

2021 Broward Climate Change Action Plan **DRAFT**

Underlined text is new or different from 2015 plan.

**WORKGROUP: HEALTHY PEOPLE**

Action	Explanation
1. Pursue grants for community education projects	<p>Pursue grants for Climate, Energy &amp; Sustainability Program initiatives. Collaborate with other local agencies and nonprofits in the community on grant proposals. <u>Establish a Community Grants Committee to target grants for underserved communities. Grants targeting food supply initiatives, septic systems, community gardens, recycling, cooling stations, tree canopy and maintenance, and others.</u></p>
2. Educate <u>community</u> on climate change	<p><u>Educate and engage the community and community leaders through a strategic public outreach and education campaign using high profile media and other appropriate communication outlets to raise general awareness of climate change impacts. Ensure messaging meets language needs to ensure representation in Spanish and Haitian Creole. Develop and deploy curricula and programs working with public and private schools. Install public demonstration sites. Develop 3D visualization tools for communication of food risks. Identify public health groups that communicate health risks. Continue support for the Compact's annual Southeast Florida Regional Climate Leadership Summit.</u></p>
3. Educate homeowners on climate risk	<p>Provide homeowners, <u>landlords, and renters</u> with understanding of risk. Develop a toolkit to educate homeowners, <u>landlords, and renters</u> on climate change adaptation i.e., flood proofing, elevation data, sea level rise information, etc. to help homeowners <u>and renters</u> prepare for impacts, make sound investments, and reduce property hazard insurance premiums. <u>Ensure safe space for housing to renters (adequate A/C, window screens, and weatherization).</u></p>

**4. Engage volunteer corps**

Develop key partnerships with local volunteer networks. Enlist a volunteer corps for assistance with climate outreach goals. Educate volunteer force as “climate ambassadors” for the community. Prioritize engaging vulnerable populations. Identify and develop partnerships with community, youth, and school groups to encourage them to be involved in the Climate Change Task Force. Expand the Climate Change Youth Summit.

**5. Educate and prepare for public health impacts**

Develop plans and programs to educate the community and develop plans to mitigate climate impacts on public health, with special attention to vulnerable populations. Such measures could include establishment of public health information call centers and media campaigns, opening cooling centers during heat waves at public locations (parks), and ensuring emergency medical services have available staff with appropriate training to deal with climate related public health concerns. Focus on heat stress and develop a two-way communication plan to discuss health impacts with the community.

**6. Encourage dialogue between elected officials, staff, and socially vulnerable populations about local climate impacts and community priorities to inform leaders of community needs**

Identify vulnerable populations and survey their needs. Develop a team with County and City officials to host virtual town halls multiple times a year.

**7. Build local food systems**

Evaluate County wide local food systems using GIS and mapping. Determine current acute emergency infrastructure, gaps in food supply, establish need for sustainable and equitable food systems with community input. Stimulate local food production through the community agriculture network to reduce the transportation carbon footprint of produce also known as food miles. Combine with acute care and emergency infrastructure adaptation, resilience adaptation through food system infrastructure, Urban Health Partnerships and Food for All Broward

8. **Develop policies to enhance the urban tree canopy to protect pedestrians and bicyclists from heat and pollution** Evaluate pedestrian, bicycle lanes, and tree canopy using GIS. Work with community and governmental partners to identify needs and involve community members in the planning process. Evaluate bicycle, pedestrian walkways, and transit routes of the current network. Work with community partners, cities, and government to assess the need to expand and connect these segments. Take into consideration tree canopies and old rail paths. Tree maintenance cost plans need to be established in low income areas.
9. **Integrate social vulnerability data into all local government processes** Incentivize, encourage, and fund the modification of old homes to meet new building standards that help mitigate flooding. After a climate crisis, prioritize by the number of people impacted in an area versus property values.
10. **Engage academia in research** Encourage, collaborate, and enhance partnerships with public and private universities, colleges, technical schools, and community members in the region to develop research, assessment tools and educational programs. Report environmental trends. Collaborate with academic institutions to identify, evaluate, and prepare proposals for research grants and other funding opportunities.
11. **Engage and educate private sector stakeholders and community members about resilience strategies for the built, natural, and social environment** Focus on expected future changes in natural hazards and sustainable practices, future heat projects, risks, and mitigation strategies. Identify various communication platforms (i.e. social media, town halls, traditional media) that target our stakeholders (private sector, business owners, farm workers, homeowners, renters, landlords, and residents). Ensure flood risk and natural hazard information is distributed to the public.

