

Natural Resources

protecting important assets

The City of Charleston is located in the Lowcountry of South Carolina. The humid, semi-tropical climate gives rise to a diversity of plant and animal life. Charleston is host to a myriad of islands, wetlands, creeks, rivers and harbors which determine the shape and configuration of man-made development. Although urbanization and the associated land development in the Charleston region can have a positive impact on the local economy, it exerts pressure on the estuarine system and natural environment^{1,2}. The sustainable management of natural resources is essential to maintain quality lifestyles for residents.

Surrounding the City with Green

Delineating the rural/sub-urban edge with tools such as the Urban Growth Boundary (UGB) has been an important step in preventing new sprawl and promoting conservation in Charleston. Ecologically important marshlands can be destroyed and scenic byways impacted when rural land is developed³. For this reason, Charleston has made improvements in land conservation and promotes compact development patterns that minimize consumption of land as recommended in the 2000 Century V Plan.

The City continues to support Charleston County's Greenbelt Plan for the conservation of greenspace in Charleston. One of the newest additions to the Greenbelt is the 207 area park at Long Savannah (aka Bear Swamp Road Park) located in West Ashley.

The City also currently owns and is responsible for 120 parks, including approximately 1,500 acres of parks and open space. Charleston strives to provide both larger parks (50+ acres) for active and passive use; neighborhood parks (2-20 acres) within walking and biking distance of most homes; connectors like greenways and

CITY OF CHARLESTON PARK LAND ACQUISITIONS 2000-2010

NAME	Acres	Year	Location
Maybank Tennis Center	58	2001	James Island
Cool Blow Park/Simmons Playground	1.8	2001	Peninsula
Liberty Square	80	2001	Peninsula
DI Waterfront Park & Trails	7.5	2002	Cainhoy Peninsula
Family Circle Tennis Center Facility	338	2002	Cainhoy Peninsula
Fort Bull for Future Use	8.1	2002	West Ashley
Freedom Park	107	2006	Cainhoy Peninsula
Morris Square Plaza	0.1	2007	Peninsula
Rosemont Field	26	2007	Peninsula
Simonton Park	0.3	2007	Peninsula
Ellis Oaks	1.1	2008	James Island
James Island Recreation Center (for future use)	120	2008	James Island
Cannonborough/Eliotborough Park	0.5	2008	Peninsula
Neck/Magnolia site for Future Use	320	2008	Peninsula
Ashley River Road Bike Path	43	2008	West Ashley
Bear Swamp Road Park (for future use)	2070	2008	West Ashley
Village Shaftesbury Park (for future use)	290	2008	West Ashley
Cummings Point/Morris Island Passive Natural Space	117	2009	James Island
Woodland Road Park	9.2	2009	West Ashley
Bees Landing Recreation Complex	257	2010	West Ashley
TOTAL: City of Charleston Park Land Acquisition	487.5	2000-2010	
Charleston County Park & Recreation Commission (PRC) Long Savannah Park Acquisition	1,568	2008	West Ashley
TOTAL: New Parkland In & Around the City of Charleston	2,055.5	2000-2010	

Source: City of Charleston Parks Department



Waterfront Park, a public park along the Charleston harbor

bikeways; and unique waterfront parks with public access to waterways whenever possible (see Land Use element for more information about the City's UGB, Greenbelt and Parks Systems).

At Sea Level

Most of the City is at or near sea level elevation. Because of its low elevation and warm, coastal location, Charleston is subject to the hazards of South Atlantic hurricanes and various flooding events throughout the year. These climatic events necessitate planning and adaptation through stringent building standards for elevation and wind resistance, stormwater management and other sustainability practices. Local policy about urban design, historic preservation,

land use, and disaster preparedness must address these possible climatic events. One such way is through rural land preservation in places like Johns Island and other undeveloped parts of Charleston that contain forests and agricultural lands that absorb rainwater to prevent flooding and absorb less solar heat than developed areas, preventing heat islands^{2A}.

Water Quality

Water is one of Charleston's most important natural resources. Beaches, marshes, rivers, and creeks provide an economic engine for the recreation, tourism, shipping, and commercial fishing industries; yet water quality is a major concern for Charleston. Polluted stormwater, from activities like over-fertilizing lawns and spilling motor oil, runs off into the drainage system which flows into the streams and estuaries. Stormwater runoff is considered one of the worst water pollution problems in developed areas. State monitoring has found concentrations of pollution in tidal creeks feeding Charleston Harbor, largely due to runoff of those wastes from roads, rooftops, parking lots and driveways⁵. Increased stormwater issues arise as more impervious surfaces (paved or water impermeable surfaces) are developed in the City. The City's

Stormwater Division is responsible for monitoring and responding to these challenges, which has included the development of the Stormwater Management Plan, Design Manual, Education Initiatives, and Utility Fee Fund. The Parks Department also coordinates with this division on a tree planting and maintenance program because healthy urban trees can reduce the amount of runoff and pollutants that flow into waterways, thus improving the water quality.



Did you know that the City of Charleston's street trees intercept 28.3 million gallons of stormwater annually? The City's street tree inventory includes 15,244 publicly managed trees along the streets in Charleston but does not include an estimated 35,000 other trees located in parks, traffic medians, wooded buffers, and drainage areas. Charleston's streets are planted at near capacity, with 80% of possible planting spaces filled. (Source 4)

Water pollution can also be reduced through the implementation of wetland and vegetative

buffers. Vegetative buffers act as filters, removing pollutants before it enters waterways. The City of Charleston has implemented a buffer ordinance requiring them in appropriate and critical areas as a means to ensure water quality is maintained.



