BROWARD COUNTY
FLORIDA

Climate Change Element

BROWARD COUNTY COMPREHENSIVE PLAN

At a Glance

Climate Change Element

The Broward County Climate Change Element provides a framework for integrating the economic, environmental, and social factors of climate change. A Countywide strategy, based on local vulnerability and consistent with regional efforts, the Element aims to mitigate the causes and address the local implications of global climate change. In doing so, the County moves one step closer to building a sustainable, climate resilient community.

Policy History

2007 The Broward County Board of County Commissioners (Board) adopted Resolution 2007-391 to reduce greenhouse gas (GHG) emissions in Broward County and to support the U.S. Mayors' Climate Protection Agreement. Governor Charlie Crist signed three climate change related executive orders to set GHG reduction targets Statewide.

2008 The Board passed Resolution 2008-442 to create the Broward County Climate Change Task Force to develop and advise on the implementation of climate mitigation and adaptation strategies.

2009 The Board adopted "Climate Change Action Plan - Local Strategy to Address Global Climate Change" and 126 policy recommendations developed by the Task Force.

2013 Broward is the first local government in Florida to amend its comprehensive plan (Climate Change and Coastal Management Elements) to provide for the Adaptation Action Areas (AAA) designation as required by Florida state law. Adaptation Action Areas are low-lying coastal zones that are experiencing coastal flooding due to extreme high tides and storm surge and are vulnerable to the impacts of rising sea level. Adoption of the Priority Planning Areas for Sea Level Rise Map and policies into the Broward County Land Use Plan and Natural Resources Map Series.

2014 Broward Climate Change Element wins 2014 National Planning Excellence Award for Environmental Planning by the American Planning Association.

2015 The Board accepted the updated regional Unified Sea Level Rise Projection (2015) of the Southeast Florida Regional Climate Change Compact, and directed staff to use the updated projection as the basis for sea level rise adaptation planning.

2017 The Board directed the Environmental Protection and Growth Management Department (EPGMD) to create and maintain a "Future Conditions Map Series" to incorporate new planning and design standards to account for predicted changes in groundwater and flooding levels due to sea level rise and potential increasing rainfall, and ensure the resiliency of current and future infrastructure investments. The first regulatory map of the series, effective July 01, 2017, is the Future Conditions Average Wet Season Groundwater Elevation Map.

Focus Areas

- Promote Use of Renewable Energy and Access to Alternative Fuels
- Encourage the Design of Efficient Buildings and Resilient Infrastructure
- Protect and Enhance Natural Systems and Water Resources
- Utilize Green Infrastructure Solutions for Maximum Co-benefits
- Educate the Community on Socio-economic and Public Health Impacts of Climate Change

Legal Authority

Chapter 163.3177 (1)(a), Florida Statutes: *The comprehensive plan shall consist of elements as described in this section and may include optional elements.*

The Climate Change Element includes Goals, Objectives and Policies for the Focus Areas. Once the policies are adopted by the Board, government agencies, partners, and the community work together to advance and implement those policies.

Broward County is one of the founding counties of the Southeast Florida Regional Compact. The Compact represents a new form of regional climate governance designed to allow local governments to set the agenda for adaptation while providing an efficient means for state and federal agencies to engage with technical assistance and support.

GOALS, OBJECTIVES & POLICIES

GOAL CLIMATE CHANGE

Achieve a sustainable, climate resilient community by: promoting energy efficiency and greenhouse gas (GHG) reduction strategies; protecting and adapting public infrastructure, services, natural systems and resources from climate change impacts; and continuing to coordinate locally and regionally to monitor and address the changing needs and conditions of the community.

OBJECTIVE CC1 - Promote Use of Renewable Energy and Access to Alternative Fuels

Mitigate the causes of climate change while providing for cleaner energy solutions and a more energy efficient way of life for visitors and residents.