- Increase the regional tree canopy to 40%. Perform a tree canopy study every 5 years. Require solar reflective roof materials. Encourage green roofing where feasible. Partner with the Broward County School District to advance cool roof practices. Establish the best areas for solar panels in Broward County and work with community partners to establish additional co-ops and funding to ensure inclusion. Ensure cooling stations at County and City parks to reduce health risks. Solicit grants for weatherization (i.e. supplies, windows) for all of Broward County residents and access to affordable air conditioning.
- 12. Reduce urban heat island effect**
- 13. Support public infrastructure (telecommunications, high speed internet, and community hubs) that enables economic mobility, health, mental health, and safety for all community members**
- Community hubs to be used as immediate response centers, charging stations, information centers, storage facilities, and internet access. After a climate crisis, prioritize by the number of people impacted in an area versus property values.
- 14. Ensure beneficial social equity and health outcomes in considering the impacts of land use policy, public infrastructure, and public service decisions on high vulnerability populations.**
- Implement strategies for attainable, affordable, workforce and climate resilient housing. Communicate flood risk with stakeholders.
- 15. Review effectiveness of regulations related to fertilizer, total maximum daily loads, septic systems, pollution discharge and recommend improved regional approach**
- Communicate the regulations to community partners to understand ways of notifying government agencies when problems arise in their areas. Provide updates to the community regarding regulatory updates.
- 16. Construction Waste Management - Require recycling of construction and demolition waste**
- Evaluate items on recyclability and reuse according to USGBC and FGBC standards. Provide engagement to construction companies, haulers, and contractors. Provide incentives on recycling to haulers. Provide incentives and information of buildings being constructed with recycled and reuse items. Ensure public health and environmental justice are included in new waste site locations.

**17. Organic Waste Management - Implement on site organics (food waste, yard waste) collection in commercial, single family, and multifamily properties, including food waste collection in high volume locations**

Pilot on site composting and on-site recycling stations at Broward County Parks and Broward County Schools. Engage community volunteers to educate the public/students on proper waste disposal.

**18. Inform public on climate indicators**

Eleven climate indicators were selected as quick, simple, and visual tools to show what climate change means in South Florida. Support the development and maintenance of the region's Climate Indicators website including other public education activities, and materials.

**19. Increase connection to nature and the community**

Provide nature based educational experiences and promote physical and emotional well-being. Collaborate with Broward Addiction Recovery Center, Rebuilding Together, Broward Sherriff's Office Community Service Program, community redevelopment agencies, schools, and hospitals. Natural elements that promote well-being include trees, diverse vegetation, local biodiversity, water features, parks, natural playscapes, and community and school gardens.

**20. 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 outreach and education. Improve coordination among governmental agencies at all levels and non-governmental health care organizations. Educate community on regulations and engage in citizen science projects. Expand access to air quality data and reporting to the public.

**WORKGROUP: TRANSPORTATION**

- 21. Increase trips made by transit by prioritizing intermodal centers/mobility hubs/stations, first and last mile access to transit, and local bus/shuttle services and high capacity transit supported by complementary land use in and across communities.** Proactively plan for and invest in intermodal centers/mobility hubs/stations, improved local bus and shuttle services, and high capacity transit services that foster expanded and flexible use of transit as supported by transit-oriented land use. Specifically:
- Increase frequency and improve travel times of existing transit services, mainly for regional corridors and east-west corridors feeding into regional transit services (serving established transit markets)
  - Expand the transit network to serve new and developing transit markets (fill in gaps to provide accessibility)
  - Align and implement local government and transportation agency plans to expand transportation options and connect communities
  - Coordinate with neighboring counties and transportation agencies on regional high capacity transit
  - Make transit an attractive choice for more people traveling locally and regionally, including by funding rail and other high-capacity transit operations, construction of transit facilities and vehicle acquisition, and improved and interoperative fare systems
  - Address the first and last mile of transit trips by using micromobility, enhanced networks of pedestrian and bicycle facilities, and other means that increase access and emphasize connectivity
  - Plan and redevelop, with an emphasis on safety, in ways that support use of transit and more non-motorized trips (i.e., transit-oriented development/transit-oriented communities)
- 22. Optimize seaport function.** Continue to ensure adequate truck and rail access to Port Everglades, especially via US-1 and I-595 for distribution of petroleum products. Continue to ensure critical seaport infrastructure resilience adaptations are timely implemented.
- 23. Invest in seaport/airport/rail connections.** Improve the multi-modal connection between Port Everglades and Fort Lauderdale-Hollywood International Airport (e.g., people mover, light rail), expanding transportation options, improving resilience through redundancies, and managing traffic congestion.
- 24. Implement complete streets serving pedestrians, bicyclists, transit riders, motorists, and freight handlers.** Continue to implement context sensitive complete streets strategies as the default approach to transportation planning and projects as a group of partners (County, MPO, FDOT, RPC, municipalities, private sector). Aim for a complete network of streets, where each street contributes to the transportation system's ability to serve all users.

