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BROWARD IN 2030

BROWARD COUNTY FLORIDA

2025 Broward County Climate Change Action Plan

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LETTER FROM THE CO-CHAIRS OF THE CLIMATE CHANGE TASK FORCE

Commissioner
Nan H. Rich

Mayor
Beam Furr

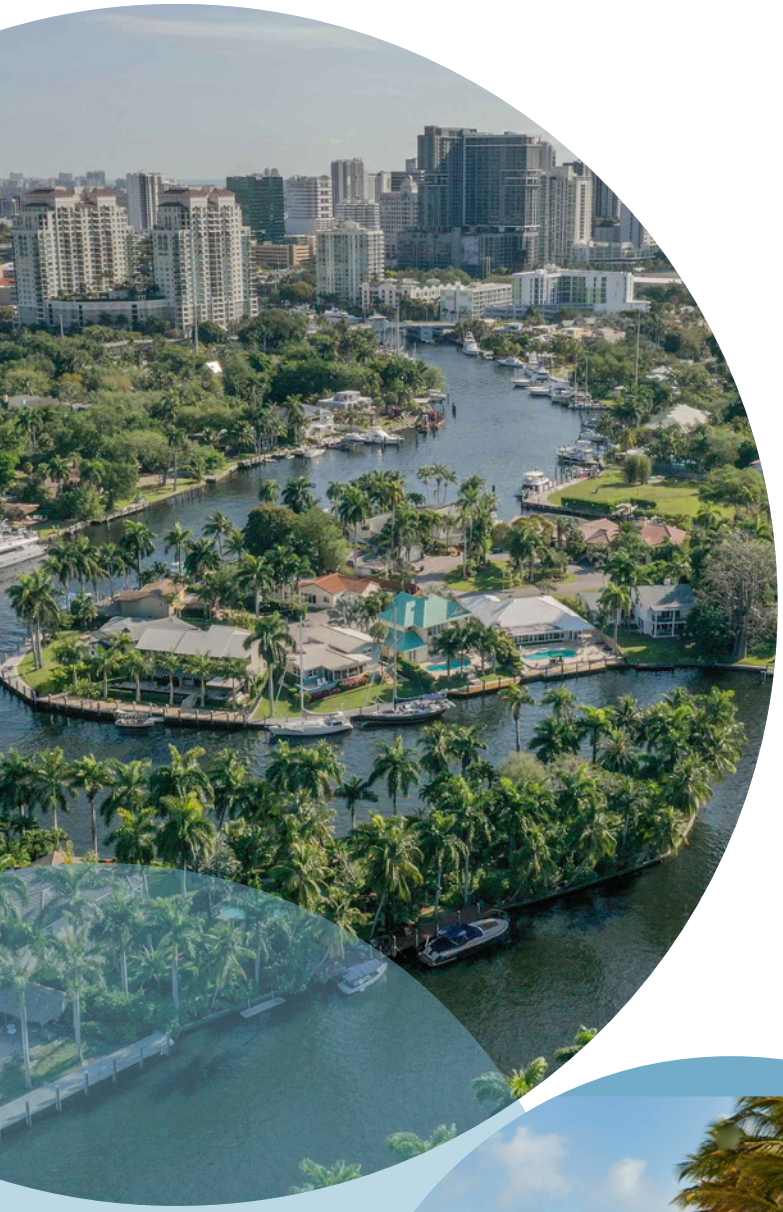
Dear Fellow Commissioners,

As Co-Chairs of the Broward County Climate Change Task Force, we are pleased to present the 2025 Broward County Climate Change Action Plan (CCAP). This CCAP is an update to the third iteration of the Broward Climate Change Action Plan (2020), and it builds upon the 2020 CCAP's recommendations for a progressive county-wide climate program to reduce greenhouse gas emissions and increase the resilience of the community, infrastructure and natural systems.

Broward County has taken a deliberate approach to mitigate climate change and strengthen the resilience of our community to its impacts. There is no single solution to the climate crisis; therefore, our strategies continue to include modeling vulnerabilities and analyzing risks, thoughtful planning, developing sound public policies, convening support through stakeholder involvement, implementing projects, economic investments, plans, and strategies and actions that increase the resilience of the built and physical environment. Risk reduction, solar energy and vehicle electrification continue to be a priority for internal operations strategies to combat climate change. New actions include focus on networking pedestrian and bicycle facilities, developing landscaping standards for transportation hubs, advancing technologies that minimize emissions while increasing resilience, promoting the transition to zero-waste, promoting development and innovation of living shorelines as a part of renovating existing structures, utilizing green infrastructure to reduce energy consumption, advancing the Net Zero strategy, promoting the opportunity for waste-to energy facilities, and prioritizing carbon neutrality through emerging technology.

The Task Force is proud to present 139 actions to reduce carbon pollution and strengthen our resilience to the effects of global climate change. The Plan reflects considerable effort on the part of the Task Force members, community participants, staff, and experts who all lent support throughout the process. On behalf of Broward County Government and the residents of Broward County, we would like to thank them for their extensive contributions.

It has been our pleasure to continue to serve as co-chairs of the Task Force and we look forward to continuing in this capacity as the community works together to implement the new Climate Change Action Plan.



INTRODUCTION

The Broward Climate Change Action Plan (CCAP) consists of 139 strategic actions for addressing the economic, environmental, and social impacts of climate change. The CCAP is a county-wide strategy, to be implemented by local government, community partners and residents alike.

The actions are focused on reducing local greenhouse gas emissions, increasing community resiliency and planning necessary adaptation measures to address local impacts.

Through implementation of these actions, Broward County moves forward on building a greener, more sustainable, and climate resilient community.

SUMMARY OF THE CCAP 2025 ACTION PLAN

Completing the actions in this plan will build stronger communities and infrastructure, protect critical sectors of our industry, government and natural resources; and use sound science to better understand and address climate impacts. The CCAP addresses the impacts of climate change on our community.

Policy:

Climate change will impact our community for years to come. Policies and regulations can have a substantial influence on the rate of climate change. Broward has the responsibility for making policies to address climate change at the local level. The CCAP actions advocate for public policies supporting regional resilience and for the advancement of transformative policy changes which will reduce emissions, build climate resilience, and align government objectives and partners including, community, industry, local municipalities, research institutions, and others.

Healthy Community:

Climate change poses a significant economic risk to all sectors and communities. To successfully prepare for climate change, communities must have the capacity to recognize, understand, and assess relevant climate-related hazards, risks, and impacts. The CCAP actions provide for broad community outreach, engagement, and education on climate change-related topics that involve mitigation and adaptation strategies. Additionally, the actions increase awareness of and mobilize action on climate change.

Transportation:

Over half of the County's emissions are generated by transportation operations. The CCAP actions aim to advance a safe multimodal transportation system, along with an approach to land use, that expands travel options and accessibility for all and supports the movement of people and goods while reducing emissions and vulnerability to hazards and to increase the resilience of the transportation system and communities to hazards.

Built and Physical Environment:

Climate change threatens the safety and reliability of critical infrastructure systems. The CCAP actions build stronger communities and infrastructure, protect critical sectors of our industry, government, and natural resources, and use sound science to better understand and address climate impacts.

Energy Resources:

The CCAP actions aim to enhance sustainable consumption by prioritizing efficiency and conservation initiatives that specifically target the reduction of greenhouse gas emissions. These efforts involve the expansion of renewable and alternative fuel infrastructure to accommodate the anticipated rise in energy demand, thereby encouraging the adoption of renewable energy sources. Additionally, the actions involve implementing incentive programs and opportunities aimed at alleviating energy burdens while advancing the goal of reducing greenhouse gas emissions.

Natural Systems:

Climate change will endanger our critical natural infrastructure and ecosystems. The CCAP actions evaluate and reduce the impacts of climate change on our natural systems and further the integration of natural systems into the urban environment to increase resilience to future climate change impacts.

Water Resources:

Rising sea level threatens Broward's drinking water supply by forcing saltwater into our underground freshwater aquifer. The CCAP actions seek to maintain adequate water supply through efficiency and conservation efforts, develop decision support tools necessary to build community resilience, and increase the resilience of natural systems through water resource management.

ICONS

Icons are used throughout the CCAP to help the reader visualize which overall goal(s) the action relates; the level of commitment needed to complete the action (county government operations, municipal/community/regional, state, or federal), and whether the action is high priority.

Carbon Footprint

Plan actions relating to the reduction of Broward County's total amount of greenhouse gases (including carbon dioxide and methane).

Resilience

Plan actions relating to the goal of increasing communities' ability to successfully adapt to stressors related to the changing climate and environment.

Broward County

Plan actions in which Broward County governmental operations are responsible for ensuring completion of the action.

Partners

Plan actions in which regional efforts, municipalities, and community partners are required to complete the action.

Florida

Plan action in which state resources and/or partners are required to complete the actions.

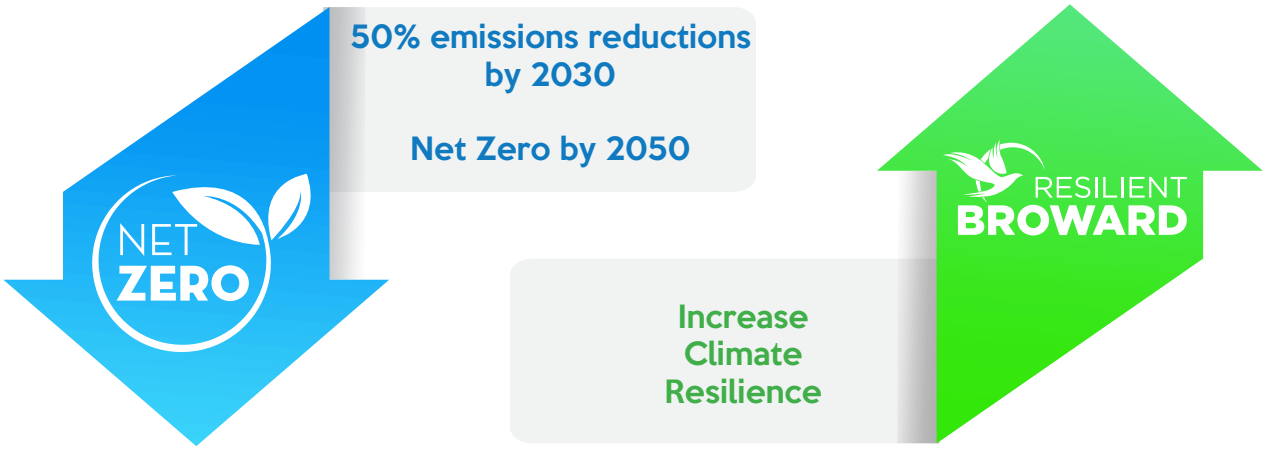
National

Plan action in which national resources and/or partners are required to complete the actions.

CLIMATE CHANGE ACTION PLAN

The CCAP is meant to be simple and clear to aid implementation. The plan centers on two overarching goals.

1. Broward County's long-term commitment to net zero carbon emissions by 2050, with a goal of reducing emissions by 50% by 2030 through mitigation and adaptation.
2. Increase the resiliency of our community to the effects of Climate Change.



Each of the seven following CCAP plan elements feature an objective and series of actions that ultimately support the above goals. Broward County will track and report on progress made in implementing the actions, as well as meeting specific benchmarks. Implementation of the CCAP is an evolving process; actions may be expanded and developed as needed.

PLAN ELEMENT

POLICY

The actions under Policy advocate for public policies supporting regional resilience and for the advancement of transformative policy changes which will reduce emissions, build climate resilience, and align government objectives and partners including, community, industry, local municipalities, research institutions, and others.

Policy Objectives

Implement the following twenty-one (21) actions to:
Enact policies and legislation to reduce emissions from transportation, buildings, and increase community resilience through adaptation.

1. Contribute to local, regional and state climate planning efforts.
Support the development of regional tools and planning documents covering Broward County and Southeast Florida, which integrate regional climate change mitigation and adaptation goals into their planning processes.

2. Continue support for the Southeast Florida Regional Climate Change Compact (Compact).
Assist in the coordination, development, and implementation of Compact resources. Work with the Compact to increase municipal participation. Ensure the Compact continues to serve as a regional resource, coordinates regionally on public policy and collaborates broadly on mitigation and adaptation policies.

3. Lead advocacy for climate change policies and legislation.
Advocate for resiliency, climate change action and sustainability policies through the National Association of Counties, the Florida Association of Counties, the Florida League of Cities, local partners, and within the state and federal legislative programs.

4. Maintain climate, energy, and sustainability programming.
Maintain a program within County operations to oversee the implementation of the Climate Change Action Plan. Coordinate with the Compact. Provide staff assistance to the Climate Change Task Force. Coordinate resilience and sustainability initiatives across County agencies and operations. Develop public outreach campaigns and educational materials to increase awareness of climate change impacts and opportunities for community engagement in climate action activities.

