



“Norfolk strives to be a premier waterfront community that creates a positive, regenerative effect on its environment, avoids detrimental environmental impacts and thrives economically and culturally.”

STATE OF THE CITY

Norfolk’s Green Sustainability Policies: Outcomes and Results – 2012 Update

Executive Summary:

For the first time ever, the City of Norfolk has included Environmental Sustainability as one of its top six priorities, and developed strategic actions to support this important priority. These six priorities together constitute a shared vision to guide the City’s and City Council’s actions.

Specific and quantitative goals, objectives, actions and measures support this vision for our environment. A key staffer is responsible for directing interdepartmental teams dedicated to each objective. This system supports Norfolk’s goal to be a well-managed government, and a data-driven organization that provides effective and efficient programs and services that are responsive, accountable and inclusive, and customer focused.

By integrating green policies into municipal operations, City employees and residents alike understand their roles in creating a sustainable, green city. By educating residents about environmental programs, including energy conservation, Celebrate Trees and Living Legacy Groves, shoreline buffers and wetlands restoration, community gardens and lower carbon initiatives, Norfolk is creating a community whose citizens understand all that the City is doing to support a sustainable environment, and why. To accomplish this, City staff and elected leaders have reached out to individuals and organizations, forming alliances and developing partnerships with non-governmental as well as regional, state and federal agencies including the Department of Energy, a significant source of funding.

Norfolk also operates environmental regulatory programs for water, wastewater, stormwater, solid waste, air, hazardous waste, Chesapeake Bay preservation, land use and planning, zoning, code enforcement, health, and recycling, among others, which are not included here. Other initiatives not reviewed here are Transportation, including bicycle, transit and pedestrian, Parks and Open Space planning, and related community initiatives supported by the City such as the Lafayette Wetlands Partnership. Finally, we have made major progress in flooding awareness, an initiative covered elsewhere.

Where we've been: the background

Norfolk's Green Policies address municipal operations and extend 'green' practices into the community by building on a solid network of voluntary and regulatory environmental initiatives.

Norfolk's achievement in the 2009 Virginia Municipal League's Green Community Challenge affirmed the City's progress. Norfolk earned "Green Government" certification and won third place in this state-wide competition. The outcome-based Challenge provided a structure to recognize past accomplishments and spur new initiatives.

Norfolk then joined the US Conference of Mayors' Climate Protection Agreement, and entered into a Joint Environmental Declaration with several of its Sister cities, pledging to create greener, low-carbon societies, and to work together to transmit information globally. Norfolk has extended this stewardship globally, with presentations on municipal sustainability to delegations from Tema, Ghana; Kochi, India and Kaliningrad, Russia.

Leveraging these successes, the City turned in 2010 to quantitative metrics and outcomes. Norfolk secured \$2.451 million in funding from the U.S. Department of Energy to develop and implement an Energy Efficiency and Conservation program. The goal of this program is to reduce energy costs and lower the impact on the environment.

The City also set aggressive goals for increasing its tree canopy to 40 percent, and in 2011 the Elizabeth River Project recognized Norfolk's Celebrate Trees program with a River Star. In 2011 the City began work on its General Plan, updating this long-range plan to include sustainability metrics and more fully incorporate LEED and other green building measures into municipal projects.

Where we are: the outcomes

1. Energy Inventory and Baseline

Description:

Establishing a detailed inventory of the City's energy consumption (electricity and natural gas) is the baseline against which progress towards better energy conservation and efficiency in City facilities is measured. The City of Norfolk's energy system is complex and decentralized with information stored in a variety of databases, and more than 600 utility accounts. An outcome-based municipal energy management strategy depends on effective monitoring and verification of energy savings.

Results:

To meet the goal of developing energy baseline indicators and objectives to monitor and verify energy savings, we have completed the following actions:

a). Funding:
Staff secured \$2.451 million in Department of Energy funding through the federal Stimulus program.

b). Monitoring and Verification of Savings:
Evaluated vendors and negotiated a \$90,000 contract for the purchase, training, set-up and maintenance (five years) of specialized software to track energy consumption in municipal buildings.

The EnergyCap energy management software program tracks progress on energy efficiency projects, and can look for billing errors, compare building performance among City facilities, and make budget forecasts. Staff training and data entry was done in 2012, and the program will be fully on-line in 2013.

c). Building and Facility Audits:
Norfolk completed a comprehensive, \$240,000 energy audit program of 100 municipal buildings, totaling 3.5 million square feet.