**Commented [DS1]:** 2015 CCAP #42 Integrate bike share program with Complete Streets.

25. **Perform a network study to identify transit market opportunities.** Undertake a county-wide study of transit-supportive redevelopment opportunities to support high capacity transit, intermodal centers/mobility hubs/stations, and complete streets strategies, undertaken as part of the County's Transit Systems Plan and those completed for 2045 transportation plans.
26. **Implement transportation demand management (TDM) strategies including expansion and encouragement of telework opportunities.** Implement TDM strategies to reduce peak period and single-occupant vehicle travel, including in coordination with South Florida Commuter Services. Encourage permanency of telework options as a proven and viable means to manage traffic congestion and reduce greenhouse gas emissions from commute trips.
27. **Operate and manage transportation systems and services efficiently** Implement coordinated transportation system management and operations (TSM&O) strategies to maximize efficiency and reduce greenhouse gas emissions (e.g., traffic signal prioritization, adaptive signalization, queue jumps for transit, freight signalization and optimization, and roundabouts).
28. **Coordinate with public and private sector partners to expand electric vehicle (EV) use.** Review lessons learned, share resources, and seek partnerships to expand EV investment and related infrastructure improvements (e.g., charging infrastructure) serving short- and long-range travel and emergency evacuations.
29. **Establish clean fuel fleet.** Continue to prioritize funding needed to meet the County's 2030 clean fleet commitment. Support transition of the County fleet to EV, including investment advancement of plans and investments in charging infrastructure, at the level needed 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 full transition of the broader transit fleet to low/no emission transit vehicles. As the transit fleet is transitioning to low/no emission transit vehicles, ensure equitable operational distribution, especially in historically disadvantaged portions of the transit service area.
30. **Electrify buses and fleet and install EV infrastructure** Encourage the use of electric buses to reduce carbon footprint. Work with BCT and Broward County Schools to ensure the purchasing of electric buses. Establish electrifying bus stations at Bus Depots. Establish efficient, accessible, and affordable bus routes to encourage the use of public transit. Engage the community in educational EV efforts.

31. Maximize partnerships to further public EV knowledge, adoption, equitable access, and utilization. In coordination with municipal and agency partners, undertake a county-wide EV outreach campaign and delivery of incentives to encourage and accelerate EV-related investments by individuals, employers, commercial centers, and multi-family residential developments.
32. Coordinate on EV charging infrastructure Support planning for and implementing EV charging infrastructure in a coordinated, systematic way to fill gaps, and maximize accessibility. Explore shared use of EV charging infrastructure that could accelerate the transition to clean fleets by local governments and agencies, and potentially the public. Establish a formal planning effort involving agency and utility partners to advance large-scale infrastructure investments.
33. Update and advance assessments of vulnerability of transportation infrastructure Build upon assessments of transportation infrastructure vulnerability completed or to be completed by agency partners to include a combined analysis of integrated hydrology as part of county-wide future conditions assessments to guide transportation infrastructure investments.
34. Integrate dynamic adaptive approaches into processes leading to transportation and other investments Identify or establish and use approaches that support a scenario-based, incremental, and flexible approach to 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.
35. 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.
36. 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.
37. Use local and regional data and tools to inform resilience planning. Coordinate to foster consistent application of county-specific and regional future conditions models and data in coordinated resilient infrastructure planning, including references to sea level rise, groundwater elevations, flood elevations, storm surge and rainfall.
38. Maintain, update, and share high resolution elevation data Coordinate with agency partners to ensure 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, and other purposes.
39. Expand use of 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

Commented [DS2]: 2015 CCAP #52 Actively pursue the installation of alternative fuel vehicle infrastructure.

Commented [DS3]: 2015 CCAP #68 Collect LiDAR data

(e.g., real time traffic management, traffic routing under flood conditions, and monitoring of event-specific impacts on drainage system performance).

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

**Commented [DS4]:** 2015 CCAP #49 Pursue emerging technologies.

**41. Partner on data** Continue to foster early communication and collaboration to improve the value and economics of transportation-related data collection and analysis, with an emphasis on big data with various applications.

