate change stressors. Ensure healthcare professionals are

trained on climate-related health impacts.

PH 5.1 Identify the health conditions, illnesses and diseases exacerbated or spread by climate change either directly or indirectly from impacts on air quality, water quality, reduced drainage capacity, and increasing heat and humidity. Identify the currently collected health data serving as indicators of emerging diseases associated with climate change impacts, and current gaps in health data that would support the monitoring of climate change health impacts.
IMPLEMENTER: academic institutions
State/Federal Partners: FDOH

PH 5.2 Partner with public health experts from the Florida Department of Health, Environmental Health Departments, healthcare institutions and academic institutions to create a subject matter expert group to work on health mitigation interventions and monitoring of identified indicators of health risks to ensure timely responses.
IMPLEMENTER: local governments, healthcare sector, academic institutions
State/Federal Partners: FDOH

PH 5.3 Include climate-related health impact education in professional curriculums, including but not limited to high school and vocational school, medical education/continuing medical education, and medical conferences.
IMPLEMENTER: professional/trade associations, academic institutions, certifying and accrediting boards

PH 5.4 Evaluate regional assessment tools that tie climate projections to potential future public health risks in order to determine their feasibility or develop new tools as needed.
IMPLEMENTER: healthcare sector, academic institutions, local governments

PH 5.5 Identify and address gaps in current data collection and reporting practices (both granular and geographic) to improve health outcome projections regarding the exacerbating effects climate change has on health risks, including:

- Direct impacts: extreme heat, air pollution, extreme weather
- Spread of insect and vector-borne diseases
- Disruption of water and food supplies, including contaminated water and food, hunger and malnutrition
- Disruption of emotional wellbeing and emotional stress

IMPLEMENTER: healthcare sector, academic institutions

PH 5.6 Invest in data collection and reporting to fill critical gaps about the exacerbating effects climate change has on existing health risks.
IMPLEMENTER: healthcare sector, academic institutions
State/Federal Partners: FDOH

PH-06 Improve the resilience of healthcare sector facilities and the communities they serve to ensure continuity of care without interruption and to mitigate health and environmental impacts.

PH 6.1 Conduct and share results of a climate impact assessment with healthcare facilities' management team to avoid loss of services during disruptions. Collaborate on planning and preparation for shocks and stressors related to climate change.
IMPLEMENTER: healthcare sector

PH 6.2 Collaborate with resilience and climate practitioners across local governments, public agencies and the nonprofit sector in order to share information, and advance and align activities to increase the resilience of healthcare facilities.
IMPLEMENTER: healthcare sector, local governments, non-profit organizations, community-based organizations

PH 6.3 Conduct emergency operation planning in coordination with other healthcare facilities across the region to ensure redundancy of critical systems and continuity of care.
IMPLEMENTER: healthcare sector

PH 6.4 Collaborate with community and local government partners and align with existing resilience efforts to identify and advance best practice strategies for climate adaptation and GHG mitigation that support patient and community health and build the resilience of healthcare facilities.
IMPLEMENTER: healthcare sector, local governments, community-based organizations

PH 6.5 Work with non-profit healthcare providers to craft their community health needs assessment and access community benefit dollars.
IMPLEMENTER: healthcare sector, non-profit organizations

PH 6.6 Coordinate climate preparedness planning among healthcare systems, healthcare providers, clinicians, and medical and allied healthcare professionals.
IMPLEMENTER: healthcare sector

Public Policy Advocacy

GOAL: Guide and influence all levels of government to address the climate crisis through relevant policies, programs and legislation.

Urgently addressing the climate crisis requires concerted policy changes across all levels of government. Efforts of local governments in the Compact region to aggressively reduce greenhouse gas (GHG) emissions and build resilience are critical. The 2022 Supreme Court decision In *West Virginia v. Environmental Protection Agency (EPA)*, recognized EPA authority to regulate carbon dioxide emissions from the utility sector. However, it limits how far that authority reaches, further cementing the continued importance of sub-national action. That said, the aggressive, urgent and scaled climate action needed to zero out GHG emissions and adapt to unavoidable impacts is not possible without federal and state policy. Federal and state governments must and can do more. They hold greater levels of authority; have access to more significant funding; operate on broader scales; and build, operate, and maintain a vast array of critical infrastructure in Southeast Florida. Further, local government action can be hamstrung or limited through pre-emptive, state-level policies that work against critical and regionally shared resilience objectives.

Public policy advocacy is one of the core functions for which the Compact was created. The Compact seeks to influence elected representatives and agency staff at the state and federal levels to advance key legislative issues, budget priorities and regulations important to Southeast Florida. The Compact partners must coordinate their advocacy on climate, energy and resilience issues to amplify the region's voice in Tallahassee and Washington. The Compact's shared advocacy efforts—whether state or federal, legislative or regulatory—are based on policy documents approved by each Compact County's respective Board of County Commissioners. While individual issues will change from year to year and are reflected in the Compact's annual policy platform documents, the Compact partners remain firmly committed to raising their voices in unison for the good of the region and the planet.

Recommendations

PP-1 Support—at all levels of government—policy, legislation and funding to reduce greenhouse gas emissions to net zero by 2050 in all sectors, use less energy and water, deploy renewable energy and low-carbon transportation, prepare for and adapt to climate impacts, and build community resilience while incorporating principles of equity and best available science in decision-making.

PP 1.1 Integrate the Regional Climate Action Plan (RCAP) objectives in all planning and policies developed by local governments and agencies. Focus efforts on specific recommendations that require a policy or policy process change.
IMPLEMENTER: Southeast Florida Regional Climate Change Compact, local governments, regional agencies

PP 1.2 Advocate for state and federal policy changes and funding that aid local climate work, as outlined in RCAP recommendations. Coordinate and develop regional advocacy through the Compact Policy Knowledge Exchange.
IMPLEMENTER: Southeast Florida Regional Climate Change Compact, local governments, regional agencies

PP-2 Develop joint positions on greenhouse gas emissions reduction, energy and resilience issues and advocate together as the Compact and with other partners for those positions before state and federal legislatures, regulatory bodies and the executive and judicial branches of government.

PP 2.1 Continue developing joint federal and state climate, energy and resilience legislative programs to guide united federal and state advocacy by the Compact and others in the region.
IMPLEMENTER: Southeast Florida Regional Climate Change Compact

PP 2.2 Participate in Florida Public Service Commission proceedings that could significantly affect regional climate interests.
IMPLEMENTER: Southeast Florida Regional Climate Change Compact, local governments

PP 2.3 Advocate for incorporation of climate-related policies and programs in state and federal infrastructure funding programs.
IMPLEMENTER: Southeast Florida Regional Climate Change Compact, local governments, regional agencies, advocacy organizations

PP 2.4 Support continued U.S. participation in global climate accords and continued action to meet national goals under global agreements.
IMPLEMENTER: Southeast Florida Regional Climate Change Compact, local governments

PP-3 Urge federal, state, regional and local partners to prioritize greenhouse gas emissions reductions and climate adaptation in the planning, construction, and operation of local and regional government infrastructure.

PP 3.1 Coordinate infrastructure design, siting, construction and operations standards among federal, state, regional and local entities.
IMPLEMENTER: Southeast Florida Regional Climate Change Compact, local governments, regional agencies, SFWMD
State/Federal Partners: USACE

PP 3.2 Engage and partner with the U.S. Army Corps of Engineers, the South Florida Water Management District and other regional partners to advance Compact objectives, especially flood preparedness, mitigation, green infrastructure and an integrated approach to flood preparedness.
IMPLEMENTER: Southeast Florida Regional Climate Change Compact, local governments, SFWMD
State/Federal Partners: USACE

PP-4 Work with public-, private-, nonprofit-, and/or academic-sector stakeholders to advance policies that reduce greenhouse gas emissions and build resilience to climate impacts.

PP 4.1 Map and identify the landscape of public, private, non-profit organizations and academic institutions currently working on climate and resilience issues in Southeast Florida.
IMPLEMENTER: Southeast Florida Regional Climate Change Compact, local governments

PP 4.2 Partner with relevant institutions, including, but not limited to, leagues of cities, business alliances and community-based organizations in Florida and elsewhere.
IMPLEMENTER: Southeast Florida Regional Climate Change Compact, local governments,

community-based organizations, advocacy organizations, private sector

PP 4.3 Facilitate collaborative coalitions to tackle regional challenges that cross sectors and jurisdictions, such as the Business Case for Resilience.
IMPLEMENTER: Southeast Florida Regional Climate Change Compact

PP 4.4 Enlist utilities to reduce GHG emissions to net zero by 2050 across all sectors.
IMPLEMENTER: Southeast Florida Regional Climate Change Compact, electric utilities, local governments, private sector, advocacy organizations

PP 4.5 Coordinate with other climate-related collaboratives inside and outside of Florida to exchange knowledge and strengthen advocacy efforts.
IMPLEMENTER: Southeast Florida Regional Climate Change Compact

PP 4.6 Engage with, educate and support non-traditional allies with political influence and shared interests (e.g., economic/business groups) to make the case for climate action in Tallahassee and Washington D.C., including reducing GHG emissions.
IMPLEMENTER: Southeast Florida Regional Climate Change Compact, private sector, electric utilities

PP-5 Coordinate the development and adoption of local greenhouse gas emissions reduction, adaptation and climate resilience policies among counties, municipalities, school districts and other units of government within the region.

