



# Building a Sustainable Future – Energy Efficient Fairfax County

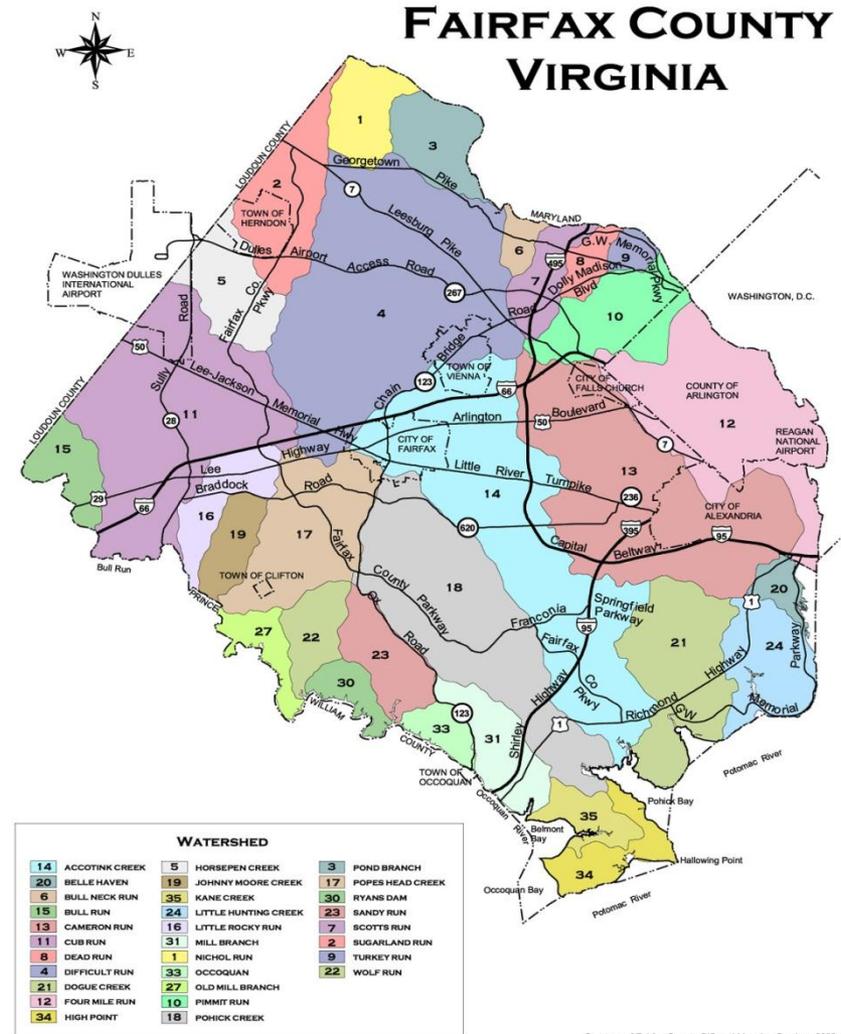


# Overview of Presentation

- Introduction
- Sustainability within the county government:
  - Environment/Energy Goals
  - Environment/Energy Leadership
  - Environment/Energy Initiatives
- Sustainability as it relates to private sector development

# Who We Are

- Residents – Approx. 1.1 million
- Size – Approx. 400 square miles
- County/Schools Budget—FY 2012
  - Approx. \$6.1 billion
    - Gen. Fund \$3.38 billion--County 47.5% / Schools 52.5%
- County/Schools Employees
  - Nearly 35,000
- Urban county executive form of government
- Board Members – 10 elected
  - 1 elected At-Large Chairman
  - 9 Representing specific districts
- Appointed County Executive (Chief Administrative Officer)
- Subject to Dillon Rule
- Little vacant land remaining (less than 7% as of January 2010)

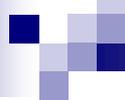


Courtesy of Fairfax County GIS and Mapping Services 2002

# Public Engagement

## ■ Who are our customers?

- Constituents (Residents, Businesses, Groups)**
- Elected Officials**
- Government (internal staff & other levels of government)**