**WORKGROUP: WATER RESOURCES**

**42. Continue local water conservation programs.** Continue 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.

**43. Include climate change in updates of Lower East Coast Plan** Advocate for the inclusion of regional climate scenarios and responsive resilience strategies to address impacts from climate change in future updates of the South Florida Water Management District's Lower East Coast Water Supply Plan, the Central and South Florida Flood Control Project, and related water management planning and assessment activities.

**44. Seek future conditions analyses in regional water resources planning.** Serve as agency partner and advocate for the inclusion of consistent use of future conditions planning scenarios as the basis for all regional water resources and water supply planning and development, from Everglades restoration to basin-level analyses, with a minimum 50-year planning horizon.

45. **Investigate regionalization of water supply** Explore the development and expanded use of regional wellfields, water, and reclaimed water facilities to achieve scales of economy county-wide in addressing water supply, wastewater treatment and alternative water supply as part of climate adaptation and sustainable resource planning efforts.
46. **Incentivize integrated water management strategies.** Actively promote the “one water” concept, recognizing the importance of combined water storage, recharge, treatment, reuse, and management in a changing environment as part of efficient and sustainable water management systems.
47. **Develop alternative water supply strategies.** Work in coordination with all utilities and municipalities and potential third parties to develop and implement alternative water supply strategies, especially reuse strategies, to mitigate future water shortages as part of Broward’s Integrated Water Resource Plan.
48. **Model the sustainable use of the aquifer.** Continue to provide integrated modeling to support the sustainable use of the Biscayne and Floridan aquifers for recharge, storage, and potable water supply purposes.
49. **Update Mapping and Monitoring of the Soil Saturation Zone** Coordinate with appropriate agencies on the technical evaluation and remapping of the soil saturation zone to better understand the potential for contaminant mobilization and changes in hydrology affected by reduced soil storage. Partner with municipalities and academic institutions to evaluate the influence of changes in soil saturation on site-specific conditions.
50. **Evaluate impacts of flooding of contaminated sites** Evaluate the impacts of flooding and sea level rise on Brownfields and other contaminated sites for potential environmental and public health impacts.
51. **Monitor the effects of water table rise on water quality.** Organize ambient and targeted water quality monitoring efforts to identify and evaluate trends in bacterial concentrations and nutrients in freshwater and coastal water systems associated with changes in the groundwater table on septic systems performance for potential public health and environmental impacts.

52. **Monitor and protect wellfields.** Expand source-water (wellfield) monitoring and protection programs to mitigate water supply loss due to drought, groundwater contamination from pollutants, and saltwater intrusion.
53. **Undertake integrated evaluation of monitoring efforts.** Undertake a comprehensive review of the various hydrologic and environmental monitoring networks as part of an integrated data assessment to help inform and improve monitoring data investments, data use, and interpretation.
54. **Evaluate reuse water interaction with and impacts to the natural systems.** Collaborate with federal and state agencies to develop criteria for stormwater, wastewater and consumptive use management decision matrices with regard to potential impacts on natural areas and to develop mitigation strategies to ensure sufficient freshwater is available for critical natural systems under current and future conditions. Identify opportunities for recharge.
55. **Stormwater Reuse** Lead in the regional development of stormwater reuse in promotion of flood mitigation, water supply and water quality benefits, and specifically pursue construction of Phase I and II of the C-51 Reservoir as a flood mitigation and alternative water supply project.
56. **Implement wastewater reuse strategies.** Encourage coordination and prioritization of funding strategies among all levels of government and private utilities to ensure timely compliance with reuse requirements. Implement the County's Master Water Reuse Plan. ~~Implement regional stormwater reuse and pursue advancement of the C51 reservoir as a flood mitigation and alternative water supply project.~~
57. **Evaluate reuse considering sea level rise.** Coordinate with all utilities and municipalities to evaluate utilization of wastewater and stormwater reuse in order to offset potable water demands, mitigate for loss of coastal wellfields, and as means for abating saltwater intrusion, with consideration of salinity and water quality requirements of source water for intended applications.
58. **Increase percentage of pervious areas.** Determine the optimum percentage and location of pervious area placement. Complete a cost/benefit analysis of imposing new regulations that require expansion of pervious areas, the capture and reuse of rainwater, and recharge of the Biscayne Aquifer. Propose appropriate regulations for new construction, redevelopment, additions, retrofits, or modifications of property that consider economic and environmental factors and climate change.