5. Continue Climate Change Task Force.
Continue the Broward Climate Change Task Force to advise elected officials and the County on policy recommendations and implementation of climate, resiliency, and sustainability actions.

6. Engage technical support of state and federal agencies.
Engage the support of state and federal agencies, such as the National Oceanic and Atmospheric Administration (NOAA), the United States Geological Society (USGS), the Federal Emergency Management Agency (FEMA), the United States Department of the Interior (DOI), the United States Army Corps of Engineers (USACE), the Environmental Protection Agency (EPA), the Department of Energy (DOE), the Florida Department of Transportation (FDOT), and the Florida Department of Environmental Protection (FDEP) that can provide technological and logistical support.

7. Adopt adaptation standards that consider climate change and sea-level rise.
Work with county and local planning bodies to develop regional scenarios for planning, vulnerability assessments, and adaptation strategies. Ensure the County's Land Use Plan addresses mitigation and adaptation policies. Maintain and update the Priority Planning Areas Map for Sea-Level Rise and Future Conditions Map Series in accordance with updates to the regional sea-level rise projection. Support linking local and state infrastructure investments to improve integration of multimodal transportation and land use, expansion of transportation choices, reduction in single-occupancy vehicle trips and greenhouse gas emissions, improvement in energy efficiency, provision of affordable housing near employment centers, and other progress toward sustainability and a better quality of life.'

8. Support adaptation of at-risk infrastructure and facilities.
Ensure that public and private infrastructure, such as streets and bridges, water and wastewater treatment plants, stormwater drainage systems, seawalls, hospitals, city halls, police and fire stations and power generation facilities, are built or rebuilt considering impacts from climate change, including rising sea levels. Identify and coordinate with the owners and managers of vulnerable

facilities and services regarding adaptation needs as part of the implementation of the County-wide Risk Assessment and Resilience Plan.

9. Promote transit-oriented development.
Promote functional, walkable mixed-use development designs and projects around transit stations by providing flexibility in development review for these projects and revising the zoning and land development codes to allow and encourage these projects. Work with municipalities to establish incentives for this type of development.

10. Incorporate resilience criteria into the Broward County surtax project review process.
Utilize the agency-developed resilience criteria checklist to review Penny for Transportation surtax projects and guide the inclusion of resilience components.

11. Utilize resiliency checklists.
Work with County, municipal and agency partners to develop, refine, share, and utilize screening/scoping checklists for infrastructure projects, reviews of applications for (re)development, or other purposes, paired with ready-to-use tools or GIS datasets, that support identification and documentation of known or potential climate vulnerabilities and adaptation elements/strategies. Such checklists may focus solely on resilience or address multiple topics, including resilience.

12. Implement and promote Dark Skies outdoor lighting policy model ordinance.
Encourage municipal adoption of County-adopted model outdoor lighting ordinance and interagency implementation of County administrative code to discourage light trespassing.

13. Pursue State policies to advance resilient design.
Prioritize and advocate for low-carbon and climate resilient infrastructure in the planning, construction, and operation of local and regional infrastructure, including housing development guidelines and transportation.

14. Adopt environmentally-preferable purchasing policies and practices.
Employ the collective buying power of local governments to purchase products and services that conserve energy, reduce greenhouse gas emissions, have a low carbon or environmentally certified supply chain, and use recycled materials and/or minimal packaging. Provide models for businesses and other organizations.

15. Advocate for Climate Equity.
Encourage long-term housing affordability and equitable investment in infrastructure and social services to build resilience in historically disadvantaged neighborhoods. Raise community awareness

of the value of non-flood-prone, high-elevation and transit-adjacent property. Implement strategies to support and sustain low- and moderate-income communities in Broward County. Encourage net-zero carbon emissions redevelopment with sufficient affordable housing to support the local workforce.

16. Set waste reduction, recycling, and renewable goals.
Work with community stakeholders to set waste reduction goals with particular attention to reducing single-use plastics, polystyrene foam, and other waste that may enter the waste or water stream. Continue to advocate for local autonomy of local regulation of single-use plastics and polystyrene foam. Continue efforts to expand recycling of used products. Examine the use of products created from renewable materials.

17. Implement Shore Power at Broward County's Port Everglades.
Transition to shore power for cruise fleet terminals at Port Everglades. Coordinate with Florida Power & Light (FPL) and Broward County's Port Everglades stakeholders on design and to maximize implementation. Pursue grant and cost share funding options for capital costs.

18. Seek funding to convert fuel power usage to the electric grid.
Collaborate with municipalities and local stakeholders to cut down on fuel usage and replace it with direct power from the electric grid (PEV shore power terminal electrification, fleet cars, garbage trucks, etc.)

19. Advocate for upgrades to the flood control structures to mitigate future flooding.
Intensify the regional request for the federal government, the U.S. Army Corps of Engineers, the State of Florida, and the South Florida Water Management District to accelerate flood risk and resilience studies with implementation of recommendations to enhance the resilience of the Central and Southern Florida Flood Control Project. This is vital for managing flood risk under present and future conditions.

20. Pursue net-zero target.
Support development and implementation of a county-wide Net Zero Plan and provide a strategy for Broward County to achieve 50% greenhouse gas emission reductions by 2030 and county-wide carbon neutrality by 2050.

21. Prioritize carbon neutrality through emerging technology.
Emphasize opportunities for emerging technologies and materials, including clean and cool concreate, that can capture, utilize, and store carbon dioxide through carbon sequestration and provide the added benefit of urban heat mitigation. Pursue and partner in pilot projects and consider requirements for new procurements.

PLAN ELEMENT

HEALTHY COMMUNITY

The actions under Healthy Community provide for broad community outreach, engagement, and education on climate change-related topics that involve mitigation and adaptation strategies. Additionally, the actions increase awareness of and mobilize action on climate change.

Healthy Community Objective

Implement the following nineteen (19) actions to:
Deliver climate change educational information to all audiences, engage stakeholders to collectively address climate impacts, reduce the amount of waste going to landfills, and increase the community's resilience.

22. Pursue funding opportunities for community projects.
Pursue funding for climate, energy, and sustainability program initiatives. Collaborate with local organizations and nonprofits in the community on proposals and specifically target funding for communities of concern to address areas of their interest (e.g., food supply initiatives, septic systems, community gardens, recycling, cooling stations, tree canopy and maintenance).

23. Develop and deploy educational tools on a changing climate and its impacts informed by demographic and climate indicators.
Develop short educational videos and use high-profile media to raise awareness of climate change impacts and preparedness actions. Ensure language justice communications. Install public demonstration sites. Develop and deploy 3D-visualization tools for the communication of flood risks. Engage public health partners to communicate climate risks. Examples can include curricula and programs for youth. Continue support for the Compact's Regional Climate Leadership Summit.

24. Prepare property owners and renters on climate risk and impacts.
Develop tools to educate homeowners, landlords and renters on climate change risk and adaptation that contains information about, floodproofing, elevation, sea-level rise, etc., to help residents prepare for impacts, make sound investments, cope with seasonal flooding, and reduce property hazard insurance premiums. Ensure rental housing has adequate air conditioning, window screens, and weatherization to provide safe living conditions.

25. Engage volunteers and philanthropy.
Develop key partnerships with local volunteer networks and request assistance with climate outreach goals. Educate a volunteer force, including seniors, that can act as "climate ambassadors" for the community. Prioritize engagement with communities of concern. Identify and develop partnerships with community, youth, and school groups to encourage participation in the Climate Change Task Force. Increase attendance at the annual Youth Climate Summit.

26. Enhance education and preparation for public health impacts - HEATWAVE.
Distribute climate-related public health information through call centers and campaigns (e.g. media, print material, infographics). Provide alerts about extreme heat and locations of open cooling centers. Encourage training programs to incorporate response protocols for heat stress. Engage with health care professionals, first responders, peer support, and community service providers to distribute climate-related health information to at-risk populations and communities of concern.

27. Encourage engagement among elected officials and staff with the community about local climate impacts and community priorities.
Identify and engage with communities of concern through a participatory process that informs leaders of their needs. Encourage community participation in public meetings regarding climate impacts. Prioritize engagement with municipalities with communities of concern (meeting the community where they are at).

28. Build and strengthen local food systems.
Stimulate hyper local food production, distribution, and access to enhance food security in Broward County. Utilize mapping and other tools to evaluate and identify the effectiveness of local food systems county-wide and determine infrastructure for collective impact opportunities for sustainable, equitable, and more accessible food systems that can also reduce the transportation carbon footprint of food ("food miles").

29. Enhance the tree canopy to protect walkers, transit riders and bicyclists from heat and pollution.
Using GIS mapping and other tools, evaluate shade and cooling available at pedestrian, transit (train and bus) and bicycle facilities, and assess whether the tree canopy coverage is sufficient to protect people from heat and pollution. Work with community and governmental partners to identify needs and involve community members in the policy and planning process. Establish support for tree

maintenance to encourage long-term canopy growth and tree retention. Enhance the tree canopy equitably county-wide through prioritizing Broward County's Tree Preservation Trust Fund.

30. Address social vulnerabilities through local government programs.
Appropriately apply social vulnerability studies, information, and other initiatives for affordable housing, transportation, and adaptation planning. Encourage and fund residential improvements through existing programs or available grants to increase compliance with the building code, local floodplain ordinances and future conditions requirements including land use policies to mitigate future flooding and impacts of severe weather. After a severe weather event, promote equitable recovery efforts.

31. Engage diverse stakeholders in academic and community-participatory research, including Indigenous traditional knowledge.
Collaborate, encourage, and enhance partnerships with public and private universities, colleges, technical schools, tribal communities, and community members in the region to develop research, assessment tools and educational programs. Report health, environmental, and other relevant trends. Collaborate with institutions to identify, evaluate, and prepare proposals for research grants and other funding opportunities.

32. Engage, educate, and prepare stakeholders about resilience strategies for built and physical, natural and social environment.
Develop tools to inform and assist stakeholders in preparing for severe weather events. Focus efforts on present and projected changes in natural hazards, heat, risks, and risk reduction strategies. Identify various communication platforms (social media, town halls and traditional media) that target stakeholders (private sector, business owners, farmworkers, homeowners, renters, landlords and residents, etc.). Ensure flood risk and natural hazard information is distributed to the public.

33. Reduce the urban heat island effect.
Increase the urban tree canopy to at least 40% county-wide. Perform a tree canopy study every three years. Encourage and incentivize solar reflective materials and encourage green infrastructure where feasible. Partner with the Broward County schools to advance cool roof practices. Ensure cooling stations at parks to reduce public health risks. Broward County will partner with multiple stakeholders to pursue and ensure equitable access to federal, state, and local funding for energy efficiency (e.g., weatherization, supplies, windows, impact windows and doors, and air conditioning).

34. Support community hubs that enable economic mobility, education, health, mental health, and safety for all community members.
Establish new and strengthen existing community hubs to be used as an on-ongoing capacity building resource for preparation, immediate response, charging stations, information, storage facilities, internet access providers, and other needs that arise.

35. Recommend improved regional and federal approaches related to fertilizer pollution, total maximum daily loads, septic systems, and pollution discharge and recommend improved regional best practices.
Review the effectiveness of best practices and public health impacts and communicate them to community partners and specify the ways of notifying government agencies when problems arise in local areas.

36. Encourage recycling of construction and demolition waste.
Encourage construction companies, haulers, and contractors to recycle and reuse items per national, state, and local green building standards. Provide recycling incentives to haulers. Encourage products that use recycled and reused materials.

37. Implement on-site organics (food waste and yard waste) collection in commercial, single-family and multifamily properties, including food waste collection in high-volume. locations. Encourage compost use to improve soil quality and health.
Encourage composting and soil regeneration within Broward County via pilots and funding opportunities. Pilot composting stations at public facilities (Broward County Parks, Broward County Public Schools, etc.). Engage stakeholders to educate the public/students on the impacts of proper organic waste disposal, benefits of compost, and healthy soil.

38. Increase community connection to nature.
Provide nature- and healing-centered educational experiences and promote physical and emotional well-being. Collaborate with local agencies and community-based organizations (e.g., Broward Addiction Recovery Center, Rebuilding Together, Broward Sherriff's Office Community Service Program, community redevelopment agencies, schools, hospitals, etc.). Promote natural elements that promote well-being which include trees, diverse vegetation, local biodiversity, water features, parks, natural playscapes and community and school gardens.

39. Collaborate on air quality monitoring, education, and health risk outreach.
Expand and improve air quality monitoring and public information programs. Adopt standardized air health risk communication strategies. Improve coordination among governmental agencies at all levels and non-governmental health care organizations. Educate the community on regulations and engage them in participatory science projects. Expand access to air quality data and reporting to the public.