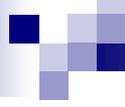


# Public Engagement

***Holistic Approach*** - to determine your overall government strategy plan for service delivery

***Localization*** - is necessary to make your government relevant to your customers and your community

***Customers are stockholders in government*** - who want a return on their investment, i.e. service delivery that makes sense to them and fits their needs, for the tax dollars that they pay us



# Public Engagement

**Board of Supervisors sets County's *strategic direction on customer input***

**County Executive & Senior Management Team interprets Board's *strategic direction***

**Upon implementation, *strategic direction* becomes basis for government operations & services**



# Environment/Energy Goals

- Board of Supervisors Priorities
- Board's Environmental Agenda
- Environmental Improvement Program
- Cool Counties Initiative
- Board's Energy Policy
- Comprehensive Plan Goals



# Board of Supervisors Priorities

(<http://www.fairfaxcounty.gov/government/board/priorities/#>)

## A Clean, Sustainable Environment:

Fairfax County will continue to protect our drinking water, air quality, stream valleys and tree canopy through responsible environmental regulations and practices. We will continue to take a lead in initiatives to address energy efficiency and sustainability and to preserve and protect open space for our residents to enjoy.

# Board's Environmental Agenda

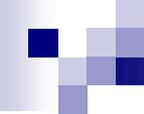
[http://www.fairfaxcounty.gov/living/environment/eip/bos\\_environmental\\_agenda.pdf](http://www.fairfaxcounty.gov/living/environment/eip/bos_environmental_agenda.pdf)

- Board's Environmental Agenda: Broad, 20-year vision document
- First adopted in 2004; revised in 2007
- Policy statements in six broad theme areas

# Environmental Improvement Program (EIP)

<http://www.fairfaxcounty.gov/living/environment/eip/>

- Comprehensive and coordinated strategy to address and support the goals and objectives of the Board's Environmental Agenda
- Limited to County-funded environmental projects and initiatives
- A tool for making cross-organizational decisions regarding environmental investment planning and policy needs assessments



# EIP Action Areas

- Growth and Land Use
- Air quality and Transportation
- Water Quality
- Solid Waste
- Parks, Trails, and Open Space
- Environmental Stewardship

# Cool Counties Initiative

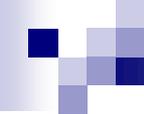


<http://www.fairfaxcounty.gov/living/environment/coolcounties/>

- Declaration signed in July 2007
- Pledge to achieve significant, measurable, and sustainable reductions in County government greenhouse gas emissions
- Provides policy and program templates for taking concrete action in seven areas
- Supports regional development and attainment of emissions reductions targets

# Solution Areas

- Energy efficiency
- Renewable energy
- Greening vehicle fleets and equipment
- Land use
- Transportation
- Water conservation
- Education and outreach



# Fairfax County Energy Policy

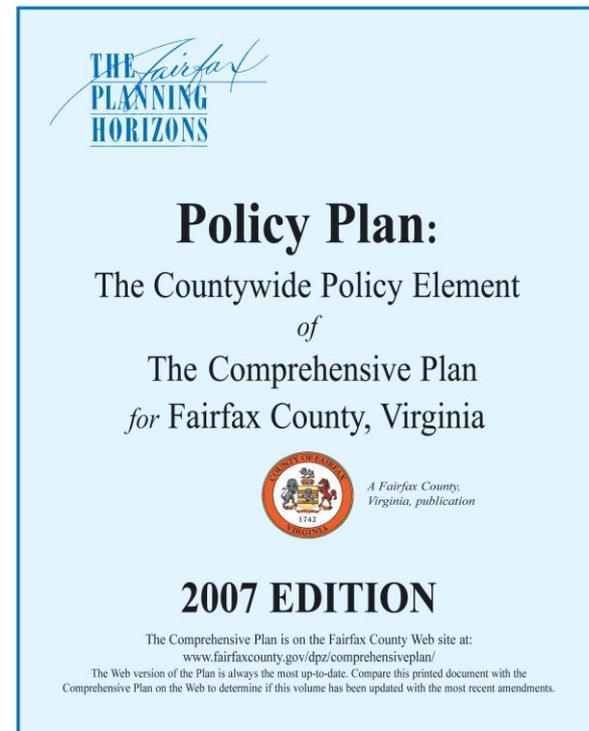
<http://www.fairfaxcounty.gov/living/environment/county-energy-policy.htm>