PP 5.1 Share information about effective climate policies and implementation successes among counties, municipalities, school districts and other units of government through platforms like the Regional Climate Action Plan. Develop information, communication tools and materials to aid dissemination, public outreach and advocacy.
IMPLEMENTER: Southeast Florida Regional Climate Change Compact, non-profit organizations

PP 5.2 Adopt regional tools and policy commitments such as the Compact's Regionally Unified Sea Level Rise Projections.
IMPLEMENTER: local governments, regional agencies

PP 5.3 Report local progress through the Compact Climate Assessment Tool (C-CAT) and other reporting frameworks
IMPLEMENTER: local governments

PP 5.4 Foster collaboration among elected officials and local government staff across jurisdictions regarding climate issues.
IMPLEMENTER: Southeast Florida Regional Climate Change Compact, local governments

PP 5.5 Train staff on climate issues.
IMPLEMENTER: Southeast Florida Regional Climate Change Compact, local governments, private sector

PP 5.6 Pursue external funding (state, federal, philanthropic) and technical assistance that supports carbon pollution reduction and climate resilience work across the region.
IMPLEMENTER: Southeast Florida Regional Climate Change Compact, local governments, regional agencies, school districts, non-profit organizations, community-based organizations

PP 5.7 Develop processes for regional and/or intergovernmental review, coordination, and harmonization of carbon pollution reduction and climate resilience initiatives, such as regional transportation infrastructure, GHG inventories, etc.

IMPLEMENTER: Southeast Florida Regional Climate Change Compact, regional agencies, local governments

PP-6 Integrate equity and environmental justice into climate policies and investments.

PP 6.1 Incorporate/integrate equity principles when developing policies or directing investments. Special attention should be directed to public transportation, energy efficiency, affordable housing, green space, renewable energy, water and wastewater, and solid waste.

IMPLEMENTER: Southeast Florida Regional Climate Change Compact, local governments, regional agencies

PP 6.2 Design policy and infrastructure investment processes that ensure social and economic equity and environmental justice are incorporated from the beginning and through the end.

IMPLEMENTER: Southeast Florida Regional Climate Change Compact, local governments, regional agencies

PP 6.3 Avoid and minimize direct and indirect adverse impacts of projects, policies and investments on frontline communities.

IMPLEMENTER: Southeast Florida Regional Climate Change Compact, local governments, regional agencies

PP 6.4 Include representatives from frontline communities and intermediary organizations in the policy-making process.

IMPLEMENTER: Southeast Florida Regional Climate Change Compact, local governments, regional agencies, community-based organizations

Regional Economic Resilience

GOAL: Strengthen regional economic resilience, integrity and opportunity through the involvement of elected and business leadership, and the advancement of public and private investments that mitigate climate risks and foster innovative solutions.

As climate impacts have become more apparent in Southeast Florida over the past decade, there is a growing awareness that regional collaborative efforts must expand to include a greater degree of partnership between governments and the private sector to protect the region's economy. Proactive efforts to address climate change—both in building resilience and reducing emissions—represent specific economic development opportunities for the region, while also serving to preserve and enhance existing businesses and industries critical to a diverse economic base. Protecting and expanding regional prosperity is an equal and integrated goal with protecting natural resources, infrastructure and quality of life for all who live, work and play in Southeast Florida. Efforts to address climate change and advance resilience present a significant opportunity to build a diverse regional economy that works for everyone through intentional workforce development strategies that prepare our economy for the creation of green jobs and springboard the region as a leader in the climate tech space.

It is incumbent upon local governments and the economic development community to work together to seize the opportunity presented by this economic transformation and to advance strategies that bolster the regional economy's resilience in the face of increasing climate-related shocks and stressors. Pooling shared expertise to continue to build the business case for resilience investments across Southeast Florida, and advocating collectively for appropriate investments in the region by state and federal governments are critical near-term efforts toward this aim.

Recommendations

ER-1 Establish a regional economic resilience marketing strategy.

ER 1.1 Establish a partnership among business, government and community leadership to support and deliver a coordinated marketing strategy designed to educate and engage the entire community on climate challenges and regional needs as a matter of responsibility, and as an economic imperative and opportunity.
IMPLEMENTER: private sector, economic development organizations, counties

ER-2 Advance regional resilience standards and infrastructure improvements.

ER 2.1 Coordinate with municipal, county and regional agencies and governments to identify and prioritize critical infrastructure assets, systems, and climate resilience needs in order to coordinate planning and investments to address compound future conditions flood risks.
IMPLEMENTER: local governments, regional planning councils, regional agencies, SFWMD

ER 2.2 Utilize future conditions scenarios to guide planning and investments in new and upgraded infrastructure integral to the protection and resilience of critical assets, especially water management operations relating to water, wastewater, stormwater and flood control systems.
IMPLEMENTER: local governments, SFWMD, water utilities, drainage and water control districts

ER 2.3 Deliver economic security and prosperity, and aid the region's competitive position for infrastructure funding through the use of the Regional Climate Action Plan as a shared climate resilience strategy, enhanced by regionally coordinated vulnerability assessments and action plans for project implementation.
IMPLEMENTER: local governments, private sector

ER 2.4 Actively pursue, monitor, verify and promote pilot projects showcasing innovation that serve as resilience models for regional replication, inclusive of materials, design, technology, funding, partnerships and implementation.
IMPLEMENTER: local governments, private sector, economic development organizations, academic institutions, regional planning councils

ER 2.5 Encourage and enable public and private sectors and the philanthropic community to embrace climate solutions with a focus on priority regional resilience strategies and innovation, including but not limited to, smart grids, clean and renewable energy infrastructure, resilience hubs and water management strategies.
IMPLEMENTER: local governments, private sector, regional planning councils, academic institutions, philanthropic community

ER-3 Seek federal and state engagement to reduce flood risk.

ER 3.1 Leverage the Southeast Florida Business Case for Resilience in bolstered partnerships, studies, projects, authorizations and funding to address flood risk, and advance regionally significant projects affecting critical assets, regional resources, public and private property and economics of the region.
IMPLEMENTER: counties, SFWMD, private sector, economic development organizations
State/Federal Partners: USACE

ER 3.2 Intensify the regional request by business and elected leadership for the federal government, the U.S. Army Corps of Engineers, the State of Florida, and the South Florida Water Management District to accelerate targeted and comprehensive studies of the Central and Southern Florida Flood Control System for flood risk management strategies under current and future conditions.
IMPLEMENTER: local governments, economic development organizations, regional planning councils, private sector

ER 3.3 Directly engage the U.S. Army Corps of Engineers on a broader array of coastal storm risk reduction strategies, inclusive of storm surge, shoreline protection and inland flood risk management.
IMPLEMENTER: local governments, private sector, economic development organizations, regional planning councils
State/Federal Partners: USACE

ER-4 Integrate climate resilience and economic development at the regional level.

ER 4.1 Coordinate with the South Florida and Treasure Coast regional planning councils in the development of the region's Comprehensive Economic Development Strategies (CEDS) to increase focus on regional climate resilience and priority adaptation needs. The CEDS, developed by the councils with input and direction from regional stakeholders, are prepared for the U.S. Department of Commerce Economic Development Administration to guide regional economic activity and attract critical investment to the seven-county Southeast Florida region.

IMPLEMENTER: local governments, regional planning councils, regional transportation agencies, economic development organizations, academic institutions

ER 4.2 Create a regional economic development plan focused on economic resilience and organized investment in regionally significant assets and economic clusters, inclusive of small business economic sustainability, diversifying the economy and equitable futures.

IMPLEMENTER: regional planning councils, counties, economic development organizations

ER 4.3 Work with key economic and industry clusters to develop green job training programs and those focused on emerging industries in the climate solutions arena. Partner with academic institutions to support the identification, research and development of emerging industries for the future, potentially through the creation of a 'National Center for Climate Resilience' in Southeast Florida.

IMPLEMENTERS: private sector, economic development organizations, academic institutions

ER-5 Improve understanding of the compounding role of climate change and sea level rise in the affordable housing crisis in the region. Identify opportunities for integrated solutions that center equity, prevent displacement and bolster economic development.

ER 5.1 Work with community groups to fund and commission a credible third-party study assessing the potential risk and extent of population displacement and adverse economic impact, as a function of housing pressures and predicted compound impacts of climate change. Identify possible solutions via adaptation practice and resilience policies.

IMPLEMENTER: counties, housing agencies, academic institutions, non-profit organizations, community-based organizations, economic development organizations

ER-6 Identify diverse funding, financing institutions and strategies that facilitate equitable resilience investments.

ER 6.1 Identify, pursue, and establish funding strategies, including foreign and green investments, needed at the regional and local scale to ensure organized and timely investments that support the rapid transition to a low-carbon economy. Implement infrastructure improvements that safeguard the public, the region's diverse communities and shared economies in the face of sea level rise and other climate impacts.

IMPLEMENTER: counties, economic development organizations, private sector

ER 6.2 Expand economic analyses in partnership with academic institutions, private sector and non-profit organizations to quantify and value the impact of resilience investments, including adaptation and transformations supporting a low-carbon future.

IMPLEMENTER: counties, private sector, academic institutions, non-profit organizations

ER 6.3 Ensure funding strategies are all-inclusive and equally account for the needs of under-resourced communities to deliver an equitable distribution of infrastructure investments across the region.

IMPLEMENTER: local governments

ER 6.4 Ensure investment in small, locally-owned businesses when employing emergency services funding.
IMPLEMENTER: counties, private sector, economic development organizations

ER 6.5 Engage financial institutions to bolster investments in climate resilience and adaptation, prioritizing under-resourced communities.
IMPLEMENTER: counties

ER-7 Advocate for effective and affordable risk management strategies.

ER 7.1 Assume a prominent role in advocacy efforts at the state level pertaining to the affordability, access, coverage and overall reform of hazard and wind-storm insurance offered within and by the State of Florida.
IMPLEMENTER: local governments, private sector

ER 7.2 Advocate regionally for long-term affordable and sustainable flood insurance coverage, ensuring the National Flood Insurance Program (NFIP) and private insurers properly credit communities and individual policyholders for resilience investments.
IMPLEMENTER: local governments, advocacy organizations

ER 7.3 Encourage maximum participation in the Federal Emergency Management Agency's Community Rating Systems (CRS) program and broaden the education of homeowners and businesses on flood proofing, elevation of structures and open space for water storage.
IMPLEMENTER: local governments

ER-8 Serve as a model for national climate resilience.