POLICY CC1.1 Broward County shall mitigate its contribution to global climate change by reducing Countywide GHG emissions by 80% below 2007 levels by 2050. The County will continue to regularly monitor and track progress of programs and initiatives that contribute to reaching these goals.

POLICY CC1.2 Broward County shall encourage research for increasing the proportion of solar generated electricity transmitted to, distributed across, and consumed within the County.

POLICY CC1.3 Broward County shall continue to promote and support the expansion of alternative and renewable energy from residential, commercial, and municipal properties by working with municipalities to reduce regulatory encumbrances, develop incentives for renewable and alternative energy installations, and support cooperative installations.

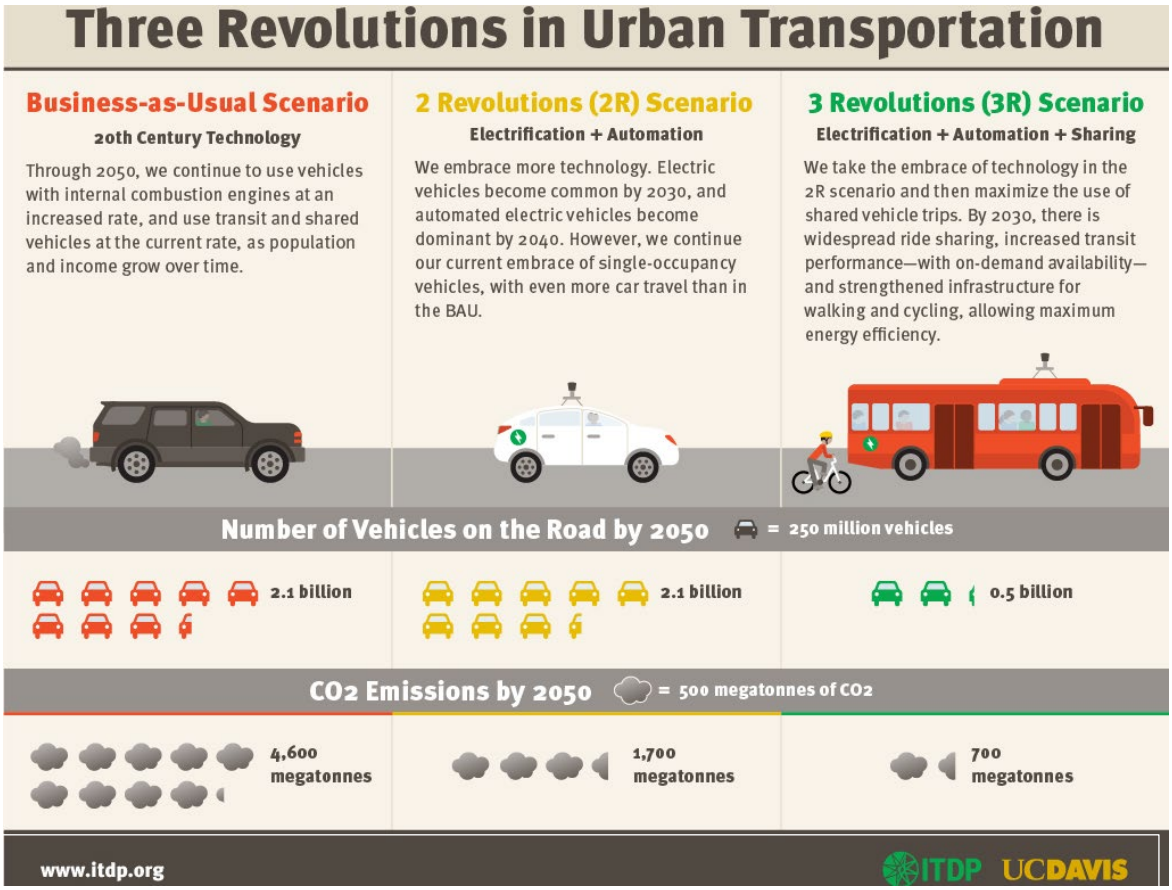
POLICY CC1.4 Broward County shall increase the abundance of renewable energy projects, investments, and infrastructure across the County consistent with the County's support for a 20% renewable energy portfolio by 2030 through public-private partnerships, encouraging financing options, and County investment in solar projects.