40. Promote the transition to zero-waste and encourage a circular economy.
Reduce the amount of waste going to landfills. Set waste reduction targets. Encourage the procurement of responsibly sourced goods, services, and materials. Support education, programs, activities, and infrastructure that promote reduce, reuse, or recycle. Engage and incentivize circular strategies and practices that promote the transition to zero-waste and in supply chain infrastructure. Support the implementation of the interlocal agreement for waste reduction and promote a unified municipal participation.

PLAN ELEMENT

TRANSPORTATION

The actions aim to advance a safe multimodal transportation system, along with an approach to land use, that expands travel options and accessibility for all and supports the movement of people and goods while reducing emissions and vulnerability to hazards and to increase the resilience of the transportation system and communities to hazards.

Transportation Objectives

Implement the following twenty-six (26) actions to:

- Reduce emissions from the transportation sector by 2% each year.
- Electrify the County vehicle fleet by 2030.
- Increase access to safe, more direct, and better-connected facilities for active travel modes, micromobility, and access to transit.
- Increase the resilience of the transportation system (infrastructure and services).

41. Increase trips made by transit by prioritizing intermodal centers/mobility hubs/ stations, first- and last-mile access and local bus/shuttle services. Provide high-capacity transit supported by complementary land use in and across communities.

Proactively plan for and invest in an expanded transit system that provides local and high-capacity transit services; is accessible, affordable, and flexible; and supports and is supported by transit-oriented development and communities.

Specifically:

- Implement Broward County transit plans which provide for continuation of and enhancements to existing transit services (local bus and community shuttles) and the Broward County Premium Mobility (PREMO) Plan which provides for investments in a network of county surtax-funded

transit projects on high-capacity corridors including high-frequency, bus rapid transit, light rail and commuter rail. Coordinate with neighboring counties and transportation agencies on regional high-capacity transit.

- Align and implement local government and transportation agency plans to expand travel options and connect communities.
- Make transit an attractive choice for local and regional travelers by providing transit services that meet their needs and are convenient to use (e.g., with interoperable fare systems). Provide travel training to help grow ridership and comfort using transit.
- Address the first and last mile of transit trips by using micro-mobility, enhanced networks of pedestrian and bicycle facilities, and other means while increasing access and emphasizing connectivity.
- Plan and redevelop properties and communities in ways that support availability and use of transit and more non-motorized trips and emphasize safety (e.g., transit-oriented development/ communities).
- Ensure access to transit services by providing safe, sheltered, and ADA accessible transit stops and stations.

42. Coordinate with public and private sector partners to expand the use of low or no emissions vehicles.

Continue engagement with partners such as the Southeast Florida Clean Cities Coalition (SFCCC) and Florida Power and Light (FPL) to review lessons learned, share resources, leverage and attract funding, and seek partnerships to expand electric vehicle (EV) and non-carbon fuel investment and related infrastructure improvements (e.g., charging infrastructure) that serve short-and long-range travel and emergency evacuations. Identify and consider emerging clean fuel vehicle opportunities including use of automated EVs in appropriate ways and contexts.

43. Establish a clean fuel fleet.

Continue to establish a clean fuel fleet with a measurable target for Broward County, prioritizing funding needed to meet the County's 2030 zero-emission vehicle commitment. Support transition of the County fleet to EV at the level needed, including the advancement of plans for investments in charging infrastructure, with EVs serving as the default replacement vehicle for passenger vehicles such as sedans, vans, and light-duty trucks. Continue to make additional investments in infrastructure to support the full transition of the transit fleet to low or no emission transit vehicles. Incentivize building design and features that encourage EV use and support infrastructure.

44. Invest in seaport and airport connections.

Begin implementation of multi-modal connections between Broward County's Port Everglades and Fort Lauderdale-Hollywood International Airport (e.g., bicycle lanes, people mover, light rail, and intermodal center) to expand travel options, improve resilience through redundancies and other means, and manage traffic congestion.

45. Implement Transportation Demand Management (TDM) strategies including the expansion and encouragement of remote work opportunities.
Continue to implement TDM strategies to maximize traveler's choices while reducing peak-period and single-occupant vehicle travel, including coordination with South Florida Commuter Services. Convene a task force to document how alternative work schedules, remote work, and/or flexible office locations based on proximity can help manage traffic congestion and reduce emissions from commuter trips. Monitor changes in trip making and emissions resulting from shifts in demand (e.g., increased use of transit, carpool and vanpool employee incentives, and active transportation) as well as remote work. Explore mode share change incentive programs such as bike or walk to work cash back and employee discount programs related to transit options. Encourage local government and other initiatives that require, incentivize, or otherwise support use of TDM strategies (e.g., through trip reduction ordinances), including development of Transportation Management Initiatives (TMI) and/or Transportation Management Agencies (TMA).

46. Operate and manage transportation systems and services.
Implement coordinated Transportation System Management and Operations (TSM&O) strategies to maximize use of existing transportation infrastructure, enhance mobility for people and goods, increase safety especially for vulnerable road users, and reduce emissions (e.g., traffic and transit signal prioritization, adaptive signalization, queue jumps for transit, freight signalization and optimization, and roundabouts).

47. Coordinate on EV charging infrastructure.
Support the planning and implementation of EV charging infrastructure in a coordinated, systematic way to fill gaps, maximize accessibility, and ensure adequate maintenance of EV charging stations. Explore shared use of EV charging infrastructure that could accelerate the transition to clean fuel fleets by local governments and agencies, and potentially by the public. Establish a formal planning effort involving agency, utility, and private-sector partners (e.g., commercial establishments, HOAs, condominiums, and multi-family residential units) to advance large-scale EV infrastructure investments. Expand EV charging stations at Broward County building parking areas and structures. Address EV charging in emergency situations.

48. Update and advance assessments of the vulnerability of transportation infrastructure.
Build upon the assessments of transportation infrastructure vulnerability by local government and agency partners to include a combined analysis of integrated hydrology as part of county-wide future conditions assessments to guide transportation infrastructure investments.

49. Integrate dynamic adaptive approaches into processes leading to transportation and other investments.
Identify and use methodologies that support a scenario-based, incremental, and flexible approach to the coordinated and holistic adaptation of transportation infrastructure/systems and related assets and investments, recognizing the importance of infrastructure and adjoining land use harmonization, partnerships, and collaboration.

50. Coordinate to achieve resilience across transportation planning and investments.
Coordinate across local governments and agencies to identify or update resilience-related criteria to be used in the selection, design, review, and approval of transportation investments. Pursue better alignment and integration of transportation and other plans and projects. Identify potential safety or other co-benefits for transportation projects increasing resilience. Enhance engagement with communities and the public on planning for and delivering more resilient transportation infrastructure and services.

51. Pursue shared drainage and water management infrastructure.
Consider strategies for meeting stormwater management (including water quality and quantity) goals through shared use of infrastructure for conveyance, storage, and water quality treatment. Track/catalog notable strategies implemented.

52. Use local and regional data and tools to inform resilience planning.
Coordinate to foster the consistent application of county-specific and regional future conditions models and data to coordinate resilient infrastructure planning, including references to sea-level rise, groundwater elevations, flood elevations, storm surge, and rainfall. Provide access to open-source data.

53. Maintain, update, and share high-resolution elevation data.
Coordinate with local government and agency partners to ensure the coordinated acquisition of, access to, and informed use of LiDAR and other high-resolution elevation data for resiliency/adaptation planning, studies, stormwater modeling, asset management, infrastructure design, and other purposes .

54. Expand the use of and access to technology and data analytics.
Lead in the collection, sharing, and use of real-time data and integration of innovative technology to assist with managing and operating transportation systems, providing services, and informing the public (e.g., real-time traffic management, traffic routing under flood conditions, and monitoring of flooding event-specific impacts on drainage system performance). Seek expertise and share information on emerging mobility options/approaches resulting from advances in communication and technology such as automated and connected transport, ridesharing, micromobility, and mobility as a service.

55. Pilot technologies and services.
Encourage the piloting of technologies and services, including public-private partnerships, relating to increasing resilience, provision of transportation services, sharing of information, and performance of transportation systems and services.

56. Partner on data and performance measurement.
Continue to foster early communications and collaboration to improve the value and economics of transportation-related data collection and analysis with an emphasis on big data with various applications. Collaborate on monitoring and reporting the performance of transportation systems using performance measures and targets.

57. Develop landscaping standards for transportation hubs (e.g., bus stops, transit service centers).
Provide natural greenspace while waiting for transit. Reduce heat stress at bus stops by providing shelters made from sustainable construction material and with trees or other shade. Consider installing green roofs on bus stops to cool urban hotspots, improve air quality, and support urban biodiversity.

58. Support research on materials and advance technologies for transportation projects to minimize emissions and increase resilience.
Review and conduct research to identify opportunities to lower the carbon content in materials used for transportation infrastructure. Identify and apply materials and technologies in transportation projects that will increase resilience to impacts such as a rising water table (e.g., premature degradation of assets/increased erosion of pavement, shoulders, and/or subgrade materials) and heat (e.g., rail buckling, material expansion and contraction, and overheating of electrical equipment).

59. Reduce particulate matter (PM2.5) emissions from the transportation sector.
Reduce particulate matter emissions by encouraging use of transit, carpooling, walking, and bicycling/rolling. Support use of low or no emissions vehicles (hybrid, electric, natural gas, hydrogen, etc.). Support implementation of technologies that reduce particulate matter emissions generated by operations at regulated and non-regulated facilities.

60. Reduce supply chain disruptions by strengthening resilience of transportation facilities essential for movement of goods.
Collaborate with public sector partners (Broward County, the Broward MPO, FDOT, and others) and private sector stakeholders to minimize hazard-related supply chain disruptions. Invest in projects and implement strategies to enhance the resilience of transportation facilities essential for the movement of goods.

61. Optimize seaport function.
Ensure adequate truck access and rail access to Broward County's Port Everglades, especially via US-1 and I-595 and the Florida East Coast Railway, for distribution of imported petroleum products and other goods and the export of goods. Continue timely adaptation to increase the resilience of seaport infrastructure.

62. Maximize value from transportation-related studies.
Improve coordination across local governments and transportation agencies that have completed, are completing, or plan to complete transportation-related studies to share information, avoid duplication of work, and facilitate alignment of plans and projects.

63. Continue efforts to complete networks of pedestrian and bicycle facilities, including trails and greenways, with an emphasis on increasing safety, providing routes with lower levels of traffic stress, and supporting access to transit.
Continue investments by Broward County, the Broward MPO, FDOT, and others in projects that fill gaps in or enhance transportation facilities used by pedestrians and bicyclists to reach destinations and access transit and for recreation. Complete and implement the Broward County Low Stress Multimodal Mobility Master Plan with accompanying design manual. Research the impact of micromobility vehicles on bicycle and pedestrian facilities to better accommodate safe travel for all users and convenient "end-of-trip" facilities (e.g. bicycle lockers, shared vehicle docking and e-bike charging stations).

64. Maximize use of low or no-emissions buses and install support infrastructure.
Continue to encourage the use of low or no-emissions (electric, natural gas, hydrogen fuel) buses to reduce emissions. Work with Broward County Transit and the Broward County Public Schools District to ensure the purchasing of low or no-emissions buses. Establish electrifying bus stations at bus depots. Establish efficient, accessible, and affordable bus routes to encourage use of transit. Engage the community and partners, such as the SFCCC and FPL, in educational EV efforts. Support accessibility to supply chains of EV buses and power generation for bus charging.

65. Maximize partnerships to further public low or no-emission vehicle knowledge, adoption, equitable access and utilization.
In coordination with private, municipal and agency partners, execute a countywide low to no-emissions vehicle outreach campaign and deliver Broward County-funded incentives to encourage and accelerate EV related investments by businesses, homeowners, and multi-family residential developments. Outreach should incorporate existing partner programs (e.g., residential off-peak charging) and consider expanding existing or adding new programs as needed.

66. Implement Complete Streets that safely serve pedestrians, bicyclists, transit riders and operators, personal conveyance/micromobility users, motorists, and commercial vehicle operators.
Continue to implement context-sensitive complete street strategies as the default approach to transportation planning and projects as a group of partners including Broward County, the Broward County Metropolitan Planning Organization (MPO), the Florida Department of Transportation (FDOT), the South Florida Regional Planning Council (SFRPC), municipalities, and the private sector. Aim for a safe complete network of streets, where each street contributes to the transportation system's ability to serve all users. Engage in initiatives addressing speed management and safety at railroad crossings.