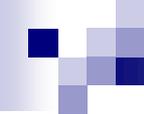
- Adopted by the Board in 2009
- Promotes energy efficiency and conservation practices among County employees, employers, and residents
- Advances the goals of reducing energy consumption and greenhouse gas emissions
- Supports the Board's Environmental Agenda and the Cool Counties Initiative

# Comprehensive Plan Goals

<http://www.fairfaxcounty.gov/dpz/comprehensiveplan/policyplan/preface.pdf>

- Goals reflect the community's belief that environmental protection and preservation are overarching components of the quality of life
- Three goals relate to conservation of the natural environment
  - Environmental Protection
  - Energy Conservation
  - Open Space
- Three goals cite the need to protect the environment
  - Quality of Life
  - Land Use
  - Transportation





# Environment/Energy Leadership

- Environmental Quality Advisory Council
- Interagency coordination
- Regional coordination

# Environmental Quality Advisory Council

<http://www.fairfaxcounty.gov/dpz/eqac/>

- Appointed 14-member citizen group advises the Board on environmental matters
- EQAC provides a forum for citizen input on environmental issues
- EQAC's *Annual Report on the Environment* offers recommendations on a variety of environmental issues (climate change, land use, transportation, air quality, water resources, waste management, hazardous materials, ecological resources, wildlife management, noise, light pollution, visual pollution)

## Annual Report on the ENVIRONMENT 2009

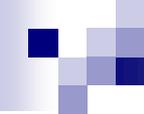


## SUMMARY REPORT Fairfax County, Virginia Environmental Quality Advisory Council

# Interagency Coordination

See Environment Web page: <http://www.fairfaxcounty.gov/living/environment/>

- Environmental Coordinating Committee
- Energy Efficiency and Conservation Coordinating Committee
- Responsible for implementing the Board's Environmental Agenda and administering the county's EECBG program
- Coordination with EQAC and Board



# Regional Coordination

- Climate, Energy and Environment Policy Committee
- Energy Advisory Committee
- Metropolitan Washington Air Quality Committee
- MWAQC Technical Advisory Committee
- Transportation Planning Board
- Intergovernmental Green Building Group
- Many others

# Environment/Energy Initiatives and Action Areas

- **Energy Efficiency**
  - Facilities Management
  - Waste Management
  - Parks
  - LED Lighting
  - LEED
  - Vehicle Services
  - Schools
  - Energy Efficiency and Conservation Block Grant (EECGB) Program
  - GHG Inventories
- **Air Quality and Transportation**
- **Tree Canopy**
- **Water Quality**
- **Parks, Trails, and Open Space**
- **Education and Outreach**
- **Growth and Land Use**

# Energy Efficiency:

## *Facilities Management*

- 1% avg. annual reduction achieved has resulted in excess of a \$7 million cost avoidance between FY2001 and FY2010
  - e.g., Government Center lighting and HVAC retrofit project saves almost 10% (\$100,000) per year
- Installation of Energy Management Control Systems (EMCS)
- Right-sizing of HVAC equipment
- Efficient lighting and lighting controls
- Installation of more efficient system types

# Energy Efficiency: *Waste Management*

<http://www.fairfaxcounty.gov/living/recycling/>

- Landfill gas recovery and utilization

[http://www.fairfaxcounty.gov/living/environment/coolcounties/countyefforts\\_renewableenergy.htm](http://www.fairfaxcounty.gov/living/environment/coolcounties/countyefforts_renewableenergy.htm)

- Energy/Resource Recovery Facility

<http://www.fairfaxcounty.gov/dpwes/trash/dispomsf.htm>

- Recycling (See URL above)

- Effluent Reuse

[http://www.fairfaxcounty.gov/dpwes/construction/water\\_reuse/](http://www.fairfaxcounty.gov/dpwes/construction/water_reuse/)



