

# Green EDUCATION



“Outreach and education are the tools of the sustainability trade; with this plan we have broken ground. Now its time to roll up our shirtsleeves and get to work.”

Jenny Bloom,  
Recycling Education Coordinator, Charleston County  
Education Subcommittee Chair

The Education Subcommittee supports the recommendations developed by the subcommittees of the Green Committee, as well as the best practices associated with these recommendations. This subcommittee also develops public outreach and educational efforts that go beyond the issues covered by the subcommittees, but serve the greater purpose of the Green Committee.

In the future, our efforts will become more varied as we develop programs to reach out to inform the public, Charleston businesses, and City employees about the recommendations.

From training volunteers to collect recyclables at City events in support of the Zero Waste Subcommittee; to creating resource guides on the web to help residents interested in weatherization per Building and Energy subcommittee goals; to advocating for more sustainable practices in City offices and schools, the Education Subcommittee helps the Sustainability Director and Charleston residents implement the programs that will move this plan's recommendations into everyday practice.

Since early 2009, some forty subcommittee members have

met monthly and worked more frequently in committee to develop educational programs to facilitate the big picture outlined within these pages. Unlike the other subcommittees, we are not asking the City to adopt additional recommendations. We exist to support the recommendations of other subcommittees with action and advice.

Some subcommittees will use the Education Subcommittee as a research and resource base, and some will rely on our combined skills to address larger marketing and outreach goals to "message" our community's directional shifts. Community outreach and education efforts will focus on introducing new opportunities and technologies, as well as age-old, simple behaviors and practices that impact environmental preservation and energy conservation, and support healthier, more sustainable lifestyles. Our campaigns and actions are based on what will be most helpful to the City in becoming a leader in sustainable operations.



Green Committee in action

## GREEN EDUCATION

### ACTIONS

1. Provide volunteer training and support
2. Research and resource development
3. Develop curriculum and outreach

### BENEFITS

-  Reduce energy costs
-  Create jobs
-  Improve public health
-  Protect clean air
-  Protect clean water
-  Conserve natural resources
-  Enhance quality of life
-  Slow climate change
-  Protect cultural identity
-  Raise awareness



## Defining the Plan

**2030 Challenge** - The 2030 goal is to have a fossil fuel reduction for all new buildings and major renovations of 60% of the regional average building energy use by 2010, 70% reduction by 2015, 80% reduction by 2020, 90% reduction by 2025, and finally to be carbon-neutral by 2030 (using to fossil fuel GHG emitting energy to operate). In addition, an amount of existing building area equal to the amount of new construction shall be renovated annually under the same targets.

**Agricultural Urbanism** - A planning policy and design framework that focuses on integrating a wide range of sustainable food system elements into communities

**American Association of State Highway and Transportation Officials (AASHTO)** - The American Association of State Highway and Transportation Officials advocates transportation-related policies and provides technical services to support states in their efforts to efficiently and safely move people and goods (<http://www.transportation.org/?siteid=37&pageid=330>)

**American Lung Association (ALA)** - The leading organization working to save lives, improve lung health, and prevent lung disease through research, education, and advocacy.

**Anti-idling Programs** - Programs that advocate techniques to reduce unnecessary idling in vehicles to increase miles per gallon and reduce emissions.

**Berkeley, Charleston, Dorchester County of Governments (BCDCOG)** - The regional planning council for Berkeley, Charleston, and Dorchester Counties.

**Bicycle Friendly Community** - Recognition by the League of American Bicyclists as a community that provides safe accommodation for cycling and encourages its residents to bike for transportation and recreation.

**Biofuel** - A solid, liquid, or gaseous fuel obtained from relatively recent biological material, as compared to fossil fuels, which are derived from ancient dead and buried biological material.

**Bioswale** - (See "swale" in glossary) A shallow drainage course filled with vegetation, compost, and/or rip rap. This swale commonly collects storm water runoff from parking lots. It is designed to trap pollutants and silt from the runoff before allowing it to enter into the watershed or storm sewer.