ER 8.1 Establish Southeast Florida as the epicenter of climate resilience by recruiting, attracting and developing economic opportunities supported by service providers, new climate technology, and innovative and expansive financing to further a low-carbon economy, a resilient future, and related sectors. Such a model advances holistic regional resilience strategies that promote widely integrated, accessible, and affordable clean energy and other low-carbon solutions; resilient community design and infrastructure improvements; and local economic development.
IMPLEMENTER: economic development organizations, private sector, counties

ER 8.2 Serve as an international mecca for climate resilience and innovation by engaging globally to foster new partnerships, finance strategies, materials, technologies and design solutions.
IMPLEMENTER: economic development organizations, private sector, counties

ER 8.3 Incentivize and solicit deployment of new systems and technology demonstrations as part of pilot projects, especially those providing environmental enhancements, or modeling net zero and other closed-loop systems.
IMPLEMENTER: local governments, private sector

ER-9 Pursue decarbonization to maintain regional economic competitiveness.

ER 9.1 Advance the regional transition to a decarbonized economy with a focus on energy efficiency, and affordable, resilient clean energy for buildings, industry, agriculture, and transportation to ensure ongoing economic competitiveness.

IMPLEMENTERS: local governments, private sector, regional transportation agencies, electric utilities, water utilities

ER 9.2 Support innovation and energy justice in the development of regional markets for energy efficiency and clean energy deployment that strengthens local job and business creation.

IMPLEMENTERS: private sector, economic development organizations, academic institutions, community-based organizations, local governments

Risk Reduction and Emergency Management

GOAL: Prepare Southeast Florida for climate shocks and stresses by coordinating interdisciplinary risk reduction planning and action with emergency management planning.

Hurricanes—historically the most prevalent extreme weather event in the region—punctuate the modern history of Southeast Florida's settlement and development, and have shaped the region into what it is today. As a result, Southeast Florida has become a leader in emergency response. While the region has expertise to draw on, it must adapt to the shifting and augmented challenges brought by climate change through enhanced risk reduction strategies and pre-disaster planning.

Climate change will continue to expose the region to more frequent and severe weather events. Future hurricanes will likely deliver greater amounts of precipitation with more intense winds, and will be exacerbated by rising seas. The region will experience greater extremes in drought, intense rainfall events and inland and coastal flooding. The impacts of sea level rise will place further stress on systems, infrastructure and service delivery, exacerbating and compounding the flood impacts from rainfall, storms and high groundwater levels. The minor flooding experienced today will become major flooding in the future, with more places subject to recurring flooding. The serious consequences of extreme heat have also more recently come into greater focus with average temperatures expected to increase, creating the potential for longer and hotter heatwaves. Taken together, changing climate conditions will not only intensify existing acute shocks and emergency situations but will also continue to compound long-term and chronic stressors.

Integrating efforts to increase climate resilience with emergency management planning provides a structure and opportunity to enhance communication and training, and connect our planning and action. Beyond the critical role of emergency management operations, preserving the social, physical and economic health of the region requires that the region advance strategies, policies and strategic investments in projects, programs and infrastructure that will reduce risk. Holistic resilience depends on reducing risk at both the individual and community levels. Such efforts and investments must consider that different communities face different levels of exposure, vulnerability and adaptive capacity across climate hazards.

Recommendations

RR-1 Identify the risk to communities, the built and physical environment, and infrastructure from the impacts of climate change—including sea level rise, storm surge, rainfall, groundwater levels, saltwater intrusion and extreme heat.

RR 1.1 Perform local climate change and sea level rise vulnerability analyses, consistent at a minimum with section 380.093, Florida Statutes, to identify and quantify risk under various climate change scenarios.
IMPLEMENTER: local governments, regional agencies, school districts, private sector
State/Federal Partners: FEMA

RR 1.2 Use the best available data, models and resources, including adopting the Compact's Regionally Unified Sea Level Rise Projection, and trusted tools developed by academic institutions and government agencies to inform planning, prioritizing and annual funding.
IMPLEMENTER: local governments, regional agencies, healthcare sector, school districts

RR-2 Integrate climate risks into hazard mitigation planning, emergency planning, evacuation training and exercises.

RR.2.1 Identify all climate-related hazards, including but not limited to storm surge, flooding and extreme heat that could require evacuation, or could further exacerbate other types of hazards addressed in comprehensive emergency response plans.
IMPLEMENTER: local governments

RR 2.2 Develop climate risk scenarios that require evacuation planning by partnering with the community to identify local factors, including geographic and social aspects of vulnerability.
IMPLEMENTER: local governments, community-based organizations

RR 2.3 Integrate climate vulnerability analyses into local mitigation strategies, hazard mitigation plans, post-disaster redevelopment plans, threat and hazard identification and risk assessment tools.
IMPLEMENTER: counties

RR 2.4 Broaden the scope, impact of projects and participation in the development of hazard mitigation plans with a focus on climate risk.
IMPLEMENTER: counties

RR-3 Advance regionally coordinated, holistic infrastructure investments to reduce risk and enhance community resilience, inclusive of flood mitigation, water and sewer upgrades, and other climate adaptation strategies such as nature-based infrastructure and urban design considerations like mobility and shade.

RR 3.1 Create a structure for cities and counties to work together on multi-jurisdictional adaptation projects in order to improve the cost-effectiveness and impact of shared investments.
IMPLEMENTER: The Southeast Florida Regional Climate Change Compact, local governments, regional agencies, regional planning councils

RR-4 Engage in opportunities to ensure solvency and affordability of insurance for Floridians.

RR 4.1 Communicate climate-related risk reduction efforts to financial institutions, rating agencies and insurers.
IMPLEMENTER: Southeast Florida Regional Climate Change Compact, local governments, advocacy organizations

RR 4.2 Advocate for windstorm and flood insurance coverage that reflects risk reduction investments and affordability concerns.
IMPLEMENTER: Southeast Florida Regional Climate Change Compact, local governments, advocacy organizations

RR 4.3 Routinely update insurance coverage options and examine whether innovative changes in the

industry can improve recovery.
IMPLEMENTER: local governments

RR-5 Prioritize transportation infrastructure for resilience investments, particularly evacuation routes.

RR 5.1 Identify vulnerable roadways and bridges using tools such as the University of Florida Sea Level Scenario Sketch Planning Tool.
IMPLEMENTER: regional transportation agencies, local governments
State/Federal Partners: FDOT

RR 5.2 Determine the current resilience of evacuation routes by mapping them against projected climate impacts, including sea level rise and king tides.
IMPLEMENTER: regional transportation agencies, local governments
State/Federal Partners: FDOT

RR 5.3 Integrate climate adaptation into the standards for designing transportation infrastructure.
IMPLEMENTER: regional transportation agencies, local governments
State/Federal Partners: FDOT

RR 5.4 Provide the Florida Department of Transportation with information on localized flooding and sea level rise impacts.
IMPLEMENTER: local governments, regional agencies
State/Federal Partners: FDOT

RR 5.5 Plan for and incorporate increased use of electric vehicles to provide necessary infrastructure along evacuation routes, such as charging stations.
IMPLEMENTER: local governments, regional transportation agencies
State/Federal Partners: FDOT, FDACS

RR- 6 Strengthen local and state regulations as appropriate to reduce risk and facilitate incremental adaptation requirements, such as but not limited to construction higher than Base Flood Elevation (BFE), higher ceiling height, increased permeability, onsite stormwater retention and higher seawall standards.

RR 6.1 Convene a panel of regional representatives from local government, and the planning, design and construction sectors to create a list of adaptation options for local codes and land use regulations.
IMPLEMENTER: The Southeast Florida Regional Climate Change Compact, local governments

RR 6.2 Develop and adopt recommendations specific to Southeast Florida counties to strengthen the code and the built environment, particularly in regard to flooding hazards.
IMPLEMENTER: professional/trade associations, counties

RR 6.3 Develop resilience and retrofit guidelines, and create municipal pilot projects.
IMPLEMENTER: local governments

RR-7 Promote and leverage existing policies and programs designed to reduce flood risks and economic losses.

RR 7.1 Promote programs that can provide resources such as local mitigation strategy activities and the Federal Emergency Management Agency National Flood Insurance Program Community Rating System.
IMPLEMENTER: local governments

RR 7.2 Provide community resources and tools for private property adaptation and flood mitigation.
IMPLEMENTER: local governments, Southeast Florida Regional Climate Change Compact

RR-8 Increase long-term community resilience and disaster recovery through distributed renewable energy and battery storage systems.

RR 8.1 Provide electric power backup through distributed solar, battery storage, microgrids and other techniques of distributed production and storage.
IMPLEMENTER: local governments, electric utilities, academic institutions

RR 8.2 Prioritize the development of redundant, resilient energy systems at emergency command centers, shelters, senior living centers and multifamily affordable housing units.
IMPLEMENTER: local governments, electric utilities, academic institutions, private sector, housing agencies, electric utilities

RR-9 Communicate climate risks and provide timely, coordinated and redundant emergency messaging.

RR 9.1 Utilize existing communications when possible and strive for consistent messaging.
IMPLEMENTER: local governments

RR 9.2 Communicate and share data on flood risks posed by storm surge, sea level rise, king tide, high tide flooding and extreme heat provided by trusted organizations like the National Weather Service and the Federal Emergency Management Agency.
IMPLEMENTER: local governments, Southeast Florida Regional Climate Change Compact

RR 9.3 Communicate risks in an accessible way. Create materials in different languages, including American Sign Language, and disseminate these materials through traditional media, social media and the arts as appropriate to the community.
IMPLEMENTER: local governments, non-profit organizations, community-based organizations, arts and cultural organizations

RR 9.4 Determine the most locally relevant communications strategies and channels. Align with public emergency messaging and existing government notification systems to ensure redundant lines of communication. Use effective communication strategies, such as social media, multi-platform emergency alert systems and existing government notification systems.
IMPLEMENTER: local governments

RR 9.5 Consider non-internet public communication alternatives due to power outages, such as community boards in public spaces.
IMPLEMENTER: local governments

RR-10 Create pre-disaster plans for post-disaster recovery.