BUILT AND PHYSICAL ENVIRONMENT

The actions under Built and Physical Environment build stronger communities and infrastructure, protect critical sectors of our industry, government, and natural resources, and use sound science to better understand and address climate impacts.

Built and Physical Environment Objectives

Implement the following thirty-three (33) actions to increase the resilience of the built and physical environment:

- Address the impacts of climate change on the built and physical environment.
- Provide tools for climate resilience and support climate-resilient investments.
- Reduce risk through proactive planning for transportation, energy, water, and natural infrastructure.

67. Sea level rise adaptation planning.
Maintain alignment of the County's sea-level rise adaptation planning efforts with the Unified Sea Level Rise Projection for Southeast Florida as prepared and updated by the Southeast Florida Regional Climate Change Compact.

68. Improve inundation and LiDAR mapping capabilities.
Improve analysis and mapping capabilities for identifying areas of the County vulnerable to sea-level rise by utilizing the most accurate and highest quality data sets, incorporating advanced and emerging data collection technologies. Provide regular updates of models and maintain current LiDAR data. Continue to partner with municipal, state, and federal agencies to ensure LiDAR data

refinements are integrated in county-wide planning, including mapping of vulnerabilities, modeling, land use policies, long-term planning, and land development.

69. Coordinate with FEMA to elevate sea-level rise in planning.
Request that the Federal Emergency Management Agency (FEMA) incorporate sea-level rise planning scenarios of at least 60 years for use in hazard mitigation planning, mapping of future flood risk, and as the basis for creditable flood risk reduction strategies as part of the Community Rating System (CRS) and National Flood Insurance Program. Partner in efforts to document, promote, and reflect local resilience planning and investments as part of the Community Rating Program and National Risk Index.

70. Enhance future conditions flood assessments and maps.
Build upon existing future conditions models, assessments, and flood maps to include storm surge as an additional parameter contributing to compound flood conditions. Expand modeled scenarios to include variable timeframes and conditions, including sea-level, seasonal high tides, groundwater level rise, rainfall intensification, and storm surge. Update policy, planning and regulatory tools as warranted.

71. Risk tolerance within the Built and Physical Environment.
Identify risk factors and their compounded contributions when accounting for and evaluating land use and densification impacts, including mobility. Provide information on impacts in ways that effectively communicate consequences (e.g., higher impacts to traffic flow with higher flood depths on roads).

72. Update design storm criteria for buildings and infrastructure.
Update design storm standards for 72-hour, 24-hour, and shorter duration, high intensity rainfall events to account for future conditions rainfall intensification. Conduct sensitivity analyses to evaluate the effect of antecedent conditions on flood levels and extent. Coordinate with local, regional, and state agencies to explore update of standards and regulatory requirements to ensure consistency in planning and effective application of appropriate change factors to all stormwater management and drainage system projects.

73. Incorporate combined sea-level rise/storm surge impacts in hazard mitigation and adaptation planning.
Incorporate sea-level rise and increasing storm surge impacts into maps of hazard areas in coastal zones and climate vulnerability analyses and risk assessments. Evaluate the need for future condition hazard area designations to better reflect the risks to communities associated with climate change and pursue a re-evaluation of the suitability of these areas for development and redevelopment, as well as identification of additional resilience requirements for proposed projects.

74. Evaluate existing CCCL and CHHA protections under conditions of climate change impacts.
Determine whether existing construction-siting and design requirements for the Coastal Construction Control Line (CCCL) Program and the Coastal High Hazard Area (CHHA) sufficiently address avoidance of "significant adverse impacts" under conditions of climate change. If found to be insufficient, revise programs and design requirements to address future conditions risks.

75. Expand monitoring.
Identify funding and partnerships to expand monitoring of coastal and broader environmental conditions in Broward County to provide operationally-sound observations and monitoring of environmental data specific to climate change and local resilience planning needs, including the design and construction of infrastructure.

76. Partner in innovative projects.
Actively partner to connect academic and private sector research to resilience applications and pilot opportunities within Broward County. Showcase advancements in materials, green infrastructure, and non-structural solutions (e.g., advanced warning systems).

77. Support research on solutions within the built and physical environment.
Enhance support for research to further adaptation within the built and physical environment to climate change impacts, creating multidisciplinary partnerships that bridge the gap between scientific research and solutions. Engage universities, industry experts, government agencies, and community organizations that can foster innovation in an effective collaboration on applying adaptation methodologies. Work to translate research findings into actionable strategies and guidelines (e.g., for urban planning and construction practices) to ensure that the built and physical environment can better withstand future climate impacts.

78. Promote Adaptive Reuse.
Develop and advance policies and practices that further adaptive reuse of buildings and building materials to improve building waste management and foster low carbon redevelopment. Adaptive reuse in the context of the built environment refers to the process of repurposing an existing building or site for a use different from what was originally intended. This approach is a sustainable alternative to demolition and new construction, as it preserves the cultural heritage and reduces waste and environmental impacts.

79. Coordinate regionally on adaptation scenarios and strategies.
Coordinate with other Southeast Florida counties, academia, and government agencies on the combined analysis of sea-level rise, storm surge, precipitation changes, water table rise, and storm surge, effects on system storage, flooding and water quality, reviews of appropriate level of service or other standards under these conditions, and advancement of adaptation measures.

80. Develop dynamically adaptive management strategies.
Practice progressive comprehensive planning with short-, intermediate-, and long-range goals and policies that drive adaptive management strategies accounting for climate change trends and predictions and a response framework consistent with the recommendations of the Lower East Coast Water Supply Plan.

81. Apply models to develop resilient design standards.
Develop, update, and apply regional integrated hydrologic and climate models to support the development and application of updated infrastructure design standards and adaptive response plans consistent with evolving climate trends, regional climate indicators, and addressing compound conditions. Engage regional partner expertise and support.

82. Enhance the resiliency of County-owned infrastructure and properties.
By the year 2025, finalize evaluation of all County properties and facilities for future flood risk under conditions of compounding flood factors, with identification of vulnerabilities, and priority ranking for adaptation improvements as part of the County-wide Risk Assessment and Resilience Plan. Incorporate assessments into the infrastructure master planning processes. Identify vulnerabilities to guide strategies for mitigation and adaptation. Determine whether, when and where projected impacts might be significant.

83. Improve the resilience of the physical environment, buildings, and structures.
Establish an ongoing process to improve linkages in planning for resiliency across infrastructure, systems, and entities, extending from land use to transportation, from local zoning to building code requirements, etcetera. Make recommendations to optimize the resilience of existing and proposed structures in areas at risk to climate impacts. Account for the establishment, preservation, and resilience of multi-modal options as part of resilience and other plans, including land use, building design, and features that make taking transit, walking, bicycling, and use of personal mobility devices (e.g., electric scooters and bikes) to reach desired destinations viable for more people. Promote redevelopment approaches that maximize modal options for people.

84. Protect systems from infiltration and inflow (I&I).
Work in coordination with utilities, municipalities, and the private sector to prioritize and protect underground pipe systems from groundwater infiltration and to minimize runoff into sewer and stormwater systems, which results in additional wastewater treatment needs and impacts to service levels. Pursue utility-specific updates of sewer system evaluation studies (SSES), including economic reassessment of sustained treatment and disposal costs with ongoing and enhanced I&I reduction to guide prioritization of investments and timelines. Partner to deliver workshops, outreach, and training to support on-site stormwater collection and management.

85. Maintain beaches for coastal resilience.
Continue the appropriate use of beach nourishment and sand bypassing at Broward County's Port Everglades and the Hillsboro Inlet. Through county projects and partnerships, advance soft infrastructure (e.g., living shorelines and dunes), as the primary and preferred mechanism for targeted and enhanced erosion control. Revisit redevelopment policies with the objective of maintaining and/or expanding the coastal buffer areas between developed areas and the shoreline.

86. Retrofit C&SF flood control structures for sea-level rise.
Advocate for and engage in a resilience study of the Central and Southern Florida Flood Control Project (C&SF) under conditions of sea-level rise and other likely climate impacts, to include the identification of adaptation needs, leading to construction. Pursue joint consideration of water management impacts on upstream and downstream communities.

87. Coordinate local water management improvements.
Through the Broward County Resilience Plan and other local plans, develop strategies, cost/benefit analyses, and schedules for raising, retrofitting, or building flood control structures within the secondary canal network and associated flood control system in anticipation of sea-level rise and other known or potential effects of climate change. Plan adaptation improvements for flood control infrastructure at high risk. Leverage this regional work and coordinate funding opportunities.

88. Advance sanitary sewer connections.
Pursue funding and finance strategies to aid and accelerate sanitary sewer connections. Support economic evaluations relating to the shared community benefits that might support the distribution of costs across a customer base. For any new septic tanks or major renovations that require heavy equipment (backhoes, etc. on site), require connection to the sewer. Partner with municipalities to incentivize sewer connection. Explore the reuse of septic tanks to store rainwater/reuse water for irrigation, etc.

89. Explore collaborative opportunities to achieve water management needs.
Explore collaborative and innovative opportunities involving public and private lands and entities for integrated redevelopment strategies to meet water management, green infrastructure and heat mitigation needs and objectives. Pursue projects involving parks and other green spaces as opportunities to highlight nature-based solutions and optimize community co-benefits.

90. Engage the private sector in resilience initiatives.
Partner with the private sector and business leadership on economic resilience initiatives, including implementation of recommendations identified in the 2020 Business Case for Resilience for Southeast Florida and the Broward Resilience Plan and a shared communications strategy.

91. Convene a county-wide forum for coordinated resilience planning.
Continue to host an annual Resilience Roundtable with government, tribal and business leadership to foster the ongoing coordination of county-wide resilience planning, share information and resources, and develop joint priorities and strategies focused on resilience planning, communications, and investments. Encourage and support development of a coordinated framework to further community engagement at neighborhood, community, and county-wide scales.

92. Maintain a resilience dashboard.
Maintain a county-wide dashboard of resilience planning tools, goals, and projects to aid in the shared monitoring, tracking, and communication of county, municipal, and other resilience planning and investments on a county-wide basis, including both mitigation and adaptation needs and advancements.

93. Implement resilience and economic growth equitably.
Support and enhance planning, investments, and strategies for equitable resilience and economic growth, specifically prioritizing historically disadvantaged communities. Use appreciative inquiry (an approach that highlights community interests and strengths) and asset-based mapping while establishing clear metrics to evaluate progress and impact.

94. Prioritize infrastructure maintenance and asset management.
Support enhanced financial resources, accountability, and organizational systems in the maintenance, upgrade, and performance of public infrastructure integral to the built and physical environment. Ensure old and new infrastructure components perform effectively and efficiently during regular operations and in emergencies. Address ongoing maintenance, system availability and level of service, and dedicated financial resources in accordance with operations and maintenance needs. Prioritize infrastructure asset management within the broader context of urban and regional planning to align with other societal and environmental goals, promoting a holistic approach to resilient redevelopment and community sustainability.

95. Implement and promote Dark Skies outdoor lighting policy model ordinance.
Encourage municipal adoption of the County-adopted model outdoor lighting ordinance and interagency implementation of County administrative code provisions to discourage light trespass. Dark Skies refers to areas where natural night sky conditions are protected, and light pollution is minimized. This is significant in astronomical, ecological, and environmental contexts as climate change influences migratory species and habitat in urban areas that may become increasingly critical to habitat corridors and flyways with shifts in climate zones and sources of habitat. Dark skies help maintain the natural biological rhythms and habitats of these species. The use of more efficient and wildlife friendly lighting reduces electrical consumption associated with poorly designed systems contributing to excessive lighting and light trespass.

96. Advance housing affordability and stability.
Support retrofits of existing affordable housing and construction of new affordable housing or mixed income housing that is resilient, energy efficient, and located where multiple modes of travel are available. Promote housing stability, including by addressing post-disaster availability of affordable housing.

97. Implement the County-wide Resilience Plan.
Coordinate to implement the county-wide risk assessment, infrastructure improvement and redevelopment plan (Resilience Plan) to address findings and recommendations. Seek requisite funding, policy, and regulatory recommendations. Engage stakeholders regarding study objectives and findings pertaining to flood and heat risk, vulnerabilities, and solutions. Partner with municipalities, drainage districts, water control districts, regional and state agencies, and local communities to advance priority recommendations. Develop and maintain a program platform to share, promote, and track project implementation.

98. Employ technology to further support water management.
Participate in combined academic/private sector collaborative research efforts to expand the use of technology to advance community resilience through active water resource monitoring and management, including expanded use of sensors and other innovative technologies to monitor real-time and evolving hydraulic and hydrologic conditions that influence infrastructure and system performance. Use these collaborative research programs on resilient adaptation technologies for future adaptation and resiliency projects.