**Charleston Area Regional Transportation Authority (CARTA)** - Provides public transportation throughout Charleston County including downtown, North Charleston, West Ashley, Mt. Pleasant, James Island and parts of Isle of Palms and Sullivan's Island.

**Climate, Energy and Commerce Advisory Committee (CECAC)** - CECAC was tasked with preparing recommended climate protection policies and presenting them to the Governor. Recommendations can be found here: <http://www.sccclimatechange.us/plenarygroup.cfm>.

**Commuter Rail** - A passenger rail for commuters that provides public transportation between a center city and an outer suburb or other commuter town

**Complete Streets** - Complete streets are designed to enable safe access for all users, including pedestrians, bicyclists, motorists and transit riders of all ages and abilities.

**Construction and Demolition Waste (C & D)** - Materials that consist of debris generated during the construction, renovation, and demolition of buildings, roads, and bridges. This often includes bulky, heavy materials such as concrete, wood, metals, and glass. (<http://www.epa.gov/waste/conservation/rrr/imr/cdm/index.htm>)

**Council of Governments (COG or BCDCOG)** - As one of South Carolina's 10 Regional Planning Councils, the Berkeley-Charleston-Dorchester Council of Governments' primary objectives are to assist local governments develop local and regional plans within the tri-county region, as well as providing local governments with planning and technical support to improve the quality of life in the region.

The BCDCOG accomplishes this by providing its member governments with technical assistance in a variety of fields, including economic and community development, comprehensive planning, statistical information gathering and analysis, and water resource management.

In addition, the COG's board of directors provides a forum for local leaders to find common goals and determine a course for the entire region.

Local governments in Berkeley and Charleston counties first created a Regional Planning Commission in 1968 to encourage a regional approach to local dilemmas. Dorchester County governments elected to join the group three years later. The organization changed in 1976 to the Berkeley-Charleston-Dorchester Council of Governments (BCDCOG). ([www.bcdco.com](http://www.bcdco.com))

**Dark Skies Initiative** - The Dark Skies Initiative is a non-profit effort to help solve the problem of light pollution. City lights left on at night block out the stars and the Milky Way and waste energy.

**Density Bonuses** - Density bonuses are granted for projects in which the developer agrees to include a certain number of affordable housing units. Essentially, for every one unit of affordable housing a developer agrees to build, a jurisdiction allows the construction of a greater number of market rate units than would otherwise be allowed. (<http://www.wahpdc.org/densitybonus.html>)

**Energy Crops** - A low cost plant, (such as corn, grasses, soybeans, etc.), grown for harvesting and processing into biofuels, or directly exploited as solid biomass for its energy content.

**Energy Service Company (ESCO)** - A consultancy group engages in a performance based contract with a client firm to implement measures which reduce energy consumption and costs in a technically and financially viable manner.





# Green Glossary

**Environmental Protection Agency (EPA)** - EPA leads the nation's environmental science, research, education and assessment efforts. The mission of the Environmental Protection Agency is to protect human health and the environment. ([www.epa.gov](http://www.epa.gov))

**Expedited Permitting** - In context, expedited permitting is designed to facilitate and encourage sustainable building projects through a streamlined permit review and approval process.

**Fine Particle Pollution** - Pollution composed of particulate matter, (fine particles suspended in a liquid or gas), that is often released from the burning of fossil fuels. Fine particle pollution is a large component of smog and is harmful to human health.

**Green Roofs** - A roof of a building that is partially or completely covered with vegetation and soil, or a growing medium, planted over a waterproofing membrane. Green roofs reduce storm water runoff, grow fruits and vegetables, reduce heating (by adding mass and thermal resistance value) and reduce cooling (by evaporative cooling) loads on a building. In addition, the vegetation removes CO<sub>2</sub> from the air.