POLICY CC1.5 Broward County shall continue to plan for and facilitate the development of infrastructure that provides public access to alternative fuels and electric vehicle charging stations while considering the evolution of automated vehicles.

POLICY CC1.6 Broward County shall continue to advance transportation and land use choices that contribute to reductions in GHG emissions as per Objective T2.5 (of the Transportation Element).

POLICY CC1.7 Broward County shall continue to coordinate with local municipalities to further land uses that promote functional, walkable mixed-use development designs and projects by providing flexibility in development review, revising the zoning and land development codes to support such projects, and promoting the adoption of specific goals in local Comprehensive Plans to help reduce greenhouse gas emissions, and establish sustainable development patterns, especially in areas at reduced risk of sea level rise, as defined by the Priority Planning Areas for Sea Level Rise Map in the Broward County Land Use Plan.

POLICY CC1.8 Broward County shall continue to work with the Department of Energy Southeast Florida Clean Cities Coalition to support initiatives that seek to diversify fuel options for public transit and fleet vehicles, expand infrastructure for charging electric and hybrid electric vehicles, expedite permitting, and incentivize parking for alternative fuel vehicles.



Broward County long-term policies consider the evolution of transportation technologies and vehicle automation.

POLICY CC1.9 Broward County shall decrease fuel consumption by 10% by 2020 by coordinating regionally to implement an efficient public transit system, expanding the network of pedestrian-ways and bikeways, meeting Countywide GHG emission reduction goals, and promoting the use of energy efficient and alternative fuel technologies, consistent with the Transportation Element.

OBJECTIVE CC2 – Encourage the Design of Efficient Buildings and Resilient Infrastructure

Improve the climate resiliency and energy-efficiency of new and existing buildings and public infrastructure and develop adaptation strategies for areas vulnerable to climate change-related impacts.

POLICY CC2.1 Broward County shall continue to encourage greener, more efficient and climate resilient construction practices locally by:

1. Building all new County-owned facilities to Leadership in Energy and Environmental Design™ (LEED) standards in accordance with Resolution 2008-856, approved by the Board of County Commissioners;
2. Encouraging all municipalities and commercial builders to adopt policies requiring LEED, or acceptable green design standards, on construction of all new and renovated public buildings and commercial spaces;
3. Utilizing national guidelines and performance benchmarks for sustainable land design, construction and maintenance practices, as developed by The Sustainable Sites Initiative™ (SITES™);
4. Encouraging licensed personnel in each building department to have at least 8 continuing education units (CEUs) of emerging energy efficiency and renewable energy technologies;
5. Reevaluating base finish floor elevation standards with respect to projected sea level rise scenarios and flooding potential; and
6. Incorporating building design specifications that increase resistance to impacts from more intense storm events.

POLICY CC2.2 Broward County should work with municipalities to review current zoning codes, regulations, and policies according to sustainable community development practices, such as those outlined in the criteria recommended by the United States Green Building Council's Leadership in Energy and Environmental Design for Neighborhood Development (LEED-ND) certification, or by application of a national rating system for local governments, such as the STAR Community Index™ (STAR).

POLICY CC2.3 Broward County shall continue to review policies and promote programs which advance GHG reduction and energy conservation strategies; encourage compact development in order to retain or create native vegetative communities; and address the resilience and survivability of buildings and infrastructure to rising sea levels, tropical storms, storm surge, and other climate change impacts.

POLICY CC2.4 Broward County shall reduce the energy intensity of County-owned buildings by at least 20% by 2025 through the Better Buildings Challenge and energy retrofits.