# Energy Efficiency: *Parks*

- Indoor Lighting Upgrades - RECenters, Nature and Visitor Centers, Buildings
- Outdoor Lighting Upgrades - Parks, Parking Lots, Trails
- Remote Control Installation - Athletic Fields Lighting
- Control Installation / Upgrade for Indoor Lights
- Control Installation / Upgrade for HVAC systems
- Geothermal System - Golf Facility

Indoor Efficient Lights and Controls  
71% Energy Saving



KWh / Year: 191,000



KWh / Year: 55,000

Outdoor LED Lights and Controls  
69% Energy Saving



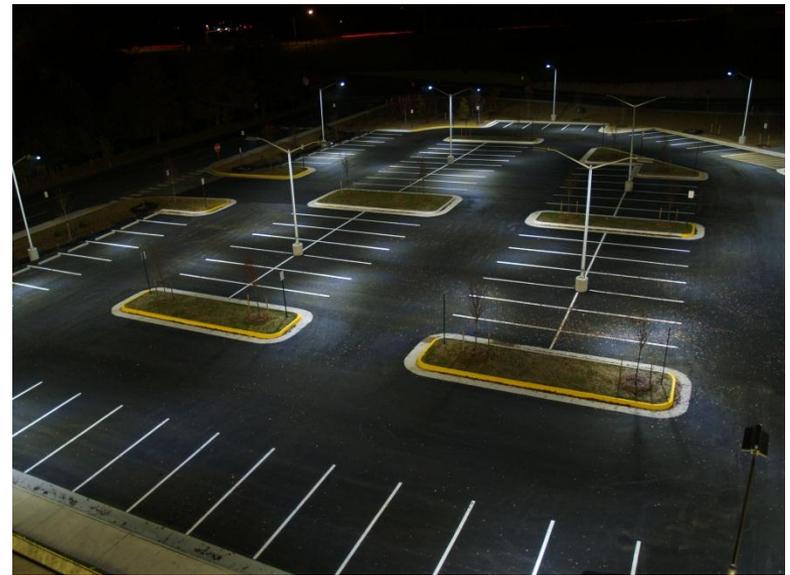
KWh / Year: 5,200



KWh / Year: 1,600

# Energy Efficiency: *LED Lighting*

- LED parking lot lighting pilot programs
- County participation on Dominion Virginia Power LED street light task force



Burke VRE station

# Green Building Design

<http://www.fairfaxcounty.gov/dpwes/construction/sdpolicy.pdf>

- Sustainable Development Policy for Capital Projects
  - LEED Silver for projects greater than 10,000 SF
  - Supports the Board's Environmental Agenda and the Cool Counties Initiative
- Most go through certification process
- As of August 2011: 12 certified green building projects (10 LEED); four more to be certified soon; 12 other active green projects

# Energy Efficiency: *Vehicle Services*



## ■ Fleet Hybrids

- 49 Ford Escapes, 52 Toyota Priuses, 13 Ford Fusions
  - One Toyota Prius converted to “plug-in” configuration
- One Freightliner M2-106 dry cargo van
- One 65 passenger school bus with emDRIVE hybrid conversion system

## ■ Hydraulic hybrid refuse collection truck

- Captures braking energy in hydraulic accumulator to assist in movement from stopped position
- Up to 30% improvement in fuel economy

## ■ Electric vehicles and charging

- One plug-in hybrid electric school bus
- Five Chevy Volts for County fleet

# Energy Efficiency: *Schools*

- Designs conform to Collaboration for High Performance Schools (CHPS)
- Initiatives
  - Interior initiatives include efficient mechanical systems and high-efficiency lighting
  - Building envelope—cool roofs; efficient windows
  - Energy monitoring of all facilities
- Since 2005:
  - Building space has increased by 815,000 sf
  - 10,880 additional students
  - Meanwhile, total energy consumption has remained flat
  - Overall energy efficiency (KBTU/sf) has improved by 6%