59. **Promote green stormwater infrastructure.** Coordinate with state, local, and internal agency partners to promote the expanded use of green infrastructure, shared water management systems, storage options, and innovative stormwater design as part of redevelopment strategies and public infrastructure projects, including pursuit of partnerships to pilot green options under varying conditions.
60. **Community engagement in flood mitigation programs** Engage with municipalities to achieve community-wide participation in hazard mitigation activities and programs, including FEMA's community rating system. Emphasize coordinated public outreach regarding flood risk and flood insurance for all properties.

**Commented [D55]:** 2015 CCAP #21 Encourage urban reforestation and green infrastructure.

Identify and develop public lands as siting for urban reforestation projects and other enhancements. Plant trees and shrubs on all available public and private lands, including unused properties, school and government properties and conservation lands. Integrate green easements along transportation corridors and within highly urbanized downtowns. Utilize grants and public-private partnerships as funding sources.

**WORKGROUP: BUILT ENVIRONMENT**

61. **Sea level rise adaptation planning** Align the County's sea level rise adaptation planning efforts consistent with regular updates of the Unified Sea Level Rise Projection for Southeast Florida prepared by the Southeast Florida Regional Climate Change Compact.
62. **Improve inundation mapping capabilities.** Improve analysis and mapping capabilities for identifying areas of the County vulnerable to sea level rise by utilizing the most recent LiDAR data. Update maps of potential impacts of sea level rise to the natural and built environments at 1-ft, 2-ft, and 3-ft levels and consider this information in long-term planning.
63. **Encourage FEMA to consider sea level rise in flood map updates.** Request that the Federal Emergency Management Agency (FEMA) take into consideration sea level rise projections for at least a 50-year period 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 and National Flood Insurance Program.
64. **Develop new 100-year storm maps.** Set new parameters for water management by developing new 100-year storm elevation projections in the Broward County 100-year flood map for use in stormwater management permitting which reflect current and projected conditions for sea level, seasonal high tides, groundwater level rise, and rainfall intensification. (MM-1.6)
65. **Update design storm criteria** Update design storm standards for 72-hour, 24-hour, and lesser duration 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 planning agencies to ensure consistency in planning and application of appropriate change factors to all stormwater management and drainage system projects.

- 66. 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. Revised hazard area designations should better reflect the risks to communities associated with climate change and allow reevaluation of suitability for development in these areas.
- 67. Re-evaluate CCCL and CHHA for 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 sufficiently address avoidance of “significant adverse impacts” due to climate change. If found to be insufficient, revise programs and design requirements to address the potential impacts.
- 68. Expand Tidal Monitoring** Identify funding and partnerships to expand local tidal monitoring stations in Broward County to provide operationally sound observations and monitoring capabilities.
- 69. Provide and dedicate funding for long-term and regional monitoring and modeling.** Provide and/or participate in the long-term continuous data collection and regional monitoring of critical parameters to support related modeling efforts and climate indicator tracking including: evapotranspiration in the urban areas, water quality (especially temperature), hydrologic, geologic, and groundwater quality and levels, precipitation, and groundwater withdrawals. Encourage dedicated county, state, and federal funding for modeling efforts that improve our knowledge of climate change impacts.
- 70. Support research on vulnerability of built environment** Promote partnerships for connecting research with applications for adaptation of the built environment, focusing on the vulnerability of building structures to climate change and adaptation methodologies.
- 71. Collect LiDAR data** Update the County’s LiDAR database with the 2018 USGS data set. Continue to partner with municipal, state, and federal agencies to collect and maintain LiDAR data refinements to support county-wide planning. Use LiDAR elevation data in the development of land use policies, and modeling.

- 72. Research water resources adaptive technologies** Participate in combined academic/private sector research collaborative programs for resilient adaptation technologies for the region’s water resources, including expanded use of sensors and other innovative technologies to monitor hydraulic and hydrologic conditions that influence infrastructure and system performance.
- 73. Analyze sea level rise, rainfall, drainage, and hurricane impacts.** Coordinate regionally with other Southeast Florida counties, academia, and government agencies in the combined analysis of sea level rise, storm surge, precipitation changes, water table rise, and hurricane impacts, and the planning of adaptation measures.
- 74. Analyze level of service and compounded flooding.** Coordinate regionally, with academia and the private sector to better explore the compounding effects of sea level rise, precipitation changes, water table rise, storm surge, and basin runoff on local flooding and water quality and appropriate level of service standards under these conditions.
- 75. Develop dynamically adaptive management strategies** Develop policies and comprehensive plans that set short-, intermediate-, and long-range goals and establish adaptive management implementation strategies for water resources that address potential impacts of climate change and are consistent with the recommendations of the Lower East Coast Water Supply Plan and address the potential impacts of climate change.
- 76. 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 and design standards and adaptive response plans with regional partner support.
- 77. Enhance the resiliency of County-owned infrastructure and properties.** Inventory county-owned public infrastructure at risk from the impacts of climate change to inform and prioritize adaptation investments. County agencies (and agencies that receive County funding for significant infrastructure or built investments) should assess impacts on the agency’s or entity’s responsibilities. Incorporate assessments into infrastructure master planning processes. Identify vulnerabilities to guide strategies for mitigation and adaptation. Determine as to whether, when, and where projected impacts might be significant.