RR 10.1 Create a pre-disaster plan that includes neighborhoods, businesses and government for

accelerated recovery and resilience. These strategic plans should cover critical infrastructure systems, land use, housing, economic development and public health.
IMPLEMENTER: counties

RR 10.2 Ensure that post-disaster redevelopment plans prioritize resilience and equity objectives.
IMPLEMENTER: counties

RR. 10.3 Expand pre-disaster planning to deepen engagement with the business community and economic development organizations.
IMPLEMENTER: counties

RR-11 Work with business associations, such as Chambers of Commerce, to host trainings and provide resources for individual small business recovery.

RR 11.1 Share or develop regional tools and templates for preparing business recovery plans.
IMPLEMENTER: local governments, economic development organizations, Southeast Florida Regional Climate Change Compact

RR 11.2 Develop education sessions for small-business, and resident adaptation and recovery plans.
IMPLEMENTER: local governments, economic development organizations

RR-12 Conduct disaster planning and preparedness training for city and county staff.

RR 12.1 Identify existing disaster and preparedness training programs for local government staff. Assess the content and outcome of different training programs, and provide guidance for municipal and county governments to select an effective training program for the local context.
IMPLEMENTER: local governments, regional planning councils

RR 12.2 Include climate risk training as part of emergency management training, inclusive of staff and elected officials. Training should advance understanding of interdependencies and cascading impacts across systems in an emergency management situation.
IMPLEMENTER: local governments, regional planning councils

RR-13 Connect and build trust with frontline populations to help inform emergency management planning.

RR 13.1 Include representatives from community-based organizations that have trusted relationships with frontline communities in emergency management decision-making processes.
IMPLEMENTER: local governments

RR 13.2 Partner and engage through programs such as the Community Emergency Response Team, AmeriCorps, as well as other local groups including faith-based organizations.
IMPLEMENTER: local governments

RR 13.3 Utilize Resilience Hubs year round and for pre- and post-disaster community resources.
IMPLEMENTER: local governments

RR-14 Ensure the emergency management definition of "communities at risk" includes economically vulnerable people.

RR 14.1 Use the best available data and tools, such as but not limited to the Social Vulnerability Index (SVI) to develop a "communities-at-risk" map of LMI and frontline populations, using census data as well as local knowledge.
IMPLEMENTER: local governments

RR 14.2 Create programs to address the specific needs of frontline populations in order to reduce risks to these communities during an emergency and aid in their equitable recovery post-disaster.
IMPLEMENTER: local governments

RR-15 Strengthen inter- and intra-governmental communication, coordination and alignment, with a specific focus on emergency management and chief resilience officer roles to respond to shocks and bolster long-term plans.

RR 15.1 Understand and communicate the roles of emergency management staff and chief resilience officers. Integrate emergency management into overall community resilience initiatives and vice versa.
IMPLEMENTER: local governments

RR 15.2 Coordinate and communicate emergency response and disaster recovery planning across jurisdictions.
IMPLEMENTER: local governments, regional agencies

Sustainable Communities and Transportation

GOAL: Adapt to the impacts of climate change and reduce greenhouse gas emissions by reshaping where and how to build and move from place to place.

A sustainable community is one that seeks a better quality of life for all community members, minimizing physical and socio-economic risks related to climate change, while increasing adaptive capacity at the individual and community scales, and ensuring that human, natural and financial capital can meet both current and future needs. Such a community reduces carbon emissions and leverages the protective qualities of natural systems by adopting compact, efficient growth models.

Meeting this vision requires a fundamental transformation in how we plan and invest in our communities, including where and how we develop, how we move from place to place, and how we manage land and resources. Local governments' comprehensive planning, zoning and regulations are critical tools in the toolbox that set a vision and drive change toward more resilient, prosperous, convenient, equitable, healthy and attractive communities for present and future generations.

The recommendations in this chapter are related to comprehensive planning, and the myriad of approaches that should be employed by planners to increase adaptive capacity—from the incorporation of resilience objectives and future climate conditions scenarios to the designation and implementation of localized planning efforts that aim to direct technical assistance and funding opportunities to areas especially vulnerable to the impacts of sea level rise and associated coastal flooding.

This section also provides recommendations to promote effective engagement of the multiple public- and private-sector entities involved in the provision and maintenance of transportation infrastructure and the delivery of transportation services in the region for climate adaptation and mitigation. Currently, the transportation sector contributes approximately 48% of the region's GHG emissions. The strategies outlined—such as reducing vehicle miles traveled by shifting trips taken from autos to walking, biking or public transportation—will work to reduce emissions and realize the cross-cutting benefits of more livable and desirable communities in the region.

Regionally coordinated multimodal transportation planning efforts between transportation and planning entities rely on data sharing and analyses from studies and tools identifying vulnerable and/or at-risk transportation infrastructure to performance metrics. Local and regional planning and decision-making processes must ensure a complementary approach to developing and maintaining a system of land use and transportation that is more resilient, while also reducing vehicle miles traveled, providing more transportation choices and dealing with future uncertainty.

Recommendations

ST-1 Incorporate resilience and sustainability objectives, inclusive of the Southeast Florida Regionally Unified Sea Level Rise Projections in city, county and regional agency comprehensive plans, transportation and other infrastructure plans, and capital improvement plans.

ST 1.1 Review local government comprehensive plans and transportation, infrastructure and capital

improvement plans to determine gaps in planning for projected sea level rise in Southeast Florida, and ensure resilience objectives are incorporated. Identify opportunities to maximize intergovernmental and interagency coordination on utilization of the Southeast Florida Regionally Unified Sea Level Rise Projections.

IMPLEMENTER: local governments, regional planning councils

ST 1.2 Update local government and regional plans as needed to incorporate periodic updates to the Southeast Florida Regionally Unified Sea Level Rise Projections, and account for ongoing advances in scientific knowledge and modeling.

IMPLEMENTER: local governments, regional planning councils, regional agencies

ST-2 Ensure locally produced maps for planning and project documents include the latest storm surge and sea level rise projections.

ST 2.1 Develop sea level rise scenario maps and updated storm surge maps based on the Compact's Regionally Unified Sea Level Rise Projections and storm surge modeling, such as the National Oceanic and Atmospheric Administration's Sea, Lake and Overland Surges from Hurricanes (SLOSH) model, to be included in appropriate local and regional planning documents.

IMPLEMENTER: local governments, regional planning councils

ST 2.2 Use locally produced maps to guide municipal and county government climate adaptation planning efforts related to:

- The built environment
- Transportation infrastructure and services
- Historic and archaeological resources
- Water management systems and public infrastructure
- Natural resources

IMPLEMENTER: local governments

ST 2.3 Continue to update maps in local and regional plans as more data becomes available and scientific projections are refined. Local governments, agencies and organizations should use best available data and tools for land use and other planning.

IMPLEMENTER: local governments, regional planning councils

ST-3 Use vulnerability and risk assessment analyses and tools to designate Adaptation Action Areas (AAAs) or similar designation, and identify priorities for resilience investments.

ST 3.1 Conduct vulnerability and risk assessments in accordance with Section 380.093, Florida Statutes to identify areas requiring adaptation strategy development.

IMPLEMENTER: local governments, regional planning councils

ST 3.2 Use local government authority to designate or otherwise recognize AAAs or similar designation to identify areas deemed most vulnerable to sea level rise and other climate change impacts (including, but not limited to, extreme high tides, heavy local rain events, and storm surge), and prioritize funding and adaptation planning. Such areas may include:

- Areas below, at, or near mean higher high water
- Areas with a hydrological connection to coastal waters
- Areas designated as evacuation zones for storm surge
- Other areas impacted by climate-related drainage and/or flood control issues

IMPLEMENTER: local governments

ST 3.3 Document, inventory and share data sources, thresholds, criteria and models to encourage the use of common approaches to vulnerability and risk assessments and, ultimately, the development and implementation of adaptation strategies that will be complementary across jurisdictions and infrastructure types and result in a cohesive, resilient built and natural environment.
IMPLEMENTER: local governments, regional agencies, regional planning councils

ST-4 Develop localized adaptation strategies for areas of greatest climate-related vulnerability in collaboration with appropriate agencies and jurisdictions to foster multi-jurisdictional solutions and maximize co-benefits.

ST 4.1 Develop policies, capital plans and a specific pipeline of projects that address climate-related vulnerabilities, including those designated via Adaptation Action Areas (AAAs).
IMPLEMENTER: local governments, regional agencies

ST 4.2 Identify locations within AAAs or similarly vulnerable areas where focused infrastructure improvements, new infrastructure, modified land use and/or development practices could reduce vulnerability and/or improve community resilience.
IMPLEMENTER: local governments

ST 4.3 Coordinate regionally across municipalities and county planning authorities to develop projects and funding proposals seeking prioritized funding for identified infrastructure needs and specific adaptation improvements required in AAAs or other related adaptation planning areas.
IMPLEMENTER: local governments, regional planning councils, regional transportation agencies

ST 4.4 Identify populations and communities that are most vulnerable or of special concern within AAAs and similarly vulnerable areas to ensure proper consideration of individual needs and resources as part of local and regional planning activities.
IMPLEMENTER: local governments, regional planning councils

ST 4.5 Utilize technical workshops and collaborative design charrettes to help develop adaptation strategies, including those focused on living with the water. Include case studies of green (e.g., natural stormwater retention) and gray (e.g., road elevation) solutions that provide information on planning, design, construction and communication experiences.
IMPLEMENTER: local governments, regional planning councils

ST-5 Designate conservation areas and growth areas as a priority-setting tool for areas vulnerable to climate change impacts, and to maximize benefits to natural systems while guiding people and commerce to less vulnerable places in the region.