99. Mitigate urban heat.
Prioritize urban heat mitigation across land use policy, infrastructure planning and investment. Especially explore strategies for reducing hardscapes and achieving green infrastructure enhancements in priority areas identified as having increased heat and flood risk as part of the County-wide Resilience Plan.

ENERGY RESOURCES

The actions within Energy Resources aim to enhance sustainable consumption by prioritizing efficiency and conservation initiatives that specifically target the reduction of greenhouse gas emissions. These efforts involve the expansion of renewable and alternative fuel infrastructure to accommodate the anticipated rise in energy demand, thereby encouraging the adoption of renewable energy sources. Additionally, the actions involve implementing incentive programs and opportunities aimed at alleviating energy burdens while advancing the goal of reducing greenhouse gas emissions.

Energy Resources Objectives

Implement the following eleven (11) actions to reduce emissions and increase the resilience of energy infrastructure.

- Reduce emissions from electricity by 2% per year.
- Achieve renewable energy portfolio of 30% by 2030.
- Implement Net-zero strategy.
- Reduce waste.

100. Continue to reduce the energy consumption of Broward County government operations.
Maximize the use of Energy Service Contracts. Pursue energy efficiency opportunities at Fort Lauderdale-Hollywood International Airport, Wastewater Services and Broward County's Port Everglades, including implementation of the Port greenhouse gas inventory strategies. Encourage the disclosure of County energy greenhouse gas emissions. Provide education and outreach on the County's GIS Dashboard. Encourage the Purchase of more efficient equipment where applicable. Encourage a sustainable Information technology (IT) digital strategy.

101. Promote energy efficiency practices that reduce energy consumption in small and large buildings.
Engage in initiatives and programs that target and support small and large buildings in reducing their energy consumption. Encourage municipal, private, and educational buildings to use the ENERGY STAR Portfolio Manager or other performance tracking platforms to track energy use and compare usage to similar properties. Collect and publicize energy conservation practices appropriate for the Southeast Florida climate. Provide training for property managers and maintenance personnel on energy efficiency measures. Encourage energy efficiency improvements and AC system upgrades. Foster partnerships with local governments to exchange best practices, streamline permitting processes and establish standardized contracts for AC system upgrades. Advocate for state, federal and/or private partnerships to provide energy efficiency incentives for municipalities and the private sector. Develop a targeted marketing and outreach strategy to publicize and promote best practices, prioritizing the business community.

102. Institute an energy benchmarking program for large public buildings.
Establish a county-wide energy benchmarking program that requires owners of public, commercial and mixed-use buildings of 20,000 square feet of gross floor area and greater to annually report energy use data. Establish retuning requirements for those that underperform. Incentivize top performers who conserve and lower energy usage.

103. Expand renewable energy.
Increase solar deployment on County property. Use renewable energy, distributed energy and energy storage technologies for emergency management and disaster recovery. Promote solar adoption in the community, including the development of additional financing mechanisms. Promote solar adoption through permitting incentives and streamlined processes. Work with community partners to increase solar where feasible and continue support for the Solar Co-op program to reduce the energy burden for residents. Expand renewable energy focus to include a wider range of alternative and renewable energy sources. Embrace emerging technologies such as hydrogen, microgrids, geothermal and energy storage to enhance the energy landscape. Incorporate battery storage solutions within existing initiatives to bolster our energy resilience and reliability.

104. Advocate for strong climate energy & resilience policies at the State and Federal levels.
Advocate for clean energy standards at the state and federal levels. In addition, to State laws and programs that expand all opportunities for solar energy and other renewables deployment statewide. Encourage stronger energy conservation requirements for electric utilities.

Additionally support on-bill financing for affordable housing weatherization and household energy efficiency investments, replacement of utility fossil fuel plants with renewable energy systems, tax policies that promote renewable energy, energy efficiency and electric vehicles, as well as funding for climate and resilience planning, energy conservation and renewable energy investments, vehicle electrification, resilient infrastructure and land and water conservation.

Prioritize investments in communities of concern within Broward County who are disproportionately impacted by climate change. Support the preservation and further expansion of net metering. Advocate for updates to building codes to incorporate net-zero energy requirements, promoting sustainable building practices, and reducing carbon emissions from the built environment.

105. Pursue stronger energy conservation & renewable energy standards statewide and within the Florida Building Code.
Propose and support stronger energy code standards. Advocate for optional net-zero code appendix. Pursue local amendments through the Board of Rules and Appeals (BORA) where feasible. Pursue local amendments through the BORA to enhance building codes where feasible, ensuring they reflect best practices across state building codes.

106. Ensure a resilient transition to clean energy by adapting to meet the grid's energy needs.
Encourage energy utilities and providers to develop alternatives for fortifying existing regional power generation facilities, energy storage, power transmission infrastructure, and fuel conveyance infrastructure against the potential impacts of climate change including increased temperatures and sea-level rise. Locate new regional power generation facilities, power transmission infrastructure and distribution systems to accommodate future climate change impacts. Engage energy utilities and the private sector combining resources to support the EV transition, including the shore power at Port Everglades and other investments to aid in the clean energy transition.

107. Promote energy efficiency practices that reduce energy consumption in homes.
Develop a strategy to deliver energy efficiency improvements to low-and moderate-income households. Require County-funded affordable housing developments to meet strong energy efficiency standards. Provide guidance on reducing household energy consumption. This includes upgrading to energy-efficient appliances, making weatherization and home improvements, and connecting households with financing options to assist with these changes.

108. Utilize Green Infrastructure to reduce energy consumption.
Expand green infrastructure and cool pavement investments to lower urban temperature energy demand and cooling costs. Pursue innovative technology and practices to support green infrastructure.

109. Develop a strategy to prioritize those in Broward County experiencing a high energy burden.
Reduce energy burden and environmental health impacts for communities of concern. Enhance and promote opportunities for utilization of energy efficiency and weatherization programs for homes in these communities.

110. Complete and advance Net Zero Strategy.
Create and implement a county-wide Net Zero Plan that will provide a detailed strategy for Broward County to achieve 50% greenhouse gas emission reductions by 2030 and county-wide carbon neutrality by 2050.

111. Pursue innovative solar energy expansion.
Expand the use of solar energy by exploring and utilizing unconventional spaces, such as landfills.

112. Promote the opportunity for waste to energy facilities.
Encourage waste to energy plant to divert methane emissions while providing energy.

NATURAL SYSTEMS

The actions under Natural Systems evaluate and reduce the impacts of climate change on our natural systems and further the integration of natural systems into the urban environment to increase resilience to future climate change impacts.

Natural Systems Objectives

Implement the following nine (9) actions to:

- Preserve reefs, natural areas and habitats to help protect native species.
- Integrate natural systems and green infrastructure throughout the community.
- Evaluate current and future impacts of climate change on our natural resources and ecosystems.

113. Increase natural area ecosystem resilience.
Increase natural area ecosystem resilience through regional wildland fire management, invasives removal and the expansion of short-hydroperiod wetlands through storm water management, mitigation, and restoration. Provide education and outreach to local communities and leadership promoting fire programs, secure County support, increase funding and resources for invasive plant management and develop a rapid response. Encourage participation in habitat steward programs (e.g. Broward County's NatureScape program) to support initiative awareness and action.

114. Support ongoing coral reef restoration to increase resiliency considering climate change and sea-level rise.
Communicate and support the expansion of ongoing coral restoration activities, infrastructure, and capacity. This includes in situ and ex situ coral nurseries and propagation, incorporate thermal-tolerance species in restoration, spawning hubs, outplanting projects, and disease intervention. Prioritize outreach and education regarding coral reef status, benefits, and value.

115. Prioritize areas for living shorelines.
Coordinate across the County to construct, remove invasives, re-vegetate with ecosystem-appropriate native species, and maintain coastal dunes along 80% of the oceanfront shoreline. Identify and prioritize areas for developing living shorelines, including identifying certain areas of potential retreat and restoration. Promote development and innovation of living shorelines as part of renovating existing structures and construction of new seawalls incorporating future rise in sea-level.

116. Resilience planning for parks and open spaces.
Identify parks struggling with sea-level rise and resiliency issues; prioritize and develop adaptation/mitigation plans for high-priority parks. Encourage the creation of new parks, implement programs (e.g. Broward County NatureScape program) for green spaces, green corridors, and open spaces. Encourage use of non-park open space to create community gardens and wildlife habitats. Address heat sinks by increasing tree canopy. Increase the performance of parks and strategically utilize spaces that adapt to climate change impacts.

117. Increase the availability and viability of native regional plants that demonstrate reproductive capability and survivorship in changing climate.
Develop an adaptive management approach to consider the influence(s) of climate change to resiliency of native plants. Contract with growers to collect/harvest native seed banks and increase the diversity and availability of plants for native landscaping supply. Support initiatives of native tree/shrub giveaways and education in the community (e.g. Broward County's NatureScape program).

118. Assess nonpoint-source pollution transport and fate across the County to the ocean.
Identify the transport pattern(s) of nonpoint source pollution and fate across the County to the ocean. Determine the nutrients and analytes identified in the Florida Department of Environmental Protection offshore water quality monitoring program that are likely to have an impact on the marine ecosystem and corals and use the data results to develop and inform reduction strategies and management.

119. Reduce point source pollution to protect coastal water quality.
Encourage the enhancement and improved management of stormwater treatment systems, tightening of wastewater collection systems, modernize utility infrastructure in preparation for sea level rise. Support tertiary wastewater treatment and reuse. Support the cessation of the use of ocean outfalls by 2025. Support potentially increasing deepwater injection well capacity to reduce emergency wastewater releases during and after storms.

120. Connect public and private financing for development and incentivize restoration/ preservation efforts.
Connect financing for (re)development with restoration/preservation/enhancement of green spaces and natural areas within the County. Review and revise current code and ordinances to incentivize innovative green technologies for infrastructure planning for trees and other greenery, and nature-based solutions to development and planning. Implement mitigation challenges for variances to coded green footprint allowances and setbacks.

121. Public outreach and education on the status of natural systems from the Everglades to coral reefs, and the effects of climate change and sea-level rise.
Create and conduct a public outreach campaign to increase awareness of threats to natural ecosystems including coral reefs and build support for efforts to restore and protect them. Advocate for the education and training of new government hires regarding the Climate Change Action Plan as a requirement of new employment.

WATER RESOURCES

The actions under Water Resources seek to maintain adequate water supply through efficiency and conservation efforts, develop decision support tools necessary to build community resilience, and increase the resilience of natural systems through water resource management.

Water Resources Objectives

Implement the following eighteen (18) actions to:

- Ensure existing water resources are protected and remain available through conservation and sustainable management.
- Promote integrated water resource management across all projects to optimize storage, recharge, treatment, reuse, and management as a single sustainable system.
- Preserve water capacity by diversifying source alternatives.
- Balance the water needs of natural systems and public use.

122. Continue local water conservation programs.
Continue the coordination and delivery of local water conservation programs and activities. Provide staff and financial resources to assist municipalities and water providers in implementing regional water conservation strategies as a water supply/demand management tool and energy conservation strategy and encourage regional partners to do the same. Minimize intentional non-stormwater discharges (e.g., hydrant flushing) to stormwater systems through use of bioswales, rain gardens, pervious pavement, and other green stormwater features. Expand programming on irrigation management and rainfall as a preferred irrigation best practice. Require Florida-friendly landscaping for new and re-development.

123. Fully integrate water management strategies.
Embed integrated water management requirements across all aspects of water management practices, infrastructure planning, and development processes. Further flexibility in water management structures for storage, recharge, discharge, pre-storm drawdown, and redistribution through actively managed control structures. Enhance urban reuse of water through development requirements relating to on-site water management and storage, increased pervious areas, and use of green infrastructure to improve storage, recharge, and water quality of managed runoff.

124. Seek future conditions analyses in regional water resources planning.
Serve as an agency partner and advocate for the inclusion and consistent use of regionally-endorsed projected future conditions climate scenarios (including rainfall intensity and sea level rise), with a minimum 50-year planning horizon, as the basis for all regional water resources and water supply planning and development efforts, from Everglades restoration to basin-level analyses to updates to the Central and Southern Florida Flood Control Project (C&SF), and related water management planning and assessment activities.

125. Investigate regionalization of water supply.
Explore the development, recovery of permitted capacity, and expanded use of regional wellfields, water and reclaimed water facilities to achieve economies of scale county-wide in addressing water supply, wastewater treatment and alternative water supply, as part of climate adaptation and sustainable resource planning efforts. Evaluate the compound and cascading effects of projected climate conditions and rainfall extremes (e.g., drought) on wellfields and water supplies, and coordinated management strategies for mitigating impacts.