- 78. Improve resilience of buildings and structures** Establish an ongoing process to address local zoning and building code requirements and make recommendations regarding optimization for the resilience of existing and proposed structures in areas at risk to inundation and climate change.
- 79. Protect systems from infiltration and inflow** Work in coordination with all utilities and municipalities to prioritize and protect underground pipe systems from groundwater infiltration and to minimize runoff into sewer systems resulting in additional wastewater treatment needs and impacts to service levels. Pursue utility-specific update of sewer system evaluation study (SSES), including reassessment of treatment and disposal costs, to guide prioritization of investments and timelines.
- 80. Maintain beaches.** Continue the appropriate use of beach nourishment and sand bypassing at Port Everglades and the Hillsboro Inlet. Target application of erosion control structures, such as seawalls, dunes, groins, and breakwaters. Revisit redevelopment policies with the objective of providing additional coastal buffer area between developed areas and the shoreline.
- 81. Retrofit flood control structures for sea level rise.** Advocate for and engage in a resilience study of the Central and South Florida Flood Control Project under conditions of sea level rise and other likely climate change effects, to include the identification of adaptation needs, leading to construction. Pursue joint consideration of water management impacts on upstream and downstream communities.
- 82. Coordinate local water management improvements.** Develop strategies, cost/benefit analyses, and schedules for raising or retrofitting and building flood control structures within the secondary canal network and associated flood control system in anticipation of sea level rise and other potential effects of climate change. Plan adaptation improvements for flood control infrastructure at high risk.
- 83. 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 distribution of costs across a customer base.
- 84. Phase out septic systems where necessary to protect public health and water quality.** Perform an assessment to determine how many households have septic systems and current assessment on sewer system loads. Identify funding strategies for phasing out septic systems. Provide subsidies for phasing out septic systems. For any new Septic Tanks or Major renovations (that requires heavy equipment (backhoes, etc.) on site) it should be required that there be provision made for future tie into SEWER lines as they become available. Encourage the reuse of our septic tanks to store rainwater/ reuse water for irrigation, etc.

85. **Phase out septic systems where necessary to protect public health and water quality.** Support program (WWS helps private owners pay for upgrade from septic) - County subsidies, partner with Cities.
86. **Explore partnerships to achieve water management needs.** Explore collaborative opportunities involving public and private lands for coordinated redevelopment strategies to meet water management needs and objectives.
87. **Engage 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 a shared communications strategy.
88. **Convene a county-wide forum for coordinated resilience planning.** Host an annual Resilience Roundtable with government, tribal, and business leadership to foster ongoing coordination in county-wide resilience planning as a forum for sharing information and resources, and developing shared priorities and strategies focused on resilience planning, communications, and investments.
89. **Develop and implement a County-wide Resilience Plan** Engage consultant services to aid in the development of a phased, county-wide risk assessment and infrastructure investment plan as part of a coordinated resilience strategy addressing 2- and 3- foot levels of sea level rise through the 2070 planning horizon, including cost-benefit evaluations.
90. **County agency adaptation planning** By the year 2025, complete an evaluation of all county properties and facilities for future flood risk under conditions of compounding flood factors, with identification of vulnerabilities, general adaptation needs, and timeline for addressing.
91. **Emphasize adaptive pathways.** Develop dynamic and adaptative pathways to support efficient and effective resilience planning and investments.

92. Develop a resilience dashboard. Develop a county-wide dashboard of resilience planning tools, goals and projects to aid in the shared monitoring, tracking, and communicating of the state and scale of resilience planning and investments on a county-wide basis, inclusive of both mitigation and adaptation needs.

93. Social Equity Support equitable resilience planning, investments, and economic growth specific to under-represented communities, employing appreciative inquiry and asset-based mapping.

**WORKGROUP: ENERGY**

94. Continue to reduce energy consumption of County operations. Maximize use of Energy Service Contracts. Pursue energy efficiency opportunities at Port Everglades and Fort Lauderdale-Hollywood International Airport, including implementation of Port Everglades Greenhouse Gas Inventory strategies. Purchase more efficient equipment. Explore options for electrification of fossil-fuel equipment.