POLICY CC2.5 Broward County shall, by 2020, establish an Indoor Space Temperature policy for new buildings and support operating procedures for County-owned and operated facilities, with the goal of providing comfortable and functional work spaces in an environmentally responsible manner.

POLICY CC2.6 Broward County shall develop model codes and design guidelines to promote the use of light only where needed, thereby limiting health impacts of excess light, energy inefficiencies, and reducing glare to create a safe and pedestrian-scale lit environment, utilizing principles outlined in the Model Lighting Ordinance by International Dark-Sky Association and the Illuminating Engineering Society of North America, or other local resources.

POLICY CC2.7 Broward County shall update the assessment of public investments and infrastructure at risk from sea level rise and other climate change related impacts every 5 years. Specifically, the County shall analyze vulnerability to facilities and services, including but not limited to: buildings; water and wastewater treatment plants, transmission lines and pumping stations; storm water systems; roads, rail, bridges, and all transportation and transit infrastructure; power generation facilities and power transmission infrastructure; critical airport and seaport infrastructure; hospitals; city halls; and police and fire stations.

POLICY CC2.8 Broward County shall evaluate the costs and benefits of adaptation alternatives in the location and design of new infrastructure as well as the fortification or retrofitting of existing infrastructure.

POLICY CC2.9 Broward County shall continue to improve analysis and mapping capabilities for identifying areas of the County vulnerable to sea level rise, tidal flooding, and other impacts of climate change. Activities shall include acquisition of increasingly accurate Light Detection and Ranging (LiDAR) data, or other state-of-the-art elevation data, and other necessary modeling data and programs every 5 years to update the Priority Planning Area for Sea Level Rise Map in the County's Land Use Plan and the Future Conditions map series and improve available information needed to make informed decisions regarding adapting to the impacts of climate change.

POLICY CC2.10 Broward County shall maintain a "Future Conditions Map Series," including a Future Conditions Average Wet Season Groundwater Elevation Map and a Future Conditions 100-yr Flood Elevation Map, in order to incorporate new planning and design standards to account for predicted changes in groundwater and flood levels due to sea level rise and potential increases in rainfall and ensure the resiliency of current and future infrastructure investments.

POLICY CC2.11 Broward County, in conjunction with its municipalities and partner agencies, shall work to ensure that adaptation to climate change impacts, especially sea level rise, is incorporated into the planning, siting, construction, replacement, and maintenance of public infrastructure in a manner that is cost-effective and that maximizes the use of the infrastructure throughout its expected life span.

POLICY CC2.12 Broward County, in conjunction with its municipalities and partner agencies, shall make the practice of adapting the built environment to the impacts of climate change an integral component of all planning processes, including but not limited to: comprehensive planning, building codes, life-safety codes, emergency management, land development and zoning regulations, water resource management, flood control and storm water management, coastal management, and community development.

POLICY CC2.13 Broward County shall evaluate opportunities to protect coastal investments and infrastructure, as necessary and feasible, from the impacts of climate change. Specifically, the County will maintain shoreline protection and erosion control by:

1. Continuing the appropriate use of beach nourishment and pursuit of sand bypassing;
2. Facilitating the installation and maintenance of native beach dune vegetation along appropriate areas of beach;
3. Revisiting redevelopment policies with the objective of providing additional coastal buffer area between developed areas and the shoreline; and

4. Considering hard structures, such as seawalls, only when alternative options are unavailable.

POLICY CC2.14 Broward County shall designate areas that are at increased risk of flooding due to, or exacerbated by, sea level rise within the Broward County Land Use Plan Priority Planning Areas for Sea Level Rise Map, and work to make these areas more climate resilient by encouraging the use of adaptation and mitigation strategies or discouraging density increases.