126. Undertake optimization study for wellfields.
Continue providing integrated modeling to support the sustainable use of the Biscayne and Floridan Aquifers to optimize the use of wellfields across the County for collective water supply needs addressing recharge, storage and potable water supply purposes.

127. Develop alternative water supply strategies.
Work in coordination with all utilities and municipalities, and, where appropriate, third parties, to develop and implement alternative water supply strategies, especially stormwater and wastewater reuse, to mitigate future water shortages as part of Broward's Integrated Water Resource Plan. Encourage large users to use reclaimed water at their facilities.

128. Integrate water monitoring efforts.
Coordinate with municipalities, agencies, and academic partners to develop a holistic approach to water quality monitoring and appropriate use of key metrics, addressing surface waters and groundwaters, to evaluate spatial and temporal trends in water quality and quantity within managed and natural systems, addressing water supply, water management and environmental objectives. Seek coordination in activities of County, Southeast Florida Regional Climate Change Compact, and South Florida Water Management District.

129. Assess potential for contaminant mobilization and transport.
Coordinate with appropriate agencies to undertake a review of soil saturation, changes in hydrology, and the potential for contaminant mobilization and transport under future climate conditions. Partner with municipalities, agencies, and academic institutions to evaluate findings and implications for identified local contaminated sites. Propose changes to monitoring and management activities, of contaminated sites, as warranted.

130. Expand reuse to mitigate the implications of sea-level rise.
Coordinate with all utilities and municipalities to expand wastewater and stormwater reuse to offset potable water demands; mitigate for the loss of coastal wellfields and abate saltwater intrusion. Maximize the source water intended applications to include consideration of salinity and water quality. Encourage utilities to expand their reuse systems.

131. Develop strategies to mitigate impacts of wastewater and stormwater reuse to the natural systems.
Collaborate with federal and state agencies to develop criteria for wastewater and stormwater reuse. Evaluate the potential impacts of reuse on natural areas, and develop mitigation strategies to ensure sufficient fresh water is available for critical natural systems under current and future conditions. Identify opportunities for recharge. Provide an addendum to and implement the Broward County Regional Reuse Master Plan.

132. Implement stormwater reuse.
Explore additional regional development projects for stormwater reuse, storage and conveyance in strategies of flood mitigation, water supply and water quality benefits, and specifically pursue construction of projects like the C-51 Reservoir Project for flood mitigation and as alternative water supplies.

133. Promote green infrastructure.
Promote the expanded use of green infrastructure, nature-based solutions, shared water management systems, storage options, and innovative stormwater design as part of redevelopment strategies and public infrastructure projects, including the pursuit of partnerships to pilot green options under varying conditions. Promote the capture and reuse of rainwater for on-site use and recharge of the Biscayne Aquifer. Encourage regulatory agencies to require the use of green infrastructure through code updates that include maintenance requirements. Serve as the convener for the delivery of workshops and sharing of strategies and innovations.

134. Increase pervious areas.
Develop recommendations pertaining to the optimum percentage and placement of pervious surfaces. Propose appropriate regulations (e.g., pavement maintenance, percent of surface parking, impervious replacement, and swale reclamation), alongside incentives, redevelopment standards and overlays, as well as opportunities for site retrofit and/or modifications considering economic and environmental factors, and climate change pressures.

135. Engage the community in flood mitigation programs.
Engage and coordinate with municipalities to achieve community-wide participation in hazard mitigation activities and programs, including FEMA's Community Rating System (CRS) and Community Disaster Risk Mitigation Evaluation. Coordinate public outreach regarding flood risk, flood insurance, and hazard mitigation assistance programs for all properties. Actively publicize community CRS scores and promote flood insurance uptake. Continue to promote the County's "Document the Floods" crowd source tool to better understand evolving flood patterns, contributing factors, and mitigation strategies. Participate in data sharing.

136. Implement the County-wide Resilience Plan.
Coordinate county-wide implementation of the 2024 County-wide Risk Assessment and Resilience Plan and the strategies recommended therein to mitigate for compound flood conditions modeled and predicted under the combined conditions of sea level rise, storm surge, rainfall intensification, and groundwater table rise through the year 2070.

137. Pursue regional water management solutions.
Provide leadership in the pursuit of regional stormwater solutions addressing the shared goals of flood mitigation, water supply and water quality benefits. Continue to support the Phase 2 expansion of the C-51 Reservoir Project, construction of the Broward County Water Preserve Area and regional impoundments, and the Central & Southern Florida Flood Resiliency Study with a focus on regionally coordinated water management systems, elements, and operations. Explore opportunities for storing and moving water between regions, using the C-51 Reservoir Project as a potential model.

138. Invest in technology and automation.
Organize with local jurisdictions, agencies, and institutions to align monitoring and operational efforts, including use of instrumentation and technology, to help inform and improve data investments, trend analyses, and use of data in support of integrated and responsive water management decisions at various time-scales, from real-time, coordinated decision-making (pre-storm drawdown) to mid- and longer-term management as part of adaption pathways. Invest in future and emerging technologies such as data mining and artificial intelligence (AI).

139. Promote advanced flood risk assessments.
Partner locally and regionally to ensure the proper characterization of flood risk and application of adequate hydrologic and hydraulic models of sufficient resolution, capturing the compounding effects of drivers such as rising sea levels, storm surge, rainfall, and elevated groundwater levels, in the assessments of flood vulnerability and mapping, emphasizing the significance of water control operations and the complex dynamics of coastal and inland water flows.

GLOSSARY

Accessibility in terms of transportation is the ability to reach desired destinations, activities, goods, and services.

Active transportation involves self-propelled, human-powered modes of travel such as walking and bicycling.

Adaptation to climate change for any system involves implementing actions to adjust to its current or anticipated future impacts, encompassing ecological, social, and economic systems.

Alternative Water Supply means the use of non-traditional sources for fresh water. In Southeast Florida, the Biscayne Aquifer has been the primary traditional source for drinking water. Alternative water supplies include seawater, brackish groundwater, stormwater, reclaimed water, and aquifer storage and recovery projects.

Antecedent Conditions represent a temporary state within dynamic natural and social systems that precedes and influences the onset and magnitude of a hazard and its consequences. They are distinct from, but influenced by, what are commonly referred to as preconditions (preexisting conditions). (Springer.com reference from Encyclopedia of Natural Hazards)

Bioswales means vegetated, shallow, landscaped depressions designed to capture, treat, and infiltrate stormwater runoff. Bioswales are typically sized to treat the water quality event known as the "first flush", which is the first and often most polluted volume of water resulting from a storm event. Bioswales are an effective type of green infrastructure.

Broward County Water Preserve Area Project (BCWPA) is a major Comprehensive Everglades Restoration Plan (CERP) project located in Southwest Broward County with a total project area of 7,990 acres, inclusive of two impoundments and wetlands "buffer strip" separating urban Broward County and the Everglades. The primary goals and objectives of the project are to reduce seepage loss from the Conservation Area and nutrient loading to the Everglades.

C-51 Reservoir Project is an in-ground surface water reservoir located in Palm Beach County, the first multi-jurisdictional alternative water supply project in the region. The project involves capture and storage of excess stormwater runoff to reduce harmful coastal discharges while providing an alternative source of water for redistribution and potable wellfield recharge. Phase 1 of the project will supply 35 million gallons per day (MGD) of water for recharge of select wellfields in Broward County and Miami-Dade County.

Central and Southern Florida (C&SF) Flood Control Project is a large, multipurpose water resources project initially authorized by the Flood Control Act of 1948 for the purposes of flood protection for urban and agricultural areas, water supply for agriculture, municipal, industrial, and ecosystem uses and to prevent saltwater intrusion risks to the coastal water supply. It includes over 2,200 miles of canals and water management structures. It was constructed by the U.S. Army Corps of Engineers and is operated and maintained by the South Florida Water Management District.

Central and Southern Florida Flood Resiliency Study is a Flood Risk Management Study to identify immediate improvements to the C&SF Project needed due to changing conditions associated with climate change, sea level change, land development, and population growth in the lower east coast of Florida (principally Broward and Miami-Dade counties).

Circular Economy is a system where materials never become waste and nature is regenerated. In a circular economy, products and materials are kept in circulation through processes like maintenance, reuse, refurbishment, remanufacture, recycling, and composting. The circular economy tackles climate change and other global challenges, like biodiversity loss, waste, and pollution, by decoupling economic activity from the consumption of finite resources.

Climate anxiety, also called eco-anxiety, refers to distressing feelings related to climate change impacts. This type of distress is often rooted in feelings of uncertainty, lack of control and concerns over well-being or safety.

Climate indicators show the long-term evolution of several key variables which are used to assess the global and regional trends of a changing climate.

Coastal Buffer Areas are land areas adjacent to a Shoreline (Coastal) Feature that is, or will be, vegetated with native shoreline species and which acts as a natural transition zone between the coast and adjacent upland development. (www.epa.gov)

Coastal Construction Control Line (CCCL) Program regulates structures and activities that can cause beach erosion, destabilize dunes, damage upland properties, or interfere with public access. (floridadep.gov)

Coastal High Hazard Area (CHHA) are areas along the coasts that have additional hazards due to wind and wave action. These areas are identified on Flood Insurance Rate Maps (FIRMs) as zones V, V1-V30 and VE. (www.fema.gov)

Communities of Concern are census tracts that have a significant concentration of underserved populations, such as households with low incomes and people of color. A combination of additional factors helps define these areas.

Community Hub is a multipurpose centre, such as a community centre, medical centre or school, that provides a range of high quality and cost-effective services to the local community, with the potential to develop new services in response to changing community needs.

Community Rating System (CRS) is a voluntary incentive program that recognizes and encourages community floodplain management practices that exceed the minimum requirements of the National Flood Insurance Program. CRS rated communities receive flood insurance discounts.

Community Participatory Research is an equitable approach to research in which researchers, organizations, and community members collaborate on all aspects of a research project.

Compounding Flood Factors are various ways of flooding, including storm surge, high tides, rainfall, and elevated river flow. The occurrence of two or more of these flood mechanisms is referred to as compound flooding. (thewaterinstitute.org/projects/compound-flooding)

Data Mining means exploring large data sets using computers and machine learning to identify patterns, trends, and relationships.

Discharge means the flow of water into, out of, or through a water body, often in reference to canals or rivers. Discharge can also occur through swales or through drainage culverts.

Drainage Basin is a subdivision of a single watershed or multiple watersheds.

Ecosystem is the complex of living organisms, their physical environment, and all their interrelationships in a particular unit of space.
(Britannica online; https://www.britannica.com/science/ecosystem accessed 07/08/2024)

Extreme/Severe Weather Event is an occurrence of unusually severe weather or climate conditions that can cause devastating impacts on communities and agricultural and natural ecosystems. Weather-related extreme events are often short-lived and include heat waves, freezes, heavy downpours, tornadoes, tropical cyclones and floods.

First and Last Mile of Transit is the distance between public transport and the end destination. The last mile is also the distance between the residence and public transport.

Flood Mitigation includes structural and nonstructural activities to reduce flood impacts. This can include design requirements for buildings and infrastructure as well as active means of conveying, storing, and managing water to reduce the duration, level, and extent of flood conditions.

Food Miles are the distance food is transported from the time of its making until it reaches the consumer. Food miles are one factor used when testing the environmental impact of food, such as the carbon footprint of the food

Food Systems are the networks needed to produce and transform food, and ensure it reaches consumers.

Future Condition Hazard Area Designations means the land area that would be inundated by the one percent annual chance (100-year) flood based on future conditions hydrology. (fema.gov)

Geographic Information Systems (GIS) is a system that creates, manages, analyzes, and maps all types of data.

Green Infrastructure is a planned network of natural and semi-natural areas integrating environmental features, such as natural vegetative systems and green technologies, that collectively provide a multitude of economic, environmental, health, and social benefits. Examples include bioswales, ponds, tree installations, pervious materials, green roofs, and engineered wetlands.

Green space is community space consisting of land (such as parks) rather than buildings.
(Merriam-Webster Dictionary, https://www.merriam-webster.com/dictionary/green%20space , accessed 07/08/2024)

Hardscapes features of an area that has been built out of hard materials such as concrete rather than natural features such as trees and grass. (dictionary.cambridge.org)

Heatwave means eight impacts on health from climate change. This includs heath illness, exacerbate heart and lung conditions, asthma, traumatic injury, water and foodborne illnesses, allergies, vector-borne diseases, and emotional stress.

Hyper-local food system means everything being served is sourced from the immediate locality. The ideal would be produced that is grown by a restaurant itself, on-site.

Impervious Surfaces means land surfaces that do not allow, or minimally allow, the penetration of water to the soil, such as building roofs, traditional concrete, and asphalt pavements.

Impoundment means any lake, reservoir, pond, or other feature used to retain surface water.