**Commented [DS6]:** 2015 CCAP #37 Accelerate government operations GHG reduction efforts. Report the greenhouse gas (GHG) emissions inventory bi-annually. Work in coordination with Compact partners. Reduce carbon footprint of employees by focusing on behavioral changes and pursue grant opportunities to reduce county emissions. Improve energy efficiency in all county government operations. (PC-1.2)

95. Promote energy efficiency in the community. Require large buildings to benchmark and report their energy performance. Recruit municipal and educational buildings to use ENERGY STAR Portfolio Manager to track energy use and compare usage to similar properties. Collect and publicize energy conservation practices appropriate for the south Florida climate. Provide training for property managers and maintenance personnel on energy efficiency measures. Develop strategy to deliver energy-efficiency improvements to low- and moderate-income households. Require County-funded affordable housing developments to meet strong energy efficiency standards.

**Commented [DS7]:** 2015 CCAP #38 Implement Better Buildings Challenge  
Publicly pledge to reduce energy intensity of County's building portfolio, assign a primary point of contact, and develop an energy efficiency plan within 6 months of the pledge, including the recommendation of an initial showcase project. Expedite the implementation of the county energy services contract.

96. 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 through development of additional financing mechanisms. Promote solar adoption through permitting incentives and streamlined processes.

97. **Reduce transportation emissions.** Continue to electrify Broward County vehicle fleet and Broward County Transit vehicles and install needed EV charging infrastructure. Promote employee transit use, carpooling, and EV adoption. Plan for and invest in electric vehicle charging infrastructure in the community. Promote electric vehicle adoption in the community. Increase share of trips made on transit or by walking or biking. Establish strategy for autonomous vehicles that leads to lower GHG emissions.
98. **Advocate for strong climate, energy, and resilience policies at the state and federal levels.** - Support: Clean energy standards at the state and federal level. Third-party retail power purchase agreements. Stronger energy conservation requirements for electric utilities. 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. Funding for climate and resilience planning, energy conservation and renewable energy investments, vehicle electrification, resilient infrastructure, and land and water conservation. Priority investments in frontline communities.
99. **Pursue stronger energy conservation and renewable energy standards in 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 where feasible.
100. **Reduce amount of waste going to landfills.** Set waste reduction targets. Develop interlocal agreements for waste reduction.
101. **Engage private sector to develop strategies for** Encourage energy utilities and providers to develop alternatives for fortifying existing regional power generation facilities, power transmission infrastructure and fuel conveyance infrastructure against the potential impacts of

**Commented [DS8]:** 2015 CCAP #4 Lead advocacy for climate change policies and legislation  
 Advocate for climate change action and legislation to the National Association of Counties, the Florida Association of Counties, the Florida League of Cities, and Federal and state government. (PC-1.7)

**adapting energy infrastructure.** climate change including increased temperature and sea level rise. Locate new regional power generation facilities, power transmission infrastructure, and distribution systems to accommodate future climate change impacts.

**WORKGROUP: NATURAL SYSTEMS**

- 102. **Increase natural area ecosystem resilience** Increase natural area ecosystem resilience through regional wildland fire management, exotics removal, and expansion of short-hydroperiod wetlands: Education and outreach to local communities around fire programs, encourage buy-in by the County; increase resources toward invasive plant management and develop rapid response; and, expand short-hydroperiod wetlands
- 103. **Set plastic waste reduction goal** Set a plastic waste reduction goal, and set a policy to reduce single-use plastics and foam, on County property, in contracts and at County events
- 104. **Support on-going coral reef restoration and resilience activities** Communicate, support, and expand ongoing coral restoration activities including coral nurseries and propagation, hubs and outplanting projects, and disease response; outreach and education about status of our reefs and coral health, climate change, and sea level rise.
- 105. **Prioritize areas for living shorelines** Desk-based planning exercise (research and GIS) to identify and prioritize areas for developing living shorelines, including identifying areas of potential retreat and restoration (1st phase in multi-phase project to include in future CCAPs: 2 - development of an implementation plan, followed by 3 - prioritized projects)
- 106. **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.
- Integrate resilience into** Develop a plan to protect parks and current open spaces to address land use issues.

**Commented [DS9]:** 2015 CCAP #19 Increase number of miles of living shorelines and dunes  
 Coordinate regionally to achieve a minimum criteria of 60% of coast shall have dune vegetation. This percentage shall be increased to the maximum extent feasible for effective shoreline protection. Protect existing mangrove shorelines and promote further plantings of mangroves along existing seawalls. Promote the integration of live flora and fauna alongside existing grey infrastructure in inland waters.