Eleven Lowcountry city and county officials have signed a joint resolution to form the Ashley Cooper Stormwater Education Consortium, to combine efforts educating people on how to minimize their impact on the waters. The effort is mandated by the federal Clean Water Act, part of a larger regulation of utilities that manage stormwater drainage systems. The regulation has led to water and sewer customers being charged stormwater fees.

Air Quality

The City of Charleston strives to improve air quality in a number of ways. Reducing air pollution from vehicles has been an important initiative over the past decade. By providing more choices in mobility such as bikeways and bus routes, less cars are driving thus less pollution is produced. Other initiatives include increasing connectivity of streets in suburban areas, changing one-way streets back to two-way in urban areas, retiming lights to improve traffic flow throughout the City, and enforcing an idling time limit ordinance. Local industries

also have a significant impact on air quality through their fuel efficiency and fuel type choices. The City plans to identify these sources and supports efforts to reduce this pollution.

Planning Sustainably

Over the past ten years, the City of Charleston has played a more active role in promoting sustainability as a means to protect its natural resources and enhance Charlestonians' quality of life. Such initiatives include the development of the *Johns Island Community Plan* (2007), *Preservation Plan* (2008), *Charleston Green Plan* (2009), *West Ashley Greenway Plan* (2010), *Johns Island Greenway Plan* (expected 2010).

Additionally, Charleston has committed to reducing emissions by 2012 and formed the Charleston Green Committee (2006) and a Sustainability Division (2009) to aid in this commitment.⁶ The Green Committee was created to develop policy recommendations related to energy choices, emissions reductions, sustainable development and education⁷. This committee developed these recommendations in the *Charleston Green Plan*, which includes initiatives to improve the City's transportation choices, building practices, energy choices and efficiency, and waste management practices.⁷

Many of the recommendations and principles in the *Charleston Green Plan* originated in the 2000 Century V City Plan and have been reinforced in other City planning initiatives and this update.

Charleston also hired a Sustainability Director in 2009 to head the newly formed Sustainability Division in the Department of Planning, Preservation, and Sustainability. This division works with the Green Committee, Sustainability Advisory Committee (SAC), and an interdepartmental Sustainability Advisory Team (SAT) to ensure policy decisions and programs are interconnected through the common bond of sustainability as expressed in their guiding principles.

Natural Resources Goals

Protect and preserve our natural resources to the greatest extent practical.

Natural Resources Recommendations

1. Ensure land development regulations adequately protect the city's farms, prime soils for farming, natural resources and rural areas.

2. Continue to support the use of an Urban Growth Boundary and Greenbelt and Parks system with Charleston County in West Ashley, Johns and James Island, and extend the UGB and Greenbelt goals to include the city's Berkeley County boundary at the Francis Marion National Forest in Cainhoy.
3. Continue to provide and expand the parks system to include large and small parks, as well as increased connectivity between greenspaces and public access to waterways.
4. Continue to implement appropriate building standards for elevation, wind resistance and stormwater management and sustainability practices to plan and adapt to climatic events such as flooding and hurricanes.
5. Adopt storm water management practices and standards that are 'light on the land', encourage innovative BMP's and 'green' methods, i.e., bio-swales, porous pavements, rain gardens, etc., for treating storm water and vegetative buffer requirements to improve the water quality of Charleston.
6. Continue air quality improvements through transportation planning and identifying and supporting local industries to reduce air pollution.
7. Continue to play an active role in promoting sustainability initiatives within municipal operations and the community at large, including: developing plans and education programs that promote sustainability and sustainable development; increase mobility choices; reduce water and air pollution; support energy conservation and efficiency; increase opportunities and funding for renewable energy; and encourage emission reductions and alternative fuels.
8. Continue to pursue a comprehensive reform of the city's tree protection ordinance to align it with American Forests' recommendation that a city east of the Mississippi River should adopt/meet the goal to achieve/maintain a city-wide canopy cover of 40%.
9. Encourage small and large landowners to manage their land by the planting of native plant species and the removal of invasive species.
10. Promote sustainability through support for local agriculture and animal husbandry.
11. Inventory and document unique and sensitive natural resources, i.e., tree allees, unique wetlands, unique topographic features, unique waterways, flora and/or fauna habitats.

Sources

- ¹ Allen, J. and K. Lu. 2003. Modeling and prediction of future urban growth in the Charleston region of South Carolina: a GIS-based integrated approach. *Conservation Ecology* 8(2): 2. [online] URL:<http://www.consecol.org/vol8/iss2/art2/>
- ² Sensitivity of these ecosystems is directly and indirectly related to impacts of urban development (Source 2). (Source 2: The Charleston Harbor Project. 1999. [online] www.sacusace.army.mil/assets/pdf/_/special_area_mgmt_plan.pdf)
- ³ *(Vision | Community | Heritage: A preservation Plan for Charleston, South Carolina.* "Restricting development in sensitive locations preserves traditional communities and culturally significant landscapes and directs development to infill areas that already support an urban growth pattern and infrastructure." Pg 81
- ⁴ City of Charleston, South Carolina Municipal Forest Resource Analysis June 2006
- ⁵ City of Charleston Stormwater Management division <http://charlestoncity.info/dept/content.aspx?nid=1744>
- ⁶ U.S. Conference of Mayors Climate Protection Agreement (2005) add citation
- ⁷ Charleston Green Plan
- ⁸ Charleston Green Plan