Infiltration and Inflow (I&I).
https://www3.epa.gov/region1/sso/pdfs/QuickGuide4EstimatingInfiltrationInflow.pdf

> **Infiltration** is groundwater that infiltrates a sewer system through defective pipes, pipe joints, connections, or manholes. Infiltration does not include and is distinguished from inflow. Infiltration is generally measured during seasonally high ground water conditions, during a dry period.
>
> **Inflow** is water other than sanitary flow that enters a sewer system from sources which include, but are not limited to, roof leaders, cellar drains, yard drains, area drains, drains from wet areas, cross connections between storm sewers and sanitary sewers, catch basins, cooling towers, stormwater, surface runoff (including leaking manhole covers), street wash-water, or drainage. Inflow does not include and is distinguished from infiltration. Inflow is generally measured during wet weather.

Infrastructure Asset Management is the integrated, multidisciplinary set of strategies in sustaining public infrastructure assets such as water treatment facilities, sewer lines, roads, utility grids, bridges, and railways. The process focuses all stages of a facility's life cycles, from design to decommissioning or disposal. (www.ibm.com)

Intermodal Center is a facility, terminal or hub for goods and services combining any combination of rail, trucking, air, and other transportation services.

Invasive species are non-native (or alien) to the ecosystem under consideration and, whose introduction causes or is likely to cause economic or environmental harm or harm to human health. (USDA, National Invasive Species Information Center; https://www.invasivespeciesinfo.gov/what-are-invasive-species accessed 07/08/2024)

Language Justice is a key practice used in social justice movements in order to create shared power, practice inclusion and dismantle traditional systems of oppression that have traditionally disenfranchised non-English speakers. Language Justice is more than interpretation and translation, it is an intentional practice that values interpretation and translation as critical tools for opening communication and empowering all voices.

LiDAR Data stands for light detection and ranging and is an optical remote-sensing technique that uses laser light to densely sample the surface of the earth, producing highly accurate measurements. (Arc Map website)

Living Shoreline is the use of plants or other natural elements, sometimes in combination with harder shoreline structures, to stabilize estuarine, coasts, bays, and tributaries. (NOAA; https://oceanservice.noaa.gov/facts/living-shoreline.html, accessed 07/08/2024)

Micromobility is transportation using lightweight vehicles such as bicycles and scooters especially electric ones rented for short term use.

Mobility as a service is the integration of various forms of transport services into a single mobility service accessible on demand.

Mobility is the movement of people and goods.

Multimodal is a transportation term that includes public transportation, rail and waterways, bicycle and pedestrian. Multimodal access supports the needs of all users where they choose to walk, bike, use transit or drive.

National Risk Index is a dataset and online tool to help illustrate the United States communities most at risk for 18 natural hazards. It was designed and built by FEMA in close collaboration with various stakeholders and partners in academia; local, state and federal government; and private industry. (hazards.fema.gov.)

Nature-Based Solutions are actions that incorporate natural features and processes to protect, conserve, restore, sustainably use, and manage natural or modified ecosystems to address socio-environmental challenges while benefiting both people and nature.

Nonpoint Source Pollution refers to diffuse contamination of water or air that does not originate from a single discrete source. This type of pollution is often the cumulative effect of small amounts of contaminants gathered from a large area. (Wikipedia; https://en.wikipedia.org/wiki/Nonpoint_source_pollution , accessed 07/08/2024)

Participatory Science engages the public in advancing scientific knowledge by formulating research questions, collecting data, and interpreting results. Other terms include citizen science, community science, or public participation in scientific research.

Pervious Surfaces means land surfaces that allow the penetration and infiltration of water into the subsurface such as grass, sod and other landscape areas, and pervious pavements.

Point Source Pollution is a single identifiable source of air, water, thermal, noise or light pollution. (Wikipedia, https://en.wikipedia.org/wiki/Point_source_pollution, accessed 07/08/2024)

Pre-Storm Drawdown means the pro-active, water management strategy of lowering surface water and groundwater levels in advance of a major rainfall event to create storage in the water management system, typically accomplished by opening flood control gates, or through the use of stormwater pumps.

Public Health is the science of protecting and improving the health of populations, from neighborhoods to cities to countries to world regions, through education, promotion of healthy lifestyles, research toward prevention of disease and injury, and detecting, preventing, and responding to infectious diseases.

Recharge means the replenishing of groundwater supplies, which can occur naturally through the seepage of rainwater into the ground, or intentionally to restore groundwater levels and store water for later use.

Seed Banks are the storage of seeds to preserve genetic diversity; hence it is a type of gene bank. (Wikipedia; https://en.wikipedia.org/wiki/Seed_bank , accessed 07/08/2024)

Sewer System Evaluation Studies (SSES) refers to a comprehensive assessment and analysis of a municipal or industrial sanitary sewer system. It is conducted to evaluate the condition, performance, and capacity of the sewer infrastructure, as well as to identify any problems, defects, or areas of concern within the system. (A to Z Statewide Plumbing, Inc.)

Soil Regeneration means creating new soil and rejuvenating soil health by: minimizing the loss of topsoil, retaining more carbon than is depleted, boosting biodiversity, and maintaining proper water and nutrient cycling. This has many benefits, such as: soil sequestration of carbon in response to a growing threat of climate change, a reduced risk of soil erosion, and increased overall soil resilience.

Stakeholders means a person such as an employee, customer, or citizen who is involved with an organization, society, etc. and therefore has responsibilities towards it and an interest in its success. Broward County stakeholders include but are not limited to businesses, non-profit organizations, governmental organizations, teachers, educational institutions, youth organizations, health care providers, law enforcement, communities of concern, farmers, farm workers, elected officials, firefighters, EMS personnel, developers, and landlords.

Stormwater Management System means a surface water management system that is designed and constructed or implemented to control discharges which are necessitated by rainfall events, incorporating methods to collect, convey, store, absorb, inhibit, treat, use, or reuse water to prevent or reduce flooding, over drainage, environmental degradation, and water pollution or otherwise affect the quantity and quality of discharges from the system.

Swale is typically a shallow, grassy depression running parallel to a roadway constructed to temporarily capture and convey rainfall and stormwater runoff, allowing for water quality treatment, soil infiltration, and groundwater recharge.

Transit-oriented Development is an approach to urban development that maximizes the amount of residential, business and leisure space within walking distance of public transport. It creates compact, mixed-use communities near transit where people enjoy easy access to jobs and services.

Transportation Demand Management (TDM) focuses on understanding how people make their transportation decisions and influencing people's behavior to use existing infrastructure in more efficient ways, like carpooling, using transit, ridesharing, walking, biking and remote working.

Transportation System Management and Operations (TSM&O) is a set of strategies that focus on operational improvements that can maintain and even restore the performance of the existing transportation system before extra capacity is needed, i.e. getting the most out of what we already have.

Tree Canopy is the layer of leaves and branches from trees that cover the ground from a bird's-eye view. Canopy itself provides shade and can serve as habitat for numerous animals such as migrating birds, while offering various other benefits.

Tree Preservation Trust Fund was created pursuant to the Broward County Administrative Code, Chapter 27, PART XXXIII, to be used for tree planting projects that enhance the tree canopy of Broward County. In certain instances, payments can be made to the Broward County Tree Preservation Trust Fund in lieu of tree replacement requirements.

Unified Sea Level Rise Projection for Southeast Florida is a single, regionally unified projection, ensuring consistency in adaptation planning and policy, and infrastructure siting and design in the Southeast Florida four-county region. (Climate Action Plan's executive summary)

Upcycling is the act of taking something no longer in use and giving it a second life and new function. In doing so, the finished product often becomes more practical, valuable and beautiful than what it previously was.

Urban Broward is developed land consisting of 31 municipalities.

Urban Heat Island effect is a phenomenon whereby cities experience higher air temperatures than the surrounding countryside.

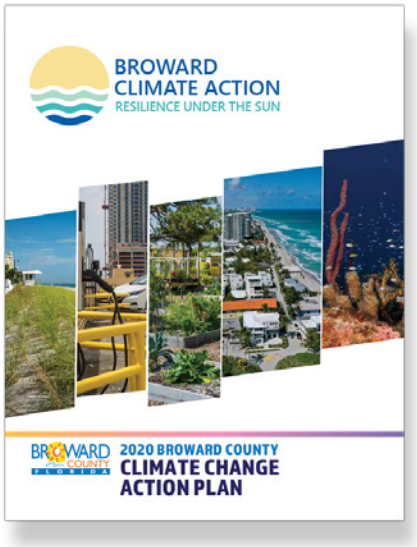
Urban Heat Mitigation encompasses strategies aimed at reducing urban heat and its impacts. (Green.org)

Water Reuse or Water Reclamation is the process of converting municipal wastewater or stormwater into water that can be used for other, beneficial purposes such as agriculture, irrigation, potable water supply, recharge, industrial processes, and environmental restoration. Water reuse can provide alternatives to existing water supplies and be used to enhance water security, sustainability, and resilience.

Zero Waste means the conservation of all resources by means of responsible production, consumption, reuse, and recovery of products, packaging, and materials without burning and with no discharges to land, water, or air that threaten the environment or human health.

ACCOMPLISHMENTS

FROM THE 2020 CLIMATE ACTION PLAN



Two overarching goals provided the focal points through the 2020 update: To mitigate the effects of climate change by reducing greenhouse gas emissions by 2% per year, ultimately leading to a total 80% reduction by 2050, and to increase the resilience of our community to the effects of climate change.

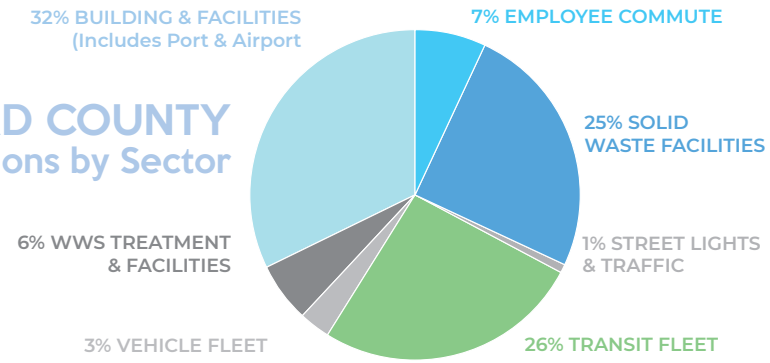
Greenhouse Gas (GHG) Emissions Inventory

Broward County Government Ops, Community-wide, Southeast Region

To gain a better understanding of the greenhouse gas emissions being generated as part of Broward County's everyday business practices, government operations GHG emissions are calculated annually using the ICLEI Clearpath tool. GHG inventories enable local governments to assess their risks and opportunities, track their progress, and create strategy to reduce emissions in a quantifiable and transparent way. From 2019-2023, GHG emissions from Government Operation sectors have decreased over the past five years. The overall decrease has resulted in meeting the reduction target set from 2050.

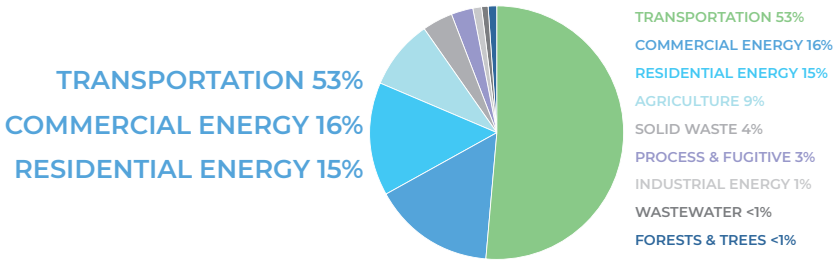
County-wide inventories were developed for emissions generated from 2007 to 2022 with projections to 2050. From 2018-2021, county-wide emissions decreased 3% which is equivalent to 549,205 tons of CO2e. To slow climate change, per capita emissions need to decrease from 13 tons to two tons per person.

BROWARD COUNTY GHG Emissions by Sector



The Southeast Florida Regional Climate Change Compact ("Compact"), on behalf of Broward, Miami-Dade, Monroe and Palm Beach counties, is leading the development of a regional greenhouse gas (GHG) reduction plan, covering the entire geographic extent of the four-county region, as well as the Miccosukee and Seminole Tribal Governments. As part of the plan a Comumunity-Wide GHG emissions inventory was completed. The base line year for the purposes of the Priority Climate Action Plan is 2019. Total emissions for the region were 69,993,641metric tons of carbon dioxide equivalent (MTCO2e) in 2019.