ST 5.1 Designate or otherwise recognize conservation areas in local government comprehensive plans and post-disaster redevelopment plans to identify undeveloped areas vulnerable to climate change impacts. These undeveloped areas should be assessed and prioritized to maximize the benefits of natural systems, including:

- Environmental restoration
- Dune restoration
- Beach restoration
- Agriculture

- Natural resource conservation
- Recreational open space
- Stormwater retention areas

IMPLEMENTER: local governments

ST 5.2 Prioritize land acquisition in areas identified for conservation. This land could also be protected or acquired through mitigation or transfer-of-development rights initiatives.

IMPLEMENTER: local governments, regional agencies

State/Federal Partners: FDEP, FWC, FDACS

ST 5.3 Designate or otherwise recognize areas in local government comprehensive plans and post-disaster redevelopment plans where growth is encouraged due to higher elevation, the lack of adverse impacts to important natural areas, and the presence of existing infrastructure, such as transportation, water and sewer infrastructure. Growth areas should be developed as fully integrated developments that do not create the need for infrastructure that is not otherwise met by the development plan.

IMPLEMENTER: local governments

ST-6 Develop an approach for utilizing unused or underutilized properties to advance resilience goals.

ST 6.1 Conduct an assessment of existing unused or underutilized properties (e.g., parking garages) and their specific land characteristics.

IMPLEMENTER: local governments

ST 6.2 Design and prioritize resilience and adaptation projects for unused or underutilized properties based on the specific characteristics and capacity of each property. Potential uses of unused or underutilized properties could include:

- Stormwater flow and storage
- Green space/open space or urban parks
- Emergency shelters
- Ecosystem restoration or enhancement

IMPLEMENTER: regional agencies

ST-7 Ensure beneficial social equity outcomes in considering the impacts of land use policy, public infrastructure and public service decisions on frontline populations.

ST 7.1 Identify the factors that can impact social and economic equity locally, and implement policies that result in building/maintaining infrastructure and provision of services needed to meet critical needs, including:

- Public transportation
- Energy efficiency
- Affordable housing
- Green space

IMPLEMENTER: local governments, regional agencies, electric utilities, water utilities

ST 7.2 Draw on recent and relevant social vulnerability data in all planning processes.

IMPLEMENTER: local governments, regional planning councils, regional agencies

ST 7.3 Include representatives from frontline communities and intermediary organizations in the

policy-making process.
IMPLEMENTER: local governments, regional agencies

ST-8 Reduce risk and economic losses associated with sea level rise and flooding through the implementation of local government comprehensive plans, post-disaster redevelopment plans, building codes and land development regulations.

ST 8.1 Incorporate strategies into local government comprehensive plans and post-disaster redevelopment plans to discourage new development or post-disaster redevelopment in climate-vulnerable areas in order to reduce future risk and economic losses associated with sea level rise and flooding which may include, as appropriate, the following:

- prohibition on increased density/intensity
- reduce densities/intensities
- transfer of development rights
- targeted buyouts

IMPLEMENTER: local governments

ST 8.2 Work with the appropriate local, regional and state authorities to revise building codes and land development regulations to require vulnerability reduction measures (e.g. additional hardening, higher floor elevations and the incorporation of natural infrastructure) for increased resilience of all new construction, redevelopment and infrastructure.
IMPLEMENTER: local governments, regional planning councils
State/Federal Partners: Florida Building Commission

ST 8.3 Avoid placing critical facilities in areas vulnerable to climate-related hazards. Prioritize protection and hardening of critical facilities already located in such areas and pursue relocation as appropriate.
IMPLEMENTERS: local governments

ST-9 Adopt green building standards to guide decision-making and development, and to require and/or incentivize better locations, design and construction of residential, commercial and mixed-use developments and redevelopment.

ST 9.1 Incorporate sustainable building and neighborhood ratings or national model green building codes, including but not limited to those defined in Section 255.253(7) of the Florida Statutes, into local government codes region-wide.
IMPLEMENTER: local governments

ST 9.2 Update lighting standards to reduce light pollution and promote energy conservation.
IMPLEMENTER: local governments

ST-10 Preserve and enhance the resilience of threatened historic and archaeological resources through the implementation of best practices to identify, evaluate and prioritize such sites.

ST 10.1 Identify and map historic and archaeological resources at risk from climate change, and continue to update these maps as more data become available and scientific projections are refined. Include the maps in local government comprehensive plans and/or regional planning documents to guide municipal and county government climate adaptation planning efforts.
IMPLEMENTER: local governments, regional planning councils

ST 10.2 Establish a ranking of at-risk regional, historic and archaeological resources based on a matrix of vulnerability, historical significance, scientific and economic value, and other criteria as determined by the appropriate historic preservation entities. Prioritize adaptive preservation and mitigation strategies to increase the resilience of resources against flooding and natural disasters.
IMPLEMENTER: local governments, historic preservation entities, arts and cultural organizations

ST 10.3 Develop adaptive sustainable preservation strategies, including existing best-practice models available from national and state preservation authorities that are flexible and regularly evaluated and updated, including in-situ and mitigation alternatives.
IMPLEMENTER: local governments, historic preservation entities, arts and cultural organizations

ST 10.4 Utilize available national and state emergency management funding to facilitate the implementation of recommended best practices. Establish local and regional incentives for the pre-disaster hardening of threatened resources.
IMPLEMENTER: local governments, regional planning councils

ST-11 Employ transit-oriented developments and other planning approaches to promote higher-density development capable of supporting more robust transit.

ST 11.1 Support effective planning and implementation of transit-oriented developments (TOD) at the local and regional levels—in coordination with the effective planning and provision of transit services and stations—to maximize ridership, reduce vehicle miles traveled and enhance economic development.
IMPLEMENTER: local governments, regional planning councils

ST 11.2 Prioritize transit and transit-supportive land use at the system, corridor and station levels, as well as the evaluation of adequate infrastructure such as water and sewer mains when planning for TOD.
IMPLEMENTER: local governments, regional planning councils

ST 11.3 Create and refine station area plans and develop policies to streamline approval processes involving TOD.
IMPLEMENTER: local governments

ST 11.4 Ensure the equitable distribution of the benefits of TOD and premium transit services (i.e., high-quality transit, either rail or bus, that reduces travel times, enhances regional connectivity and provides improved vehicles and transit amenities to attract customers), including through the retention or incorporation of affordable and workforce housing in TODs.
IMPLEMENTER: local governments

ST 11.5 Consider transit supportive regulations such as removing minimum parking requirements and establishing maximum parking standards for development located proximate to transit.
IMPLEMENTER: local governments

ST 11.6 Support first and last mile connections to transit which may include ride-share and micro-mobility.
IMPLEMENTER: local governments

ST-12 Modify local land use plans and ordinances to require and support compact development

patterns, creating more walkable and affordable communities. Align growth and infrastructure policies to support compact development.

ST 12.1 Identify potential changes to local government future land use maps/comprehensive plans and other plans to require and support compact development, including TOD.
IMPLEMENTER: local governments

ST.12.2 Adopt form-based codes with physical form, the design of buildings and the public realm, and an emphasis on mixed and evolving land uses as organizing principles.
IMPLEMENTER: local governments, regional planning councils

ST-13 Advance equitable economic growth that integrates equity considerations, and increases and preserves affordable housing accessible to essential services in a manner that supports retention of current residents.

ST 13.1 Incentivize the development of affordable housing accessible to essential services, including transit hubs, jobs, education, healthcare, recreation, shopping, and in locations that are less vulnerable to the impacts of climate change. Preserve existing affordable housing where appropriate.
IMPLEMENTER: local governments, regional planning councils

ST 13.2 Promote the equitable provision of transportation improvements to serve frontline communities and provide important connections to employment, schools and community spaces.
IMPLEMENTER: local governments, regional transportation agencies

ST-14 Prioritize the safety and comfort of pedestrians, cyclists and other active transportation users through Complete Streets and Vision Zero policies and programs.

ST 14.1 Collaborate on the implementation of a system of Complete Streets that is context sensitive and safely serves the needs of transportation system users of all ages and abilities, including pedestrians, bicyclists, transit riders, motorists and freight handlers. Continue to support Complete Streets with policies, guidelines, funding programs and advancements in the design of transportation projects.
IMPLEMENTER: local governments, regional transportation agencies
State/Federal Partners: FDOT

ST 14.2 Catalyze a shift to non-motorized modes of transportation through adopting a goal of Vision Zero, which emphasizes the elimination of traffic-related fatalities and provides safe, equitable and healthy mobility for all. Employ a safe systems approach that aims to eliminate fatalities and serious injuries of transportation system users by addressing five interrelated elements: safe road users, safe vehicles, safe speeds, safe roads and post-crash care.
IMPLEMENTER: local governments, regional transportation agencies
State/Federal Partners: FDOT

ST 14.3 Incorporate green infrastructure in transportation policy and project design. Ensure projects include urban heat island and/or urban tree canopy considerations to cool cyclists, pedestrians and transit system users. Promote consistent incorporation through tools such as the Greenroads Rating System and the Federal Highway Administration Infrastructure Voluntary Evaluation Sustainability Tool.
IMPLEMENTER: local governments, regional transportation agencies
State/Federal Partners: FDOT

ST 14.4 Require new development and redevelopment to be planned and designed to support and enhance walking, biking and transit use in areas with existing and planned multimodal corridors connecting employment and other activity centers in the region through all steps in the planning and development review process.
IMPLEMENTER: local governments

ST 14.5 Provide adequate shade and environmental comfort for pedestrians and other street users through urban tree canopy and other street greening efforts. Create regulations, incentives and education to maintain and expand tree canopy, especially in areas where these resources are limited.
IMPLEMENTER: local governments, regional transportation agencies
State/Federal Partners: FDOT

ST-15 Expand, connect and complete networks of bicycle and pedestrian facilities, including those supporting access to transit.