POLICY CC2.15 Broward County shall, in coordination with its local governments, designate AAA, per Florida State Law, in order to:

1. Identify areas that are vulnerable to the impacts of rising sea level;
2. Identify and implement adaptation policies to increase community resilience; and
3. Enhance the funding potential of infrastructure adaptation projects.

The Board, the Broward County Planning Council, or a municipality may apply for AAA of Regional Significance designation if the problem(s) and proposed solution(s) of the proposed area demonstrate regional significance and conform with one or more of the criteria listed in Section 2.9 of the Broward County Land Use Plan.

Areas designated by the County as AAA of Regional Significance will be added to the Priority Planning Areas for the Sea Level Rise Map as part of the Broward County Land Use Plan.

POLICY CC2.16 Broward County shall continue to pursue the source reduction, reuse, recycling, and recovery model of waste management, consistent with the Solid Waste Element of the Broward County Comprehensive Plan, in order to meet the State of Florida goal of recycling seventy-five percent of municipal solid waste (including net waste combusted) by 2030; work towards the zero waste by 2030 goal established in the Broward County Climate Change Action Plan; and continue to provide the environmental and social benefits of lowering GHG emissions, producing alternative energy, and reducing toxins in our land and water.

POLICY CC2.17 Broward County should develop, in conjunction with local municipalities and businesses, a sustainable and energy-efficient materials economy through cooperative materials management systems and infrastructure, in order to maximize the recovery and reuse of waste, water, wastewater, and other materials in ways that capture their economic value, conserve embedded energy, and minimize net life-cycle emissions of GHG and other pollutants.

POLICY CC2.18 Broward County, in conjunction with its municipalities, should create programs and policies which encourage and support composting, community garden networks, and local food production, in order to meet the multiple goals of reduced emissions and energy consumption, while increasing the resiliency and long-term food security of the community.

POLICY CC2.19 Broward County shall encourage local municipalities to develop policies to improve resilience to coastal and inland flooding, salt water intrusion, and other related impacts of climate change and sea level rise in their Comprehensive Plans, Sustainability Action Plans, Vision Plans, Storm Water Master Plans, Adaptation Action Areas Plans, Climate Change Plans, and other city-wide plans.

OBJECTIVE CC3 – Protect and Enhance Natural Systems and Water Resources

Protect local and regional natural systems and water resources from the impacts of climate change and enhance their ability to adapt or transition to new conditions through collaborative research, restoration and reforestation, and sustainable land use planning.

POLICY CC3.1 Broward County shall, by 2020, assess the vulnerability of specific species, habitats, landscapes, and ecosystem functions that may be sensitive to climate change and propose land use changes to protect migrating species habitat transition zones through expanded greenways and reserve areas.

POLICY CC3.2 Broward County shall review the management plans of public parks and wildlife areas every 10 years, conduct a climate change risk assessment for each area, and ensure that adaptation strategies consistent with assessment findings are included in those plans.

POLICY CC3.3 Broward County, in conjunction with its municipalities, shall consider the climate adaption needs of native plants and animal species, and consider strategies for assisting in their natural and assisted migration.

POLICY CC3.4 Broward County should consider policies which would allow coastal and water dependent ecosystems to migrate or adapt to maintain healthy wildlife and fish populations consistent with new climate regimes.

POLICY CC3.5 Broward County should incorporate species and habitat vulnerability to climate change into land use planning, land acquisition, transfer of development rights, and for dedication of conservation easement consideration.

POLICY CC3.6 Broward County, in conjunction with its municipalities, shall by 2025 develop and adopt a Countywide Transfer of Development Rights program for the purpose of enabling the creation of significant public or private open space areas or corridors; protecting environmentally sensitive lands, historic resources, or areas identified as appropriate for climate resiliency strategies (such as "Priority Planning Areas"); and directing development to more suitable areas including established and planned "activity centers," such as downtowns, transit corridors, and redevelopment areas.