**Greenway** - A corridor of undeveloped land often along a riverbank or between urban areas that is preserved for recreational use and/or environmental protection.

**Grey Water Systems** - An installed system which captures and filters household wastewater from showers and sinks in manual, gravity-fed or electric systems for reuse in landscaping and even flushing toilets.

**Heating, Ventilating, and Air Conditioning (HVAC)** - Systems that help maintain good indoor air quality through adequate ventilation with filtration and provide thermal comfort.

**Impact Fees** - A fee that is implemented by a local government on a new or proposed development to help assist or pay for a portion of the costs that the new development may cause with public services to the new development within the United States.

**Infill Development** - The process of developing vacant or under-used parcels of land within urban areas that are already largely developed. This can accommodate for an increasing population without creating urban sprawl.

**Intergovernmental Panel on Climate Change** - A scientific body that assesses the scientific, technical, and socio-economic information relevant for the understanding of the risk of human-induced climate change.

**Leadership in Energy and Environmental Design LEED** - LEED is an internationally recognized green building certification system, providing third-party verification that a building or community was designed and built using strategies aimed at improving performance across all the metrics that matter most: energy savings, water efficiency, CO<sub>2</sub> emissions reduction, improved indoor environmental quality, and stewardship of resources and sensitivity to their impacts.

Developed by the [U.S. Green Building Council \(USGBC\)](http://www.usgbc.org), LEED provides building owners and operators a concise framework for identifying and implementing practical and measurable green building design, construction, operations and maintenance solutions.

LEED is flexible enough to apply to all building types - commercial as well as residential. It works throughout the building lifecycle - design and construction, operations and maintenance, tenant fitout, and significant retrofit. And LEED for Neighborhood Development extends the benefits of LEED beyond the building footprint into the neighborhood it serves. (<http://www.usgbc.org/DisplayPage.aspx?CMSPageID=1988>)

**League of American Bicyclists** - A league founded in 1880 to promote bicycling for fun, fitness and transportation through their work in advocacy and education for a bicycle-friendly America.

**Life Cycle Cost** - The total cost of ownership, maintenance, upgrading, and disposing of a fixed asset over time.

**Light Imprint**— A philosophy that encourages practices with the lowest amount of environmental impact.

**Light Rail** - Lightweight passenger rail cars used for public transportation. Light rails generally have a lower capacity and a lower speed than heavy rail systems. The rail cars are driven electronically from overhead lines like a trolley. In addition, light rails are run in rights of way, but are not always separated from traffic.

**Living Shoreline** - shoreline management options that provide erosion control benefits, while also enhancing the natural shoreline habitat. Living shorelines often allow for natural coastal processes to remain through the strategic placement of plants, stone, sandfill and other structural and organic materials.

**Local Development Corporation (LDC)** - An organization, usually made up of local citizens, designed to improve the economy of the area by encouraging business and industry to locate there.

**Multi-generational Tree Canopy** - The limbs, branches and leaves (biomass) of trees of significantly varying ages. An ideal urban forest is comprised of 1/3 young trees, 1/3 maturing trees and 1/3 mature trees.

**Multi-modal planning**—refers to decision making that considers various modes (walking, cycling, automobile, public transit, etc.) and connections among modes so each can fill its optimal role in the overall transport system.

**Municipal Improvement District (MID)** - Districts created by cities and towns to account for special improvements benefiting specific properties and financed by special assessments and/or fees. (<http://www.sao.state.ut.us/UAM/special%20district/vf06.htm>)

**Municipal Solid Waste (MSW)** - Common garbage or trash generated by industries, businesses, institutions, and homes.





# GREENGLASS

**Park Once Districts** - In a "park once" district, people are encouraged to park in one place and then make stops on foot rather than driving from one destination to another within the district, as you would with a car-oriented strip mall area. Creating the type of environment where it's easy for people to walk between destinations has to do both with urban design and with parking policies. For example, if each destination is required to provide its own off-street parking, and if a building has parking on all sides, dead zones of surface parking lots are created between destinations, making walking distances longer and walking experiences less pleasant, which in turn causes people to get back in the car to go a few stores down rather than to walk. (<http://transtoolkit.mapc.org/resources/parking-toolkit/parking-issues-questions/create-park-once-district>)