ST 15.1 Prioritize the implementation of planned networks of bicycle and pedestrian facilities that connect people to various destinations and provide recreational opportunities. Improve the overall coordination of local and regional agency planning and implementation efforts.
IMPLEMENTER: local governments, regional transportation agencies, regional planning councils

ST 15.2 Employ Complete Streets principles in the design of streets in a manner that places the highest priority on the safety, comfort and convenience of pedestrians, cyclists, and other active transportation modes. Use roadway design project checklists that include measures of pedestrian, bicycle and transit (e.g., bus bay) accommodations.
IMPLEMENTER: local governments, regional transportation agencies

ST 15.3 Develop policies to increase designated bike parking facilities at office and retail developments.
IMPLEMENTER: local governments

ST-16 Ensure transportation planning and investments reduce greenhouse gas emissions and increase the transportation system's resilience to extreme weather and climate impacts.

ST 16.1 Include goals and objectives in the Southeast Florida Regional Transportation Plan and other transportation plans that support GHG emissions reduction and the desired increase in transportation system resilience. Incorporate climate and related performance metrics, such as reduced vehicle miles traveled (VMT) and increased use of non-auto modes in transportation plans and programs. Continue to enhance and implement regionally coordinated multimodal transportation planning by metropolitan planning organizations, transit agencies and local governments.
IMPLEMENTER: local governments, regional planning councils, regional transportation agencies
State/Federal Partners: FDOT

ST 16.2 Ensure that airports and seaports set cumulative goals to reduce GHG emissions and implement strategies to meet these goals. Approaches include incorporating climate adaptation and mitigation strategies in master plans and capital expenditures, implementing Shore Power and educating and partnering with airport and seaport facility user groups/tenants on industry-best practices for reducing fuel consumption.
IMPLEMENTER: local governments, private sector

ST 16.3 Prioritize investments in local, state and federal transportation infrastructure investments,

programs and services that will reduce GHG emissions, increase resilience and align with transportation plan(s) goals and objectives. Evaluation considerations should include:

- Reduce VMT and increase the use of non-auto transportation modes
- Enhance economic vitality, such as projects and service expansions along transit-oriented corridors and those that improve connections to major airports and seaports
- Increase the resilience of the transportation system, such as providing redundancy for an at-risk route or featuring designs to reduce risks of disruption

IMPLEMENTER: local governments

ST 16.4 Ensure investments are planned and designed considering projected climate and extreme weather impacts over their lifetime. Utilize data and tools identifying vulnerable and/or at-risk transportation infrastructure and test scenarios as a part of long-range transportation planning processes, such as the University of Florida's Sea Level Scenario Sketch Planning Tool.
IMPLEMENTER: local governments, regional transportation agencies

ST 16.5 Secure adequate and sustainable funding for transportation facilities and services, including additional dedicated funding for transit operations and maintenance. Decrease reliance on revenue sources based on fuel consumption and increase reliance on funding sources such as sales surtaxes, value capture from development benefiting from transportation investments, mobility fees and public-private partnerships.
IMPLEMENTER: local governments, regional transportation agencies

ST 16.6 Participate and engage in the development of the State Transportation Resilience Plan and ensure coordination and alignment with local transportation plans.
IMPLEMENTER: local governments, regional transportation agencies
State/Federal Partners: FDOT

ST-17 Increase the use of transit as a transportation mode for the movement of people in the region.

ST 17.1 Identify and plan high-capacity transit corridors with dedicated rights of way to make transit an alternative to driving and better serve transit-dependent riders.
IMPLEMENTER: local governments, regional transportation agencies

ST 17.2 Continue efforts, such as periodic comprehensive operational analyses, to maximize existing transit services. Increase the amenities and infrastructure available to transit riders, including shade, shelters, benches, lighting and bicycle racks, utilizing solar power where feasible. Increase access to route and real-time boarding information.
IMPLEMENTER: local governments, regional transportation agencies

ST 17.3 Coordinate regional transit fares and transfer data across transit services in the region to allow for a seamless rider experience.
IMPLEMENTER: local governments, regional transportation agencies

ST 17.4 Improve connections among passenger rail and county transit services, municipal trolleys and community shuttle bus services, which may require a realignment of routes.
IMPLEMENTER: local governments, regional transportation agencies

ST 17.5 Develop and implement planning strategies to address the first and last mile of transit trips, which act as barriers for people who could potentially take transit, but whose starting point or final

destination cannot be conveniently accessed from the nearest transit stop/station due to distance, terrain, street patterns, or safety issues (e.g., traffic or crime). Consider innovative partnerships with transportation network providers, ride-sharing providers, taxis, jitneys, bike-share, micro-mobility, or through the use of autonomous vehicles.
IMPLEMENTER: local governments, regional transportation agencies, non-profit organizations, community-based organizations

ST 17.6 Plan for and increase transit ridership by providing premium transit services on targeted regional corridors and by supporting the transit system with transit-supportive land uses. Maximize access to these services by walking, biking, or taking other transit services in the transit network and by promoting affordable and mixed-income housing in and near station areas.
IMPLEMENTER: local governments, regional transportation agencies

ST 17.7 Maintain or improve the quality of service by continuing to monitor and address safety and performance.
IMPLEMENTER: local governments, regional transportation agencies

ST-18 Implement transportation system management and operations strategies to maximize the efficiency of the existing transportation system in a coordinated manner across local governments and agencies in the region.

ST 18.1 Develop a toolbox of successful transportation efficiency strategies that can be replicated across the region. Examples of strategies include:

- Integrated corridor management
- Use of roundabouts
- Real-time operation of the traffic signal system
- Traffic signal prioritization and queue jumps for transit
- Interstate ramp metering
- Freight signalization and optimization
- Emergency management coordination and public notification systems

IMPLEMENTER: local governments, regional transportation agencies
State/Federal Partners: FDOT

ST 18.2 Collect and share information on implementation steps, costs, lessons learned and the effectiveness of strategies that reduce GHG emissions.
IMPLEMENTER: local governments, regional transportation agencies

ST-19 Expand the use of transportation demand management (TDM) strategies and demonstration projects to reduce peak period and single-occupant vehicle travel.

ST 19.1 Include TDM strategies in local government and agency plans, and provide support for existing transportation management initiatives and transportation management associations.
IMPLEMENTER: local governments, regional transportation agencies

ST 19.2 Work with municipal planning organizations, South Florida Commuter Services, South Florida Vanpool, transportation network companies, and others to identify and pursue opportunities to increase use of carpools and vanpools, maximize use of available parking and promote remote work.
IMPLEMENTER: local governments, regional transportation agencies, private sector

ST 19.3 Work with companies and strategic partners including academic institutions, municipalities and large employers to establish or expand car, bike and personal vehicle sharing programs.
IMPLEMENTER: local governments, regional transportation agencies, private sector, academic institutions

ST 19.4 Encourage the use of employee benefits that support walking, biking and transit modes for work commutes (e.g., pre-tax benefits and emergency ride home programs).
IMPLEMENTER: local governments, regional transportation agencies, private sector

ST 19.5 Increase participation in programs encouraging non-single-occupant vehicle (SOV) work commutes (e.g., the South Florida Commuter Challenge) and explore the adoption of commute trip reduction ordinances.
IMPLEMENTER: local governments, regional transportation agencies

ST-20 Advance resilience, maximize efficiency and increase the use of low-carbon transportation modes for the movement of freight in the region.

ST 20.1 Incorporate climate adaptation strategies and GHG emission inventories into seaport and airport master plans and county and/or regional freight plans. Plans should address the critical last mile to and from major seaports and airports in part by providing comprehensive plan land use designations, policies and standards that protect the function of roadway segments connecting seaports and airports (hubs) to corridors (e.g., interstate highways).
IMPLEMENTER: local governments, regional transportation agencies

ST 20.2 Implement strategies designed to improve the efficiency of freight movement as part of the region's comprehensive intelligent transportation systems and transportation system management and operations programs. Strategies include implementing communications applications through a virtual freight network.
IMPLEMENTER: local governments, regional transportation agencies

ST 20.3 Establish performance measures (e.g., for GHG emissions) for freight projects and initiatives and monitor performance.
IMPLEMENTER: local governments, regional transportation agencies

ST 20.4 Support the clustering of distribution facilities to promote intermodal centers and economic development.
IMPLEMENTER: local governments

ST 20.5 Explore how to optimize the use of existing rail corridors, and consider new rail corridors to support increased use of rail for the movement of freight.
IMPLEMENTER: local governments, regional transportation agencies

ST 20.6 Enhance approaches for the delivery of goods in urban or downtown areas in collaboration with the freight community, including strategies such as establishing designated routes, using smaller trucks and establishing loading and unloading zones and times.
IMPLEMENTER: local governments, regional transportation agencies, private sector

ST 20.7 Monitor and encourage advances in technology that could improve efficiency and reduce GHG emissions from freight movement (e.g., platooning of connected and/or autonomous trucks and use of

unmanned aerial vehicles for deliveries).
IMPLEMENTER: local governments, regional transportation agencies, private sector

ST-21 Use evidence-based planning and decision-making for transportation system investments and management.

ST 21.1 Collaborate on the collection and use of transportation-related data with an emphasis on enhancing currently available data or filling data gaps (e.g., on walking and biking trips). Collaborate on performance metrics for transportation facilities and services that are multimodal, address the linkage between transportation and land use, and reflect intergovernmental and interagency coordination.
IMPLEMENTER: local governments, regional transportation agencies

ST 21.2 Research how travel behaviors are influenced by:

- development patterns
- emerging technologies such as autonomous vehicles
- enhanced multimodal infrastructure and services

IMPLEMENTER: local governments, regional transportation agencies, academic institutions

ST 21.3 Explore and enhance the capabilities of the region's activity-based travel demand forecast model for long-range transportation planning in order to simulate trip making and mode choices, test policy alternatives and scenarios, and project GHG emissions.
IMPLEMENTER: local governments, regional transportation agencies

ST 21.4 Identify and build capacity in the use of additional tools for assessing travel demand from a multimodal perspective, including those used in conjunction with local government reviews of proposed land use changes and development or redevelopment projects.
IMPLEMENTER: local governments, regional transportation agencies

ST 21.5 Incorporate measures of accessibility to destinations using multiple modes of travel in the evaluation of land-use and transportation plans and programs. Educate transportation and land-use staff on the value of access-to-destinations measures. Access to destinations means that everyone can reach valued destinations such as jobs, school, healthcare institutions, recreational sites, etc. regardless of socioeconomic background, race, ethnicity, gender, physical ability etc.
IMPLEMENTER: local governments, regional transportation agencies

ST-22 Enable a fuel-efficient public vehicle fleet.