POLICY CC3.7 Broward County shall continue to support local environmental restoration, mitigation, and adaptive management initiatives, including those related to Everglades restoration, and coordinate with other State, regional, and national strategic planning efforts to improve the resiliency of natural lands and systems to climate variability and change.

POLICY CC3.8 Broward County, in conjunction with its municipalities, shall promote species diversity, the planting of native and drought-tolerant landscapes, and sustainable urban forestry practices in order to protect the health and resiliency of our natural resources to the impacts of climate change.

POLICY CC3.9 Broward County shall continue to implement the NatureScape Broward program and encourage the use of native and non-invasive, subtropical, and rare native plants in the urban landscape in order to promote water and energy conservation while creating a climate resilient landscape. Furthermore, these plants should be salt, wind, and drought tolerant, where appropriate, and maintained consistent with NatureScape Broward and Florida-Friendly Landscaping™ Best Management Practices.

POLICY CC3.10 Broward County, in cooperation with its municipalities and appropriate local agencies, shall evaluate water and storm water management operation strategies in the context of sea level rise, in order to lessen negative impacts to open spaces, wetland mitigation areas, and natural systems; improve the ability of these systems to adapt to climate change; and optimize the ability of these systems to create additional benefits to the County's residents and visitors.

POLICY CC3.11 Broward County shall establish policies and regulations in Countywide Hazard Mitigation Plans to protect coastal ecosystems from contamination caused by inundation, structural failure, or abandonment of residential, industrial, and municipal assets resulting from sea level rise, storm events, or other climate related impacts.

POLICY CC3.12 Broward County should support the efforts of State environmental and planning agencies to jointly develop, assess, and recommend a suite of planning tools and climate change adaptation strategies for local municipalities to maximize opportunities to protect the beach and dune systems, coastal wetlands, and other coastal resources from the impacts of sea level rise.

OBJECTIVE CC4 – Utilize Green Infrastructure Solutions for Maximum Co-benefits

Understand the value of ecosystem services to our community and expand green infrastructure to optimize the co-benefits of habitat restoration, coastal buffers, wetland mitigation, urban reforestation, natural night skies, and local food production, in order to create a healthy, enjoyable, and climate resilient environment.

POLICY CC4.1 Broward County shall, by 2020, assess and quantify the multiple environmental, social, and economic benefits of green infrastructure in terms of climate change resiliency, considering that trees, gardens, farms, wetlands, and waterways provide natural protection against the forces of climate change by improving air quality, providing shade, reducing heat, storing surface water, and filtering storm water runoff. Furthermore, decisions regarding the conservation and expansion of green infrastructure should include their contribution to meeting GHG mitigation targets, public health and safety goals, and climate change adaptation priorities.

POLICY CC4.2 Broward County shall seek funds to develop and maintain an urban reforestation program in order to expand green infrastructure, reduce the heat island effect, and encourage local carbon sequestration and storage, with the goal of increasing tree canopy coverage toward the American Society of Foresters' suggested goal of 40% across the County.

POLICY CC4.3 Broward County, in cooperation with local academic, governmental and nonprofit agencies, shall perform a tree canopy study by 2020 to determine canopy composition and extent and shall seek funds to repeat study every five years in order to measure progress on the County's goal of expanding green infrastructure.

POLICY CC4.4 Broward County shall encourage planting of native trees known to sequester and store high levels of carbon on available public and private lands, including vacant or underutilized properties, school and government properties, and conservation lands. Broward County shall pursue programs and funding strategies designed to create carbon emission offsets through tree plantings and/or carbon mitigation banks.

POLICY CC4.5 Broward County, in cooperation with local academic and governmental agencies, should perform a green roof pilot study to evaluate the feasibility of green roofs in Broward County and determine the appropriate plant palette, maintenance requirements, and potential water conservation benefits.

POLICY CC4.6 Broward County and its municipalities should encourage urban canopy placement and enhancement that contributes to quality walking environments.