**parks and open spaces**      Encourage the creation of new parks, green spaces, bike paths, and open spaces. Increase the performance of parks and utilize spaces strategically that adapt to climate change impacts. Create public spaces for the creation of community gardens.

107.      **Increase availability of native regional plants**      Contract a grower to collect/harvest native seed bank and grow out for native landscaping supply.

108.      **Assess non-point source pollution fate and transport across County to ocean.**      Study to evaluate transport of nutrients and analytes identified in the FDEP offshore WQ monitoring program likely to have an impact on the marine ecosystem, particularly corals, for informing reduction strategies and management.

109.      **Connect financing for development with restoration/preservation efforts**      Connect financing for development with restoration/preservation/enhancement of green spaces and natural areas, similar to mitigation banking, within County

110.      **Public outreach and education on status of coral reefs, and the effects of climate change and sea level rise**      Outreach campaign - Results of recent National Coral Reef Monitoring Program socio-economic study revealed the public wants to know more about climate change and SLR, and that Broward County residents are not highly aware of the threats to our coral reefs.

**From Policy Section of 2015 CCAP:**

111.      **Contribute to local, regional, and state climate planning efforts** Support regional entities in their efforts to develop and coordinate regional tools and planning documents which integrate regional climate change mitigation and adaptation goals into their planning processes.

- 112. Support the Southeast Florida Regional Climate Compact Continue support for the Compact.** Assist in the coordination, development, and implementation of Compact resources. Work with the Compact to formalize better municipal participation. Serve as a regional resource. Collaborate regionally on legislative policies. Collaborate broadly on mitigation and adaptation policies.
- 113. Lead advocacy for climate change policies and legislation** Advocate for climate change action and legislation to the National Association of Counties, the Florida Association of Counties, the Florida League of Cities, and Federal and state government.
- 114. Maintain Climate, Energy & Sustainability Program** Maintain a program within County operations to oversee the implementation of the Climate Action Plan. Coordinate with the Southeast Florida Regional Climate Compact. Provide staff assistance to the Climate Change Task Force. Lead the Government Operations Workgroup
- 115. Continue Climate Change Task Force** Continue the Broward Climate Change Task Force to advise elected officials and the County in the decision-making process. The Task Force should be comprised of County and municipal elected officials, scientists knowledgeable in the field of climate change, representatives of local Green Advisory Boards or environmental groups, regional transportation and planning authorities, water and energy utilities, and other knowledgeable individuals, guided by a staff liaison.
- 116. Engage technical support of federal agencies** Engage the support of state and federal agencies, such as the National Oceanic and Atmospheric Administration (NOAA), the U.S. Geological Society (USGS), the Federal Emergency Management Agency (FEMA), the U.S. Department of Interior, the U.S. Army Corps of Engineers (USACE), the Environmental Protection Agency (EPA), and the Department of Energy (DOE) that can provide technological and logistical support and work with state, county, and local planning bodies to develop regional scenarios for planning, vulnerability assessments and adaptation strategies.
- 117. Adopt adaptation standards which consider climate change and sea level rise.** 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 global climate change, including rising sea levels. Encourage use of centralized stormwater systems where appropriate.
- 118. Address mitigation and adaptation policies in Land Use Plan** Ensure the County's Land Use Plan addresses mitigation and adaptation policies. Update the Priority Planning Map. Support linking the broad range of local and state infrastructure investments to improve and integrate multi-modal transportation and land uses that encourage a reduction in single occupancy vehicle trips and greenhouse gas emissions, improve energy efficiency, provide affordable housing proximate to urban work centers, and progress toward other sustainability and generate quality of life measures.

- 119. Limit development in vulnerable areas** Support state legislation to remove existing statutory barriers and authorize local governments to adopt land use regulations to limit development and redevelopment in areas vulnerable to flooding due to sea level rise, stormwater inundation, and other impacts of climate change.
- 120. 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.
- 121. Adopt a Dark Skies model ordinance** Develop a model “Dark Skies” ordinance and encourage municipal and private sector participation to discourage light trespassing.
- 122. Propose Energy Code changes to the Board of Rules and Appeals (BORA)** Convene a technical working group of practitioners in energy efficiency and renewable energy technology to identify barriers to approval, installation, and construction practices in the current code and propose recommendations to eliminate or minimize these barriers from the state code.
- 123. Identify local codes that conflict with resilient design Identify county and municipal ordinances and codes that conflict with resilient design.** Coordinate efforts to make necessary amendments.
- 124. 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.