REGIONAL EMISSIONS AT A GLANCE



Resilience Dashboard

Broward County's Resilience Dashboard is a tool that tracks and visualizes resilience projects across Broward County. The dashboard is maintained by Broward County staff to support data sharing. The Dashboard includes information such as Broward's approach through story maps illustrating the challenges and response to climate change, climate action plans, sea level rise projections, county-wide solar projects, electric vehicle investments, resilience tools, greenhouse gas emission inventories and goals.

Youth Climate Summit

Since 2019, Broward County and Broward County Public Schools have hosted an annual Youth Climate Summit to give students in grades 5-12 a voice to advocate for policy change and promote environmental sustainability. The fifth and sixth annual youth climate summit were the largest with over 1,000 students convening to engage, connect, and empower themselves to act on promoting and implementing climate change adaptation and resilience measures in their homes, schools and communities.

Solar Investments

Solar rooftop panels and canopies are being installed throughout the County, as the County focuses on reducing greenhouse gas emissions 50 percent by 2030 and achieving net zero emissions by 2050. In 2024, Broward County installed two large-scale solar canopies over the basketball courts at Reverend Samuel Delevoe Memorial Park in Fort Lauderdale.

The county has completed 16 solar installations at Broward County sites and with the Delevoe Project and other forthcoming projects the County's solar project capacity will rise to 6.96 megawatt (MW), combined with a 132 MW solar offset through FPL's SolarTogether program to the County's overall electrical consumption.

Fleet Electrification

In an effort to meet the goal of purchasing only zero-emissions vehicles by 2030, Broward County has prioritized electric vehicles for new light duty vehicles purchases and the installation of level two fleet electric vehicle charger ports at various County parking facilities. As of October 2024, Broward County has 189 charging ports across the County's parking facilities and a total of 191 electric vehicles (Chevy bolt, Nissan Leaf, Tesla, Ford Mache, Ford Lightning and Nissan Ariya). In addition, Broward County Transit has a total of 33 electric buses and 15 electric bus plug-in chargers.

Resilience Plan

The Resilience Plan was a two-year county wide planning effort to formulate and develop a strategy to build community resilience to the impacts of climate change with a focus on flood and heat mitigation. The Plan is designed to support coordinated investments across all 31 municipalities. The plan assesses the economic, financial risk and credit impacts that the County will face as we near future conditions.

Sea Level Rise Adaptation Planning

On February 23, 2021, the Broward County Board of County Commissioners adopted an amendment to the Priority Planning Area (PPA) for Sea Level Rise Map (Item 48) as part of the County's Natural Resources Map Series of the BrowardNEXT Broward County Land Use Plan. This amendment captures sea level rise projected for the 50-year planning horizon and is consistent with the Regional Sea Level Rise Projection for Southeast Florida.

Adopted Future 100-year Flood Elevation Map

Adopted by the Broward Board of County Commissioners on June 15, 2021, as part of the Code of Ordinances, the map (Plate WM 13.1 - Future Conditions), helps to ensure community resilience by ensuring that future flood elevations are incorporated in the planning and design requirements for lowest habitable finished floor elevations for residential and commercial structures - an action that will help protect against future flood risk and potential losses and preserve the affordability of flood insurance in Broward County.

Ground Water Table Map - The Future Conditions

Groundwater Elevation Map, Plate WM 2.1 Future Conditions represents the expected future average wet season groundwater elevations for Broward County and is used when reviewing surface water management licenses. Broward County adopted an updated version of Plate WM 2.1 - Future Conditions, referred to as Plate WM 2.3 - 2070 Future Conditions effective July 1, 2024. The updated map was prepared using the latest sea level rise projections for 2070 planning horizon.

Policy Prohibiting Polystyrene and Plastics on County Property

In April 2022, the Board approved a resolution to prohibit Single Use Plastics: Polystyrene foam food ware (clamshell containers, cups, plates, bowls); plastic straws and stirrers; and unencapsulated polystyrene foam products (coolers, ice chests, beach/pool toys) from all Broward County property and facilities as of June 1, 2022. The goal is to reduce litter in our beach and waterways and to reduce the waste that ends up in landfills.

Net Zero Plan

The Broward County Net-Zero Plan will develop a comprehensive strategy to reduce greenhouse gas (GHG) emissions by 2050 relative to 2019 levels, supporting Broward County's commitment to climate action and environmental sustainability. The plan will include GHG emission reduction goals, strategies for achieving carbon neutrality, pathways to increase renewable energy production and plans to engage community partners.

BCT Premium Mobility Plan (PREMO)

The PREMO plan was approved by the Broward County Commission on June 13, 2023. Under the Transportation Surtax, the PREMO plan sets to improve transportation throughout the County by implementing a network of premium transit services and projects on high-capacity corridors that enhance economic opportunities, provides modern convenient mobility that is attractive, safe, reliable, and frequent with the goal of increasing transit ridership and reducing greenhouse gas emissions from the transportation sector.

C51 Reservoir

The C-51 Reservoir Project represents the first multi-jurisdictional public-private alternative water supply project in the region and a major advancement towards ensuring sustainable and resilient water supplies for the Broward County Community. Phase I provides 14,000 acre-feet of storage and will provide sustainable recharge of the Biscayne Aquifer through the existing South Florida regional canal network, allowing for the withdrawal of 35 million gallons-per-day of water by the eight(8) participating utilities – Broward County, Sunrise, Hallandale Beach, Dania Beach, Margate, Pompano Beach, Fort Lauderdale and Miami-Dade County.

LEED – GOLD Certification in USGBC's LEED for Cities and Communities

In June 2024, the County achieved the coveted LEED (Leadership in Energy and Environmental Design) Gold certification. This certification helps local leaders measure and manage progress in community conditions, in pursuit of a more sustainable, resilient and equitable future. Broward County is part of a growing group of local governments to be certified using the LEED for Cities & Communities rating system, created by the U.S. Green Building Council (USGBC), and is the world's most widely used green building rating system. With this, cities and communities can create and implement responsible and sustainable plans for natural systems, transportation, and many other factors that contribute to quality of life.

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Senator Nan Rich, *Co-Chair*
Sheri Brown Grosvenor
Lois Bush
Isabel Cosio Carballo
Albert Carbon
Shahin Etessam
Lee Gottlieb
Robert Gutsche Jr.
Debra Hixon
Elisa Jones
Adrienne Kaltman
Robert Kornahrens
Carolina Maran
Commissioner Nancy Metayer Bowen
Ken Morris
Col. Steve Robson
Tara Root
Alissa Jean Schafer
Peter Trupia
Lenny Vialpando
Mayor Sandra Welch

Resilient Environment Department and Natural Resources Division

Jennifer Jurado, PhD, *Chief Resilience Officer and Deputy Director*
Monica Pognon, *Director*
Stefanie Chicko, *Assistant Director*

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Built and Physical Environment

Albert Carbon – *Co Lead*
Dr. Jennifer Jurado – *Co Lead*
Anthony J Abbate
Lois Bush
Stefanie Chicko
Larry Clark
Ron Drew
Jeffrey E. Huber
Dylan Larson
Phil Purcell
Dr. Michael C. Sukop
Robert B. Taylor Jr.

Water Resources

Albert Carbon – Co Lead
Dr. Jennifer Jurado – Co Lead
Carlos Adorisio
Vanessa Balta
Susan Bodman
Lee Gottlieb
Kevin Hart
Dr. Jayantha Obeysekera
Tara Root
Dr. Michael C. Sukop
Robert B. Taylor Jr.

Transportation

Monica Pognon - *Lead*
Lois Bush
Tonya Fletcher
Sara Forelle
Min-Tang Li
Shiau Ching-Low
Phillip Purcell
Susan Rinaldi
Ashley Robins
Josette Severyn
Levi Stewart-Figueroa

Healthy Community

Commissioner Nancy Metayer Bowen – *Co Lead*
Monica Ospina – Co Lead
Knellee Bisram
Arely Lozano Cantu
Xavier DeRoos
Alexander Easdale
Sue Gallagher
Jonnell Perkovich
Catherine Toms

Natural Systems

Angela Delaney – *Co Lead*
Linda Briggs-Thompson – *Co Lead*
Marilyn Hu
Michel Therrien
Ken Morris
Anthony Gross
Lee Gottlieb
Brian Walker
David Kerstetter

Energy Resources

Ken Morris – *Co Lead*
Brock Donnelly – *Co Lead*
Sarah Pariseau
Glen Hadwen
Larry Clark
Matthew Cozzo
Commissioner Nancy Metayer Bowen
Bian Lomel

Policy

Senator Nan Rich – *Co Lead*
Marty Cassini – *Co Lead*
Dr. Jennifer Jurado
Sarah Pariseau

Climate Change Action Plan Design by Andy Royston

YOU CAN MAKE A DIFFERENCE!

The success of this Climate Change Action Plan is not just the responsibility of local governments, it also depends on the actions of the over 1.9 million individuals who live, work and play in Broward County.

Here are some actions you can take to help make Broward County a more resilient and sustainable environment!

BE AN INFORMED VOTER AND VOTE!
Engage in your local community boards, council and commission meetings.

VISIT THE BROWARD COUNTY RESILIENCE DASHBOARD:
Gain a better understanding of local climate change impacts, climate adaptations projects and investments occurring in your community.
Minimize waste: The most effective way to reduce waste is to not create waste. Below are some helpful ideas for zero waste living for a more sustainable lifestyle.

- **Reduce –** buy less and buy in bulk to reduce packaging.
- **Reuse –** use reusable bags, water bottles, and lunch containers
- **Recycle –** recycle used materials.
- **Refuse –** say no to products you don't need, won't use or are packaged in non-environmentally friendly packaging.
- **Compost**
- **Plastic Pollutes -** Avoid single-use plastics and polystyrene items and use sustainable alternatives to plastic wrap, straws, plastic bags, and food containers.
- **Go paperless**.
- **Upcycle –** upcycle items you would typically throw away.

REDUCE YOUR CARBON FOOTPRINT:

As the County strives for Net Zero by 2050, you can do your part to reduce your contribution to local carbon emissions:

- **Switch to LEDs (Light Emitting Diodes):** LED light bulbs use 75% less energy than regular light bulbs, last up to 10 times longer, and pay for themselves in the first four months.

- **Cool your home at 78 F or warmer, with the thermostat fan switched to auto:**
For additional savings, raise your thermostat to 82F when you're away. Savings can be $200 - $300 per year. For those that like to keep it cooler, consider installing renewable energy with a solar photovoltaic (PV) rooftop array to help offset the environmental impacts of running your AC.

- **Adjust your water settings:**
Turn the hot water heater down to 120F and wash your clothes in cold water, and you could save $200-$300 per year.

- **Install a solar thermal water heater or photovoltaic (PV) panels:**
Though initially more costly to install, solar water heaters can cut energy bills by 50-80% within the first year. And solar PV systems will produce electricity on site, reducing the amount of electricity you need to purchase from the grid.

- **Buy an electric vehicle (EV):**
Switching from a gas-powered vehicle to an EV is one of the most significant things you can do to reduce your personal carbon emissions.

- **Consider alternative transportation:**
Carpool, take public transportation, bike and/or walk can significantly reduce pollution and minimize carbon emissions.

- **Conserve Water:**
Water is a limited resource and is essential for human survival. Conserving water helps recharge groundwater, saves money and energy, improves water quality, reduces your carbon footprints and protects our natural resources.

- **Choose and use your appliances wisely:**
Maximize your use of water-consuming appliances. Choose high-efficiency appliances, such as ENERGY STAR-rated washers or dishwashers, when replacements are needed.

- **Make sure every tap in your home has a high efficiency faucet aerator:**
Faucet aerators are a little piece of hardware that screw into the bottom of faucets. The cost about $20.

- **Harvest rainwater for irrigation:**
Collect and save rainwater from your gutters and use it to water your flowers and plants. Check with your local hardware stores and home improvement centers to purchase and obtain assistance in installing rain barrels.

- **Replace your showerhead:**
High-efficiency showerheads are designed to maintain water pressure while using much less water than the old-fashioned sort. This quick fix will reduce your shower water use by 20-60%.

- **Replace your toilets:**
Save water with a high efficiency toilet. Visit conservationpays.com to see if your eligible for $125 rebate on your new toilet.

- **Reduce water usage in an irrigation system:**
Install a smart irrigation system, properly adjust sprinkler head placement to avoid overwatering areas, check for leaks, and abide by local outdoor water restrictions.

- **NatureScape your yard:**
Many beautiful shrubs and plants thrive with far less watering than other species. Native plants require less water and are better resistant to local plant diseases. Layering with mulch also prevents rapid water loss and, as a result, reduces the frequency of watering.

ADAPTABLE SUSTAINABLE THRIVING

BROWARD COUNTY FLORIDA

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Resilient Environment Department
Natural Resources Division
115 S. Andrews Avenue, Room 329
Fort Lauderdale, FL 33301
954-519-1270

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