The audits calculate an Energy Utilization Index for the facilities, and recommend upgrades that will conserve energy. For the most promising projects, a more detailed audit, including anticipated costs of projects, the potential energy and cost savings and the payback period was done.

Audit results were provided in 2012 to all Department Directors with recommendations for specific retrofits with the greatest savings potential to assist in developing a capital funding program.

d). Low- and no-cost initiatives:
Staff developed in-house a “Self Assessment Guide for Energy Saving Opportunities.” No additional funding was required.

The 87 question, checklist-style “Guide” provides department and division staff with a tool to systematically evaluate no-cost and low-cost energy management actions they can take right away. This includes turning lights off when rooms are unoccupied, replacing incandescent bulbs with compact fluorescent lights, de-lamping fixtures in over-lit areas, and undertaking maintenance projects to better seal and insulate the building envelope. Norfolk’s Fire Department has completed self assessments for all sixteen of its facilities, and is implementing quick pay-back actions based on the assessments. The findings are being coordinated with the professional energy audits.

2. Energy Conservation to Reduce Costs and Lower Impact on the Environment

Description:

Cities world-wide, including Norfolk, are adopting products and practices that conserve energy and reduce the associated greenhouse gas emissions known to contribute to climate change. Initiatives are in place to reduce emissions generated by City government operations; other initiatives encourage residents to conserve.

Results:

To meet this goal we have provided funding and operational support, with the following results:

a). Funding

City Council has dedicated CIP Funds to energy efficiency and sustainability, leveraged by Energy Efficiency and Conservation Block grant funding secured through the federal Stimulus program.

b). Technical Studies

▶ Green House Gas (GHG) inventory

Norfolk contracted with Old Dominion University on a Green House Gas inventory, budgeted at \$20,000. Included in the Scope of Work is a 'tool kit' of options for energy use and emissions reduction targets.

These technical studies, which will be completed in 2013, will help Norfolk:

- Identify the greatest sources of GHG emissions within the city.
- Understand emission trends.
- Quantify the benefits of activities that reduce emissions.
- Establish a basis for a local action plan.
- Track progress in reducing emissions.

c). Focused Initiatives for Municipal Operations

▶ Idling Policy:

The administration developed and issued a City of Norfolk "Vehicle and Equipment Idling Policy." Reducing unnecessary motor vehicle and equipment idling is a way to reduce operating costs and air emissions, without adversely affecting services. The policy requires that "City equipment will not be stationary with the engine operating for more than five consecutive minutes in a 60-minute period, unless it is essential for performance of the work." There are exceptions for emergencies and public safety activities.

▶ Green Fleet Policy:

The administration developed and issued a City of Norfolk “Green Fleet Policy.” The goals of the Green Fleet policy are to be fiscally responsible, to reduce fuel consumption, to improve air quality by reducing emissions, to increase vehicle operation efficiency, and to reduce dependency on foreign oil. The new policy also calls for fleet reduction. Green Fleet replacements include:

- One Ford Escape
- Five Honda Civic hybrids
- Four GEMS (electric vehicles)
- Two electric and eight propane forklifts
- Two propane Zamboni ice machines
- One parking garage propane sweeper
- Segways and bicycles for Police use.

▶ Compressed Natural Gas (CNG):

The existing Virginia Natural Gas CNG fueling station needed to close due to the new Amtrak station. Instead, the City and VNG initiated a partnership to re-locate the station, placing it on city-owned property at the City’s Fleet Maintenance yard on Lance Road. This win-win outcome was celebrated with the Grand Re-Opening of the station in late 2012.

Keeping the CNG station in Norfolk was important. The City of Norfolk strives to be part of the solution to our energy challenges by being energy efficient, and by saving taxpayers’ money. CNG is less expensive than gas and diesel. It also is clean-burning and safer for the environment, compared to gas and diesel, and nearly all the natural gas used in North America is produced in North America.

▶ Central Energy Plant Upgrade:

Energy efficiency improvements at the Central Energy Plant were funded with \$1.86 million in Federal Stimulus funds. The project invested in major instrumentation, boiler and chiller improvements to the main Central Energy Plant that powers City Hall and our judicial complex.