ST 22.1 Develop policies to establish infrastructure that complements transit-oriented corridors, including preferred and/or reduced parking fees for riders accessing transit facilities by electric or other renewable fuel vehicles. Identify funding sources for transit-oriented corridor infrastructure improvements.
IMPLEMENTER: local governments, regional transportation agencies

ST 22.2 Reduce GHG emissions by procuring renewable fuel and electric transit vehicles with the goal of achieving low/zero emissions for the transit fleet.
IMPLEMENTER: local governments, regional transportation agencies, school districts

ST 22.3 Encourage government fleets to maximize miles per gallon (MPG) fuel efficiency for all non-specialty vehicle procurement.

IMPLEMENTER: local governments, regional transportation agencies

ST 22.4 Develop a vehicle procurement process that ensures a timely transition of city- and county-owned vehicles to low/zero emissions. Use sources such as the Environmental Protection Agency's Green Vehicle Guide as a procurement guide and include the cost of carbon emissions in the life-cycle cost analysis process.
IMPLEMENTER: local governments, regional transportation agencies

ST-23 Facilitate the transition to electric vehicles by the public.

ST 23.1 Prioritize solar + battery storage charging infrastructure to maximize emissions-reduction benefits and improve the community's emergency preparedness and resilience for disaster recovery during power grid outages.
IMPLEMENTER: local governments, electric utilities

ST 23.2 Develop solar carports and fast charging, and consider cogeneration as a second energy source.
IMPLEMENTER: local governments, electric utilities, private sector

ST 23.3 Identify and expand electric vehicle (EV) charging infrastructure, including supporting a regional framework for locating public EV charging stations, and expanding EV opportunities at multifamily buildings prioritizing low-income and workforce housing, workplaces and commercial and retail centers.
IMPLEMENTER: local governments, housing agencies, private sector

ST 23.4 Require new properties to have EVSE-ready electrical infrastructure and dedicate a minimum amount of parking spaces to EV parking.
IMPLEMENTER: local governments

ST 23.5 Support regional efforts to establish a framework for locating and managing EV infrastructure.
IMPLEMENTER: local governments, regional transportation agencies

ST 23.6 Encourage the use of EVs for all new and evolving shared mobility modes including ride-hailing.
IMPLEMENTER: local governments, regional transportation agencies

ST 23.7 Integrate consideration of electric vehicles into emergency management plans. Deploy EV infrastructure along evacuation routes and plan for EV support during broad power outages.
IMPLEMENTER: local governments, regional transportation agencies

ST 23.8 Address necessary electrical grid enhancements, as needed, to support the transition to clean energy and electric vehicles.
IMPLEMENTER: electric utilities

Water

GOAL: Identify, develop and implement integrated water management strategies and infrastructure improvements concurrently with existing and enhanced water conservation and alternative water supply source efforts to mitigate the adverse effects of climate change, including sea level rise on water resources systems and operations.

Water is critical in preserving and enhancing the quality of life, future resilience and sustainability of Southeast Florida. Compounding effects of rising sea levels, changing rainfall patterns, increasing temperature and rising groundwater levels will increase the vulnerability of communities due to increasing flood periods, accelerating saltwater intrusion into freshwater aquifers, water shortages during droughts, and degradation of the ecological health of our environment. The economic viability of Southeast Florida, including real estate values, property insurability and the tourism industry depends on well-managed, sustainable and safe water resources. Between 2020 and 2040, the region's population is projected to increase by 15.8%[6], while the demand for water in the South Florida Water Management District's Lower East Coast Region[7] is projected to increase by 10.6%[8] over the same period. Ongoing efforts to protect drinking water supplies, prevent water pollution, restore and preserve the environment, and manage stormwater must be significantly accelerated and enhanced to account for the effects of current and future climate change.

The recommendations for regional action regarding water derive from four overarching principles. First, the South Florida Water Management District and the U.S. Army Corps of Engineers, which are the agencies responsible for the operation, maintenance and infrastructure that affects system performance of the Central and Southern Florida (C&SF) flood control system, should play a prominent role in water supply planning, flood protection, improvement of water quality and restoration using principles of integrated water management with an emphasis on climate change, in partnership with local governments and the private sector. The C&SF is a multi-purpose project authorized by Congress over 70 years ago that provides flood control, water supply for municipal, industrial and agricultural uses, prevention of saltwater intrusion, water supply for Everglades National Park and protection of fish and wildlife resources. The C&SF Project flood control system is critically important to protecting the safety of more than 8.1 million people and is foundational to all resilience efforts in the region. Second, resilience against climate change requires consistency and urgency in the use of science and technology to support planning, management and investment decisions across all agencies and the region. Third, resilience planning must recognize the connectivity of water issues and that all water has value, addressing spatial and temporal dimensions, ranging from local to regional scales, and including inland to coastal to barrier island settings. Fourth, regional resilience strategies should be developed as a part of a planning and regulatory framework that considers future climate conditions, and upstream and downstream consequences, such as regional water quality and quantity implications, to avoid natural systems impacts and unintended effects on adjacent properties and communities.

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[6] Florida Demographic Estimating Conference, March 2021 and the University of Florida, Bureau of Economic and Business Research, Florida Population Studies, Volume 54, Bulletin 189, April 2021

[7] The Lower East Coast Water Supply Plan includes Palm Beach, Broward, Miami-Dade and parts of Monroe, Collier and Hendry counties.

[8] South Florida Water Management District's 2018 Lower East Coast Water Supply Plan Update.

Recommendations

WS-1 Practice integrated water resources management and planning.

WS 1.1 Convene forums to develop joint assessment and planning strategy involving local water utilities, wastewater service providers, water managers and partners to the Southeast Florida Regional Climate Change Compact for the coordination of:

- Stormwater use and disposal
- Rainfall-derived inflow and infiltration
- Traditional and alternative water supplies
- Wastewater disposal
- Water reuse
- Expansion of water conservation measures (e.g., maintaining adequate aquifer levels and minimizing the use of potable water for irrigation purposes)
- Amendments to applicable development codes and regulations

IMPLEMENTER: local governments, SFWMD, drainage and water control districts

WS 1.2 Develop local integrated water management plans based on joint assessment and planning strategies.

IMPLEMENTER: local governments, SFWMD, drainage and water control districts

State/Federal Partners: FDEP

WS-2 Foster innovation, development and exchange of ideas for managing water.

WS 2.1 Develop and share water management information, methods, technical capabilities, and trends addressing climate variability and sea level rise through the Compact's collaborations with state and federal agency partners and academic institutions.

IMPLEMENTER: counties, water utilities, SFWMD, Southeast Florida Regional Climate Change Compact

WS 2.2 Provide forums and opportunities for innovation and exchange of ideas between water resource managers, policymakers, stakeholders, scientists, and researchers in collaboration with the Compact, the South Florida Water Management District and local academic partners, which could include an annual water symposium.

IMPLEMENTER: SFWMD, academic institutions

State/Federal Partners: USGS

WS-3 Foster scientific research for water resource management.

WS 3.1 Foster and support collaborative scientific research and investigative work through academic institutions to improve water resource management. To advance collaboration, such efforts should leverage regional and local work products including vulnerability assessments and other relevant plans. Scientific research needs may include but are not limited to:

- Downscaling global climate models to represent precipitation and temperature patterns at the regional and local scale, and developing standardized precipitation scenarios for the region.
- Identifying and targeting gaps in monitoring and data availability (e.g., light detection and ranging (LIDAR), environmental and water quality data, or data supporting regional climate indicators) to improve the quantification of the hydrologic system and its

response to climate change (e.g., evapotranspiration, surface and groundwater levels, water quality, precipitation and local sea level).

- Developing integrated risk-based decision-support tools and processes for application in the analysis and selection of infrastructure design, water resource management, natural systems management, and hazard mitigation alternatives in response to climate change and increased flood risks. Tools should facilitate the evaluation of trade-offs and uncertainties, and consider the economic costs of comparative planning scenarios, management decisions and infrastructure investments.

IMPLEMENTER: academic institutions, counties, SFWMD
State/Federal Partners: FDEP

WS 3.2 Build partnerships, technology exchanges and funding opportunities with public, private, academic, domestic and international partners to bring additional experience and innovation to resilience planning, projects, and decision support.
IMPLEMENTER: local governments, SFWMD, academic institutions, private sector
State/Federal Partners: FDEP

WS-4 Coordinate innovative regional investments in water management technologies.

WS 4.1 Coordinate the implementation of innovative water management technologies and methodologies across multiple jurisdictions as a regional pilot for shared investments.
IMPLEMENTER: local governments, SFWMD
State/Federal Partners: USACE

WS 4.2 Share information about the results, costs and savings from water management technologies.
IMPLEMENTER: local governments, SFWMD
State/Federal Partners: USACE

WS 4.3 Scale successful cross-jurisdictional technologies to reduce the potential for redundant investments and achieve economies-of-scale while fairly distributing costs and benefits across multiple project beneficiaries.
IMPLEMENTER: local governments, SFWMD
State/Federal Partners: USACE

WS-5 Expand the use of green infrastructure/nature-based solutions and net zero solutions in water management.