**Pedestrian shed** - The basic building block of walkable neighborhoods. An area encompassed by the walking distance from a center point and often defined as the area covered by a 5-minute walk (about 0.25 miles, 1,320 feet, or 400 meters.) They may be drawn as perfect circles, but in practice pedestrian sheds have irregular shapes because they cover the actual distance walked, not the linear (crow flies) distance. ([http://pedshed.net/?page\\_id=5](http://pedshed.net/?page_id=5))

**Permeable Paving** - A range of materials and techniques for paving roads, parking lots and walkways that allow the movement of water and air through the paving material, thus ensuring that stormwater can drain into the soil. Otherwise, this stormwater could wash into storm drains as runoff, which is often polluted and emptied unfiltered into nearby creeks and streams.

**Permit Fee Rebates** - In context, expedited permitting is designed to facilitate and encourage sustainable building projects through rebates given after payment of the permitting fee.

**Petrochemical Fertilizers** - Fertilizers derived from raw materials of petroleum.

**Planned Unit Development (PUD)** - Designed grouping of varied and compatible land uses, such as housing, recreation, commercial centers, and industrial parks, all within one contained development or subdivision. PUD zones generally set an overall density limit for the entire subdivision, allowing the dwelling units to be clustered to provide for common open space. An example is Harbor Park, Kenosha, Wisconsin.

**Rain Garden** - A slightly depressed garden, used to capture stormwater runoff. The runoff is then taken up by the plants and filtered through the ground, as opposed to running off into storm drains or watersheds while possibly carrying pollutants and silt.

**Rapidly Renewable Materials** - Materials that can be grown and harvested for production in a short period of time. These materials reduce resource depletion because they can be harvested and renewed quickly and sustainably. To be considered a rapidly renewable material, the practice of exploiting the resource must be fully renewable in 10 years or less.

**Revolving Loan Fund** - In context, a fund that can be used to make energy saving renovations to a building, and is structured so that repayments can be used to make more loans.

**Renewable Energy** - Energy generated from perpetual and/or rapidly renewable resources, such as wind, water, solar, geothermal heat, tides, and biomass (if rapidly renewable).

**Ridership**: The number of passengers who ride a public transport system over a specific amount of time (day, month, year, etc.).

**Sequester** - In context, to capture CO2 and/or other greenhouse gases within environmental sinks, such as ocean water and plants.

**Shared Vehicle Systems** - This system allows a group of people to share a fleet of vehicles and spread the responsibility and rights of ownership. The system can support more efficient use of vehicles and can choose to purchase more environmentally friendly vehicles.

**Single Occupancy Vehicles (SOV)** - Motor vehicles used for transportation of the driver as a single occupant.

**SmartCode** - The SmartCode is a model form-based unified land development ordinance designed to create walkable neighborhoods across the full spectrum of human settlement, from the most rural to the most urban, incorporating a transect of character and intensity within each. The SmartCode is a unified land development ordinance template for planning and urban design. It folds zoning, subdivision regulations, urban design, and basic architectural standards into one compact document. The SmartCode enables community vision by coding specific outcomes that are desired in particular places.

The SmartCode is not a building code. Building codes address life/safety issues such as fire and storm protection. Examples of building codes include the International Building Code (IBC), International Residential Code (IRC), and International Code Council (ICC) documents.