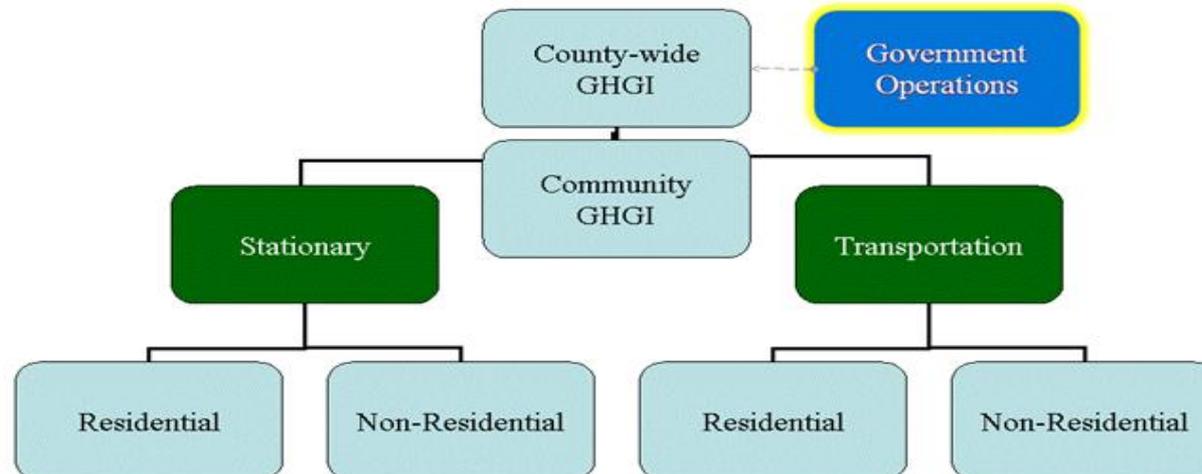
# Energy Efficiency and Conservation Block Grant (EECBG) Program

<http://www.fairfaxcounty.gov/living/environment/energy/eecbg-project-status-march2011.pdf>

- \$9.6 million allocated to Fairfax County in 2009
  - Award period ends October 2012
- 15 projects in multiple areas:
  - Information technology
    - Enterprise server consolidation and virtualization
    - Desktop PC power management (Nightwatchman)
  - Facility improvements
    - Upgrades and retrofits of HVAC, EMCS and lighting
    - Energy audits and building retrocommissioning
  - Hybrid and electric vehicles
  - Greenhouse gas emissions inventory (community-wide)
  - Residential energy education and outreach

# Greenhouse Gas Emissions Inventories

- Inventory of County operations
  - Includes Facilities and other operations, Fleet, and Schools
    - All agencies have gathered raw energy data
  - 2006 baseline
  - 2006 – 2010 inventories are complete
- Community (non-municipal) inventory undergoing review



# Air Quality and Transportation

- Transit support <http://www.fairfaxcounty.gov/fcdot/>
- Employer Services Program  
<http://www.fairfaxcounty.gov/fcdot/employer.htm>
- Telework <http://www.fairfaxcounty.gov/telework/>
- Bicycle and Pedestrian Coordinators  
<http://www.fairfaxcounty.gov/fcdot/bike/>  
<http://www.fairfaxcounty.gov/fcdot/pedestrian/>
- Green vehicle fleet  
[http://www.fairfaxcounty.gov/living/environment/coolcounties/countyefforts\\_greenvehicles.htm](http://www.fairfaxcounty.gov/living/environment/coolcounties/countyefforts_greenvehicles.htm)

# Tree Canopy

- **Tree Canopy Goal--45 percent by 2037**  
<http://www.fairfaxcounty.gov/dpwes/environmental/30year.htm>
- **Tree Preservation and Planting Fund**  
<http://www.fairfaxcounty.gov/dpwes/environmental/treefund.pdf>
- **Tree Conservation Ordinance**  
<http://www.fairfaxcounty.gov/dpwes/publications/pfm/treeconservation/>
- **Tree Action Plan**  
<http://www.fairfaxcounty.gov/dpwes/environmental/tap.htm>