POLICY CC4.7 Broward County, in coordination with the appropriate agencies, shall develop criteria for Green Easements to be included in zoning and land development codes that consider right-of-way widths, utility placement, soil conditions, and other aspects with the goal of ensuring investments in tree canopy produce long-term benefits.

POLICY CC4.8 Broward County shall create and maintain the Broward County Green Infrastructure Map Series to illustrate elements of green infrastructure identified as critical for meeting the County's goals for GHG reduction, renewable energy production, aquifer protection and surface water management, coastal habitat protection, enhanced green spaces, healthy food access, and other resource protection and health and safety goals shared by the greater Broward community.

POLICY CC4.9 Broward County shall identify opportunities to expand green infrastructure through the development review process by protecting natural resources and encouraging implementation of environmentally-friendly development techniques that minimize impacts to natural resources and water quality and further the County's goals of GHG reduction, habitat and species diversity, safe and walkable urban environments, equitable access to services and healthy food, and the attainment of a climate resilient community.

POLICY CC4.10 Broward County shall adopt local design criteria and associated codes that require proactive green infrastructure practices for new development and significant redevelopment.

POLICY CC4.11 Broward County shall work in partnership with its municipalities to implement the County's Green Infrastructure Strategic Priorities by identifying appropriate strategies each municipality can incorporate into its local zoning, land development codes, and other citywide plans and community programs.

Climate Ambassador Training
Participants learn about local climate impacts and receive resources to help spread climate change awareness in our community.

OBJECTIVE CC5 – Educate the Community on Socio-economic and Public Health Impacts of Climate Change

Increase opportunities in the community for deliberate dialogue about climate adaptation and mitigation needs for high-vulnerability communities, the role inequity and injustice play in exacerbating vulnerability, the socioeconomic challenges to building resilience, and paths to shared decision making.

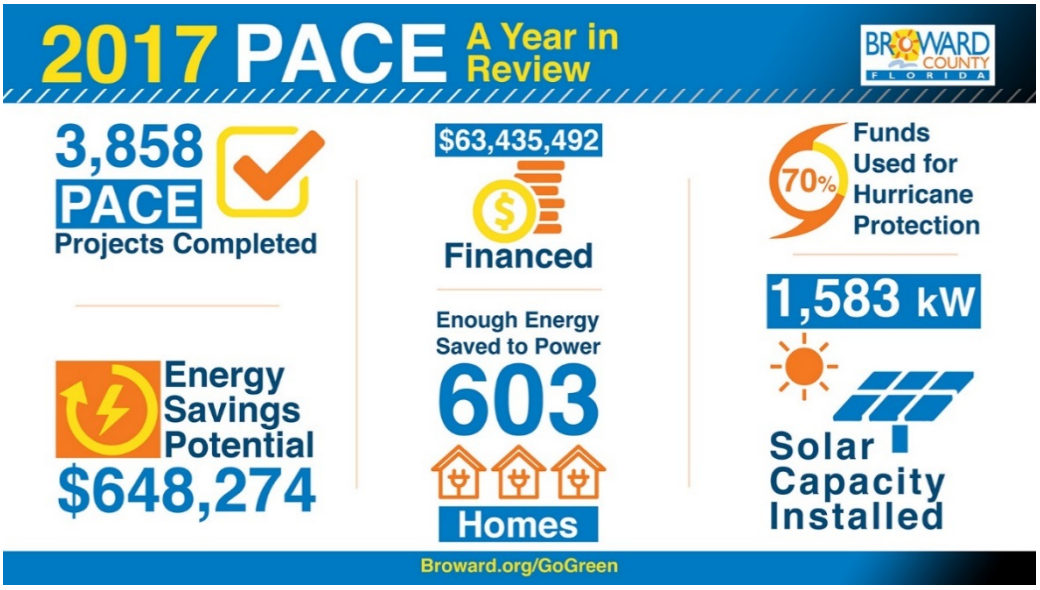
POLICY CC5.1 Broward County shall implement Intergovernmental Coordination Element, Policies IC7.5 – IC7.11~~0~~, to create collaborative intergovernmental practices and programs to advance sustainable initiatives.