**Form-Based** - The SmartCode is a form-based code. Conventional Euclidean zoning regulates land development with the most emphasis on controlling land use. Form-based zoning has been developed over the last twenty years to overcome the problems of sprawl created by use-based codes. Form-based zoning regulates land development with the most emphasis on controlling urban form and less emphasis on controlling land uses (although uses with negative impacts, such as heavy industry, adult businesses, etc. are still regulated). Urban form features regulated under the SmartCode include the width of lots, size of blocks, building setbacks, building heights, placement of buildings on the lot, location of parking, etc.

**Model Code** - The SmartCode is a model code, with metrics designed to create a generic medium-sized American city structured into walkable neighborhoods. The model code is freeware, a template meant to be locally customized by professional planners, architects, and attorneys.

**Rural-Urban Transect** - The zones within the SmartCode are designed to create complete human habitats ranging from the very rural to the very urban. Where conventional zoning categories are based on different land uses, SmartCode





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zoning categories are based on their rural-urban character. All categories within the SmartCode allow some mix of uses. SmartCode zoning categories ensure that a community offers a full diversity of building types, thoroughfare types, and civic space types, and that each has appropriate characteristics for its location.

**Unified Land Development Regulation** - The SmartCode is a unified land development code that can include zoning, subdivision regulations, urban design, signage, landscaping, and basic architectural standards.

**Walkable Neighborhoods** - One of the basic principles in the SmartCode is that towns and cities should be structured as a series of walkable neighborhoods. Walkable neighborhoods require a mix of land uses (residential, office, and retail), public spaces with a sense of enclosure to create “outdoor rooms”, and pedestrian-oriented transportation design.

**Sustainable Community** - A community that is designed to persist over generations with minimal impact to the environment.

**Swale** - A swale is a slight depression that runs along the contour of the land. This depression catches rainfall, allowing it to soak in and collect as groundwater. This groundwater can then move down slope, keeping your grass watered through rainfall alone.

**Traditional Neighborhood Development (TND)** - A comprehensive planning system that permits educational facilities, civic buildings, and commercial establishments to be within walking distance of private homes. These buildings are served by complete streets, which allow walking, biking, or driving.

**Transect** - New Urbanist town planners use the term transect to refer to the varieties of land use from an urban core to a rural boundary. General New Urban transect classifications (from highest to lowest density) are: urban core, urban center, general urban, suburban, rural, and natural. Among the goals of this type of development is the creation of compact, walkable communities centered around mass transit systems. This makes it possible to live without complete dependence on a car for mobility.

**Transect Based Codes** - A type of code which reflects the natural evolution of development from a denser city core outward toward suburban, rural and agricultural uses.

**Transit Oriented Development** - The creation of compact, walkable communities centered around mass transit systems. This makes it possible to live without complete dependence on a car for mobility.

**Transit Shed** - An area encompassed by the walking distance that people will walk from a starting point to a transit stop and generally defined as the area covered by a 5-minute walk (about 0.25 mile) for a bus stop and a 10-minute walk (about 0.50 mile) for a rail transit stop. By developing housing, job and service centers within this distance, fewer vehicle trips are needed.

**Tri-County Link** - A rural bus system serving Berkeley, Charleston, and Dorchester Counties of South Carolina. (<http://www.ridetricountylink.com/index.html>)

**Unit Based Pricing** - A system in which residents pay for municipal solid waste collection services per unit of waste collected, rather than through a fixed fee or property tax.

**Urban Forests Effects** - A computer model that calculates the structure, environmental effects, and values of urban forests.

**Urban Growth Boundary (UGB)**- A regional boundary set in an attempt to control urban sprawl. The area inside the boundary must be used for higher density urban development, and the area outside the boundary must be used for lower density development.

**Urban Land Institute** - A multidisciplinary real estate forum that provides leadership in the responsible use of land and in creating and sustaining thriving communities worldwide.

**Vehicle Miles Traveled (VMT)** - The number of miles traveled by all or certain vehicles within a specified time and area.

**Zero Waste:** A philosophy that strives to recycle, reuse, and compost all resources that would normally be discarded as waste, so that very minimal to zero waste is sent to a landfill or incinerator.