WS 5.1 Develop and use green infrastructure/nature-based solutions and net zero greenhouse gas emission strategies for water supply, stormwater and wastewater management. Reuse/limit energy use to the amount produced on-site via renewable energy, and focus on achieving a balance between water availability and consumption.
IMPLEMENTER: local governments, SFWMD, water utilities

WS-6 Ensure consistency in water resource scenarios used for policy and planning consideration of future climate conditions

WS 6.1 Ensure all water resource policy, planning and management decisions in the Lower East Coast Water Supply Planning Area are consistently aligned with:

- The latest Southeast Florida Regionally Unified Sea Level Rise Projections
- Regional climate scenarios for planning (e.g., long term patterns of rainfall and evapotranspiration, storm surge, design storm events)
- Hydrologic models used in adaptation planning from local to regional scales

IMPLEMENTER: local governments, SFWMD

State/Federal Partners: USGS

WS 6.2 Ensure all water resource policies consider regional water management issues, including flooding and water availability. For flooding, vulnerability assessments should reflect observed and predicted climate variability, including the frequency, duration and intensity of flooding from sea level rise, extreme tidal excursions, storm surge and design storm events. For water availability, examine the effects of climate change and sea level rise on water availability and groundwater vulnerability to saltwater intrusion, based on potential changes in precipitation and evapotranspiration patterns and associated extreme drought and flood events.

IMPLEMENTER: local governments, water utilities, SFWMD

State/Federal Partners: USGS

WS 6.3 Partner with the South Florida Water Management District to integrate future climate conditions, sea level rise scenarios, and potential impacts to water quality and supply into the regional water management models used to support the Lower East Coast Water Supply Plan, and consumptive use permitting.

IMPLEMENTER: counties, water utilities, SFWMD

WS 6.4 Identify and advocate for rule changes that integrate future climate conditions and stormwater harvesting initiatives in permitting criteria at all levels including average wet season groundwater elevations, Regionally Unified Sea Level Rise Projections, and intensity, duration and frequency curves.

IMPLEMENTER: local governments

WS 6.5 Advocate for the Florida Department of Environmental Protection's Stormwater Management Rule, "SFWMD Environmental Resource Permit Applicant's Handbook – Volume II," through the Southeast Florida Regional Climate Compact's policy/advocacy process, including stronger water quality protections and standards.

IMPLEMENTER: Southeast Florida Regional Climate Change Compact, counties, drainage and water control districts, SFWMD

State/Federal Partners: FDEP

WS-7 Assess the potential of climate impacts on water infrastructure.

WS 7.1 Using common approaches, assess the potential for climate change impacts on each component of water infrastructure under different climate change scenarios. Develop adaptation strategies for affected systems, including infrastructure that may require replacement, reinforcement, or relocation to ensure the long-term viability of the system.

IMPLEMENTER: local governments, water utilities, SFWMD

WS 7.2 Coordinate among city and county government public works agencies, water utilities, drainage and water control districts, and other operators of water infrastructure to develop and maintain local and regional inventories of existing drainage and water control facilities, potable water supply wellfields, treatment and distribution systems, wastewater treatment and collection infrastructure, and septic tanks and drain fields.

IMPLEMENTER: counties, water utilities, drainage and water control districts, SFWMD

WS-8 Modernize infrastructure development standards in the region.

WS 8.1 Modernize planning, design standards, and permitting for development and infrastructure improvements of drainage systems, surface water management systems, and finished floor elevations to reflect updates that integrate future climate conditions into groundwater table maps, flood elevation maps and tidal elevations. Consider incremental adaptations to incorporate uncertainty in future climate.
IMPLEMENTER: local governments, water utilities, drainage and water control districts, SFWMD
State/Federal Partners: FDEP

WS-9 Address the resilience of the regional flood control system.

WS 9.1 Coordinate with the South Florida Water Management District and local public officials to complete a comprehensive assessment with recommendations of the Central and Southern Florida area and flood control system by the U.S. Army Corps of Engineers under potential climate conditions.
IMPLEMENTER: counties, SFWMD
State/Federal Partners: USACE

WS 9.2 Develop and implement resilience strategies to ensure existing levels of service are maintained or improved under future conditions through joint participation and delivery of Flood Protection Level of Service (FPLOS).
IMPLEMENTER: local governments, drainage and water control districts, SFWMD

WS-10 Integrate combined surface and groundwater impacts into the evaluation of at-risk infrastructure and the prioritization of adaptation improvements.

WS 10.1 Continue to utilize a combination of inundation maps, and integrated stormwater and groundwater models to identify areas and infrastructure at increased risk of flooding.
IMPLEMENTER: local governments, drainage and water control districts, SFWMD
State/Federal Partners: FDEP

WS 10.2 Evaluate the potential impacts of changes in groundwater levels on wastewater and stormwater systems (including contaminated sites, septic systems, wastewater collection, and conveyance and storage systems), with consideration of water quantity and quality. Develop appropriate public health metrics.
IMPLEMENTER: local governments, drainage and water control districts, SFWMD
State/Federal Partners: FDEP

WS 10.3 Use the results of groundwater and surface water impact analyses as the basis for site planning, regulation, and to identify and prioritize adaptation needs and strategies.
IMPLEMENTER: counties, drainage and water control districts, SFWMD
State/Federal Partners: FDEP

WS-11 Implement strategies and capital projects to increase adaptive and resilient water infrastructure, and improve water quality.

WS 11.1 Ensure that capital planning, design and construction of water infrastructure projects incorporate resilience considerations.
IMPLEMENTER: local governments, SFWMD, water utilities
State/Federal Partners: USACE

WS 11.2 Identify, incorporate, and prioritize preferred climate adaptation improvement projects for water supply, wastewater systems, stormwater management and flood protection as part of capital improvement plans. Advance new projects and include resilience as part of all infrastructure investments. Consider utilizing business cases to help diversify methods and projects.
IMPLEMENTER: local governments, SFWMD, water utilities
State/Federal Partners: USACE

WS 11.3 Identify existing underperforming water infrastructure and implement adaptation strategies, potentially using dynamically-adaptive strategies, that facilitate targeted investments, support managed performance, and achieve greater flexibility in system operations and future water resource management alternatives.
IMPLEMENTER: local governments, SFWMD, water utilities
State/Federal Partners: USACE

WS 11.4 Mitigate additional inputs to the wastewater systems by encouraging greywater reuse systems in new developments.
IMPLEMENTER: local governments

WS 11.5 Increase capacity for greywater reuse at the municipal level and the use of treatment wetlands to manage additional wastewater.
IMPLEMENTER: local governments

WS-12 Phase out septic systems where appropriate to protect public health and water quality.

WS 12.1 Conduct an assessment to identify septic systems that are vulnerable to failure due to current and future high groundwater levels or pose a threat to public health or water quality.
IMPLEMENTER: local governments

WS 12.2 Develop funding mechanisms to help homeowners with the cost of septic-to-sewer conversion.
IMPLEMENTER: local governments

WS 12.3 Advocate for the strengthening of Rule 62-6, Florida Administrative Code, "Standards for Onsite Sewage Treatment and Disposal Systems" and Rule 62-330, Florida Administrative Code, "Environmental Resource Permitting Rules for Stormwater Design and Operation" to increase water quality protections.
IMPLEMENTER: local governments, advocacy organizations

WS-13 Coordinate saltwater intrusion mapping across Southeast Florida.

WS 13.1 Ensure consistency and active updates (at a minimum of every five years) in the methodology and schedule of regional saltwater intrusion mapping to improve information and management decisions for the protection of freshwater aquifers and potable water supplies.
IMPLEMENTER: SFWMD
State/Federal Partners: USGS

WS 13.2 Evaluate the adequacy of monitoring networks in the near-term, and every five years thereafter, to identify necessary investment. Increase data sharing among Compact counties, water utilities and the agencies preparing the maps.
IMPLEMENTER: counties, water utilities, SFWMD
State/Federal Partners: USGS

WS-14 Develop a spatial database of resilience projects for water infrastructure.

WS 14.1 Develop a regionally coordinated, standardized spatial database and visualization platform inclusive of a data management strategy to aid peer learning and catalog local and regional water resilience projects, planning tools and infrastructure investments. Such a platform could be scaled in the future to include other infrastructure.
IMPLEMENTER: counties, water utilities, drainage and water control districts, SFWMD

WS-15 Support the Comprehensive Everglades Restoration Plan (CERP).

WS 15.1 Support the CERP and incorporation of future climate conditions into updates as fundamental to Everglades restoration.
IMPLEMENTER: local governments

WS 15.2 Contribute to the ongoing implementation of CERP and updates to implementation plans (such as the Integrated Delivery Schedule) through relevant working groups.
IMPLEMENTER: local governments

WS 15. 3 Publicize the role of CERP as a regional climate resilience strategy, particularly as a way to increase freshwater flows to the Everglades system, which improves water quality, maximizes regional freshwater storage and aquifer recharge and creates the potential to abate saltwater intrusion.
IMPLEMENTER: local governments, SFWMD
State/Federal Partners: USACE

WS-16 Expand regional surface water storage.

WS 16.1 Develop new and combine existing land acquisition priorities to protect, preserve and enhance regional water storage.
IMPLEMENTER: local governments, SFWMD
State/Federal Partners: FDEP, FWC, FDACS

WS 16.2 Develop regional and distributed surface water storage (e.g., C-51 reservoir and interconnected urban systems) to increase the potential for stormwater capture and reuse for water supply, aquifer recharge, flood management and environmental benefits.
IMPLEMENTER: local governments, SFWMD

WS-17 Expand information and engagement with property owners to support adaptation on private property to contend with increased flooding and higher groundwater.

WS 17.1 Integrate flood awareness and preparedness into communications strategies and provide information about flood zones, sea level rise and flood risks.

IMPLEMENTER: local governments, non-profit organizations, community-based organizations, private sector

WS 17.2 Encourage property owners to take action to mitigate flood risk and minimize damage through strategies such as but not limited to education, grants, innovative financing and organizing bulk-purchasing co-ops.
IMPLEMENTERS: local governments, non-profit organizations, community-based organizations, private sector