▶ Street Lighting:

Converting from mercury vapor lights to high pressure sodium street lights provides more light, for less electricity. Mercury vapor lights use 100 watts to provide 3,300 lumens. High pressure sodium lights use 70 watts to provide 5,000 lumens. Norfolk has installed 1,700 high pressure sodium lights in the past 12 months.

▶ Voluntary Demand Response:

This voluntary demand response program allows the City to manage its energy consumption during peak hours and save on energy expenses. It does this by encouraging voluntary reduction in energy usage during peak demand periods. The Department of Utilities switches over to diesel generators at voluntary times when electricity costs reach or exceed target levels. There is no penalty for failing to reduce consumption when requested to do so. The more frequently the City goes off the power grid, the greater the savings. Payments totaled \$313,823 the first year of the program. The City Hall complex, SCOPE and Chrysler Hall participated, earning \$15,000 in 2011-2012.

3. Water, Air and Land Sustainability

Description:

Norfolk Green Policies promote environmental sustainability --- stewardship of Norfolk's natural environment, as well as the greater global environment beyond our City borders.

Results:

a). Increase Norfolk's Tree Canopy to 40 percent

Well-shaded streets can be as much as 10° F cooler than those without street trees. An extensive 'green infrastructure' is a key part of flood management. Trees absorb the first 30 percent of most precipitation through their leaf system. Another percentage (up to 30 percent) of precipitation is absorbed back into the ground. 100 mature trees intercept about 100,000 gallons of rainfall per year in their crowns.

Norfolk's goal is to achieve a 40 percent tree canopy -- the goal for communities east of the Mississippi.

Toward this goal, we have achieved the following results:

- ▶ *Celebrate! Trees* project
Established the *Celebrate! Trees* project, which encourages tree planting in three ways: celebrate special occasions by planting trees, participate in a Legacy Grove, or request a street tree.
- ▶ Living Legacy Groves
To support continued tree planting, and provide residents without a place to plant in their own yard with a way participate in *Celebrate !Trees*, the City established a Living Legacy Grove program and fund. The fund has raised nearly \$3,000 from private contributors for tree planting.

The program identified, designed, planted and dedicated approximately an acre of trees in the City's first two "Living Legacy Groves" both established in 2010. Community partnerships provided trees, labor and

funding from organizations such as the Elizabeth River Project, the Friends of Norfolk's Environment, the Chesapeake Bay Foundation, the Norfolk-Portsmouth Bar Association, and others. A third Grove was planted to celebrate GEICO's 75th Anniversary, and the fourth was planted just outside the Norfolk Botanical Garden.

2012 saw the installation of the Tree Commission's first Living Legacy Grove located on school grounds, at Campostella Elementary School. Also in 2012 the Tree Commission hosted Norfolk's 26th Arbor Day Program in Bluestone Park, where the Redwood Junior Garden Club planted eight trees and donated nearly \$700 to Living Legacy Groves. The Tree Commission also was presented the Virginia Department of Forestry's 25th Tree City USA Award.

► **Communications**

The marketing and promotional campaign includes a distinctive logo, robust Web site, rack cards, and publicity via local network TV, City cable television, "Norfolk Quarterly" and social media including Facebook and Twitter.

b). Support and establish Community Gardens:

This project encourages community-wide public fruit, flower and vegetable gardening. Gardens started in 2010 included Park Place, East Ocean View, and Olde Huntersville. Partners in these gardens include Bon Secours, Operation Blessing and Home Depot. Norfolk also provided support to existing community gardens including the Knitting Mill Creek Community garden and the Lambert's Point garden. In 2012, residents started new gardens on Tait Terrace in Ballentine Place and gardens also are being planned at One Colley Avenue, Old Dominion University and the Chesterfield Heights/Stanhope House community center.

A Community Garden working group of volunteers is providing additional gardening opportunities, and guiding the City as the program evolves.

c). Promote Green Building:

New municipal facilities continue to be designed to Leadership in Energy and Environmental Design (LEED) and similar green standards. Examples include the Lambert's Point Community Center and the new Police Precinct #3 Building. Recently completed LEED buildings include Crossroads Elementary School. The Slover Library and the new Courts complex, both under construction, are being built to LEED standards. City staff, the architect and community members are also working to ensure that existing buildings, such as the Chesterfield Heights/Stanhope House community center/women's residential facility, are as 'green' as possible.

d). Include Sustainability in Norfolk's Long Range Comprehensive Plan Update

PlanNorfolk 2030's chapter on "Promoting Environmental Sustainability" addresses key issues and supporting actions, providing specific guidance in conserving, maintaining and restoring the natural environment of the City of Norfolk. The Plan went to the City's Planning Commission for review and approval in 2012.