POLICY CC5.2 Broward County shall implement Natural Disaster Element Objective ND7 and associated policies to ensure the integration of climate adaptation into disaster planning.

POLICY CC5.3 Broward County shall seek to strengthen the local economy by promoting green economic growth and green-collar work training programs in order to: create resiliency; reduce reliance on fossil-fuel-based economies; provide a positive focus for economic development; advance the use of sustainable materials, technologies and services; and encourage local jobs in sustainable businesses which offer a living wage and make it possible for local climate change goals to be met.

POLICY CC5.4 Broward County shall continue to develop plans and programs in coordination with local municipalities, power companies, and private partners in order to reduce GHG emissions and create "green" job opportunities throughout the community by:

1. Expanding the market for energy efficient products and services;
2. Supporting alternative and renewable energy production through innovative financing; and
3. Promoting and incentivizing energy conservation retrofits.



Broward County's PACE Program

On June 14, 2016, the Broward County Board of County Commissioners approved a Countywide property assessed clean energy (PACE) program. Check the participating cities map to see if your city participates.

POLICY CC5.5 Broward County shall consider the public health consequences of climate change, such as extreme temperatures and vector-borne diseases, and take steps to build capacity to respond to or prevent those consequences. Specifically, the County should by 2025:

1. Encourage research to better understand the public health consequences associated with climate change in Broward County;
2. Evaluate the capacity of existing public health and emergency response programs;
3. Work collaboratively to create a unified methodology to track and monitor health impacts, thereby developing appropriate health indicators;
4. Consider possible public health impacts of climate change in existing planning, programs, policies, and regulations;
5. Create a community-wide public health climate change adaptation plan;
6. Raise the awareness of policy makers, community leaders, businesses, institutions, health care providers, and the general public about the public health significance and related costs of climate change;
7. Help to expand responder training to include conditions of extreme weather such as heat waves and cold snaps;
8. Work with community groups to create effective outreach materials and mechanisms focused on vulnerable and/or hard-to-reach populations; and
9. Regularly assess the effectiveness of adaptation policies and programs.

POLICY CC5.6 Broward County shall support community engagement in climate change adaptation and emergency response planning, especially concerning highly vulnerable and historically disadvantaged groups, in order to ensure equity in decision-making and strive to increase access to essential resources, reduce risk and health disparities, and increase resiliency throughout the community.

POLICY CC5.7 Broward County shall partner with intermediary organizations that have demonstrated success and social capital in the community, to engage highly vulnerable communities in the design of meetings to improve and facilitate attendance by providing food, childcare, and transportation support; and by providing translation for non-English speakers.

POLICY CC5.8 Broward County should provide equity and social justice training for all local government staff. By 2020, the County will work with regional and community partners to seek access to training, including topics on why systemic racism and inequity is a threat-multiplier for climate change and how to design and implement equitable climate solutions collaboratively.

POLICY CC5.9 Broward County, through the Master Partnership Agreement with the School Board of Broward County, shall continue to support existing County and municipal education and outreach programs including, but not limited to: energy efficiency and water conservation; waste reduction and recycling; urban forests and native landscaping; and air quality and GHG reduction. The County will also support education and outreach programs on other sustainable issues and work cooperatively to link these overlapping themes with local climate impacts in all educational materials and messages.

POLICY CC5.10 Broward County shall promote partnerships between local government agencies, universities, professionals, and practitioners to foster an environment for connecting scientific research and education with practical applications that will contribute to the resiliency and adaptation within the built and natural environments to the impacts of climate change.

University Partnerships
University of Toronto students presenting design-based climate adaptation strategies for various sites across Broward County.