- e). Include Sustainability in Norfolk's Top Priority Policies:
Environmental Sustainability is included among City Council's top policy priorities. In 2012, staff developed metrics, goals and actions to support efficient use and protection of natural resources, as well as a strategic plan to reduce the negative impacts of coastal flooding.

- f). Increase wetlands and shoreline buffer areas:
City staff and several community partners including the Norfolk Tree Commission, the Lafayette Wetlands Partnership and the Elizabeth River Project presented a new Shoreline Buffer workshop for residents at the ODU Women's Rowing Center in Lakewood Park. This day-long workshop – new for 2012 -- included the what, why and how of buffer plantings along with an afternoon full of hands-on experiences.

City experts began the day by discussing what a buffer's job is and how buffer plants, especially native trees and shrubs, benefit shorelines. Next, participants were led through buffer types and given examples of how to promote neighborhood stewardship and involvement. Finally, to wrap up their day, participants were led on a tree ID excursion that ended in planting ten new trees in the buffer area of the Living Legacy Grove at Lakewood Park.

This buffer workshop is part of Norfolk's environmental education and outreach programming to encourage sustainability and increase lifetime learning opportunities for all residents. The Shoreline Buffer workshop is one of three workshops held annually to engage residents in eco-friendly neighborhood enhancing practices. Other workshops include a Dunes workshop and a Wetlands workshop.

- g). Sustainability Communications and Community Outreach
Effectively going 'green' takes changes in public policy. It also takes changes in individual behavior. Sustainability communications encourage behavioral changes by helping people understand that their actions are important, and are connected to the big picture.

Outreach has included presentations to the Norfolk Environmental Commission, Friends of Norfolk's Environment, Norfolk's Green Team, City departments, Sertoma Club of Norfolk, Tema Sister City symposium, Norfolk Channel 48, local network television, and panel discussions at Norfolk's Naro theater. City employee outreach included:

- Earth Day Café 2009 mug exchange event to reduce the use of disposables such as Styrofoam coffee cups;
- Earth Day Bag-A-Way 2010 event to reduce the use of disposable plastic bags. Staff recycled more than 8,100 plastic bags and distributed approximately 600 reusable cloth bags;
- Light the Way for Earth Day 2011 Food Drive and CFL Light Bulb exchange;
- Earth Day 2012 Cell Phones for Soldiers electronics recycling;
- Sherwood Forest Recycling Box Art project to encourage office paper recycling;
- “Turn Out Lights & Save Energy, Save Money & Help Our Planet” poster;
- Restroom occupancy sensor installation and desk-top energy saver reminder;
- City Hall light fixture repairs;
- Expansion of Norfolk’s Green Team to include additional departments as well as colleagues at NRHA and Norfolk Public Schools.
- The 2012 Sustainable Living Expo in Virginia Beach drew people from throughout the region.
- A pilot CSA – Community Supported Agriculture – program was tested at City Hall. Each week, subscribers received a box of seasonal fruit and vegetables, direct from the Five Points Farm Market.

4. Key Next Steps

Energy:

The City of Norfolk seeks financial returns from superior energy management by continuously striving to improve energy performance. To this end, key next steps include:

- ▶ Analyze energy use patterns and trends in City facilities.
- ▶ Create an Action Plan to improve energy performance. The Plan will be updated annually to reflect recent achievements, changes in performance, and shifting priorities.
- ▶ Continue to build capacity through training, access to information and transfer of successful practices.
- ▶ Evaluate progress, and measure results.

Air, Water and Land Sustainability:

The City of Norfolk seeks to integrate sustainability into daily living and key decisions. Key next steps include:

- ▶ Set an Energy Policy to formalize support and articulate the City’s commitment to energy efficiency for employees, taxpayers, and the community.
- ▶ Collaborate with City departments, Department of Defense and business partners, non-profit and community-based organizations, and

learning institutions to develop and implement priority sustainability initiatives, including a Sustainability Action Plan.