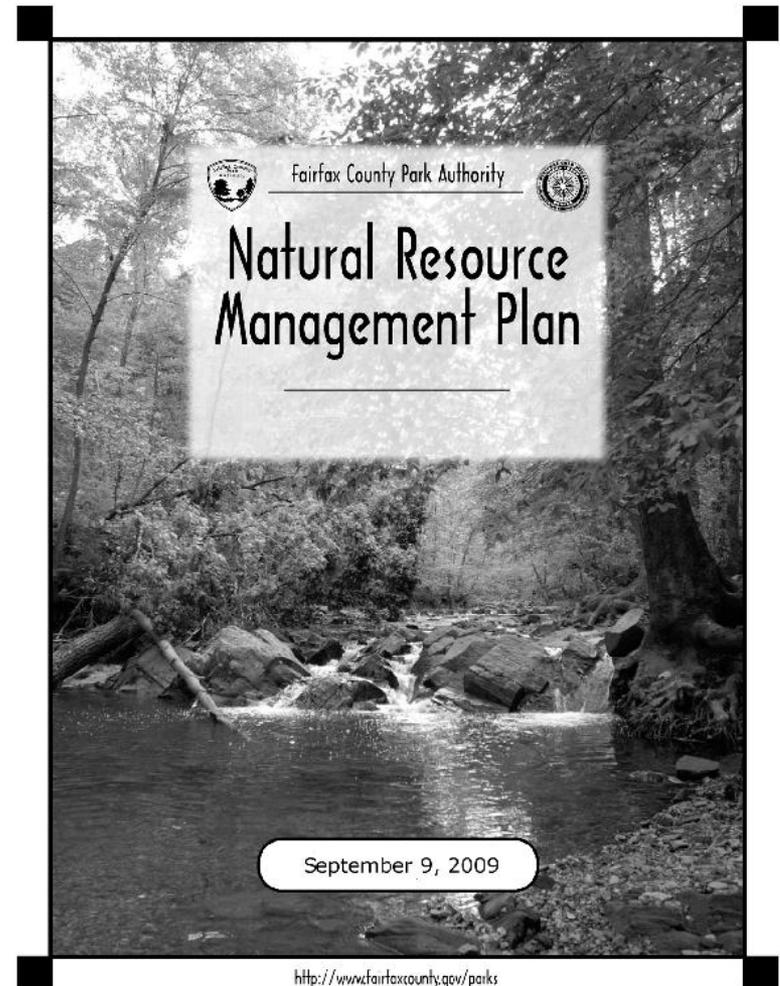
# Water Quality

- Watershed management planning  
<http://www.fairfaxcounty.gov/dpwes/watersheds/involved.htm>
- Gold Chesapeake Bay Partner Community  
<http://www.fairfaxcounty.gov/news/2004/04019.htm>
- Low Impact Development practices  
[http://www.fairfaxcounty.gov/dpwes/publications/ltd/07\\_17.pdf](http://www.fairfaxcounty.gov/dpwes/publications/ltd/07_17.pdf)
- Stormwater Service District  
<http://www.fairfaxcounty.gov/dpwes/stormwater/servicedistrict.htm>
- Stream protection/Resource Protection Areas  
<http://www.fairfaxcounty.gov/dpwes/stormwater/>  
<http://www.fairfaxcounty.gov/dpwes/environmental/cbay/>
- Riparian buffer restoration with community volunteers  
<http://www.fairfaxcounty.gov/dpwes/stormwater/riparianbuffer/>



# Parks, Trails and Open Space

- Cross County Trail  
<http://www.fairfaxcounty.gov/parks/cct/>
- Urban parks  
<http://www.fairfaxcounty.gov/parks/plandev/urbanparks.htm>
- Conservation easements  
<http://www.fairfaxcounty.gov/dpz/environment/easements.htm>
- Open space preservation  
<http://www.fairfaxcounty.gov/parks/wp-openspace.htm>
- Natural Resource Management Plan  
<http://www.fairfaxcounty.gov/parks/nrmp.htm>



# Education and Outreach

- Website – continuing updates
  - <http://www.fairfaxcounty.gov/living/environment/energy/>
- Facebook, Twitter, and other social media
- Channel 16 productions
- Federally-funded residential energy efficiency education and outreach program

# Growth and Land Use

<http://www.fairfaxcounty.gov/living/landuse/>

- Transit-Oriented Development

<http://www.fairfaxcounty.gov/planning/tod.htm>

- Revitalization <http://www.fcrcv.org/>

- Land Conservation

- Green Buildings

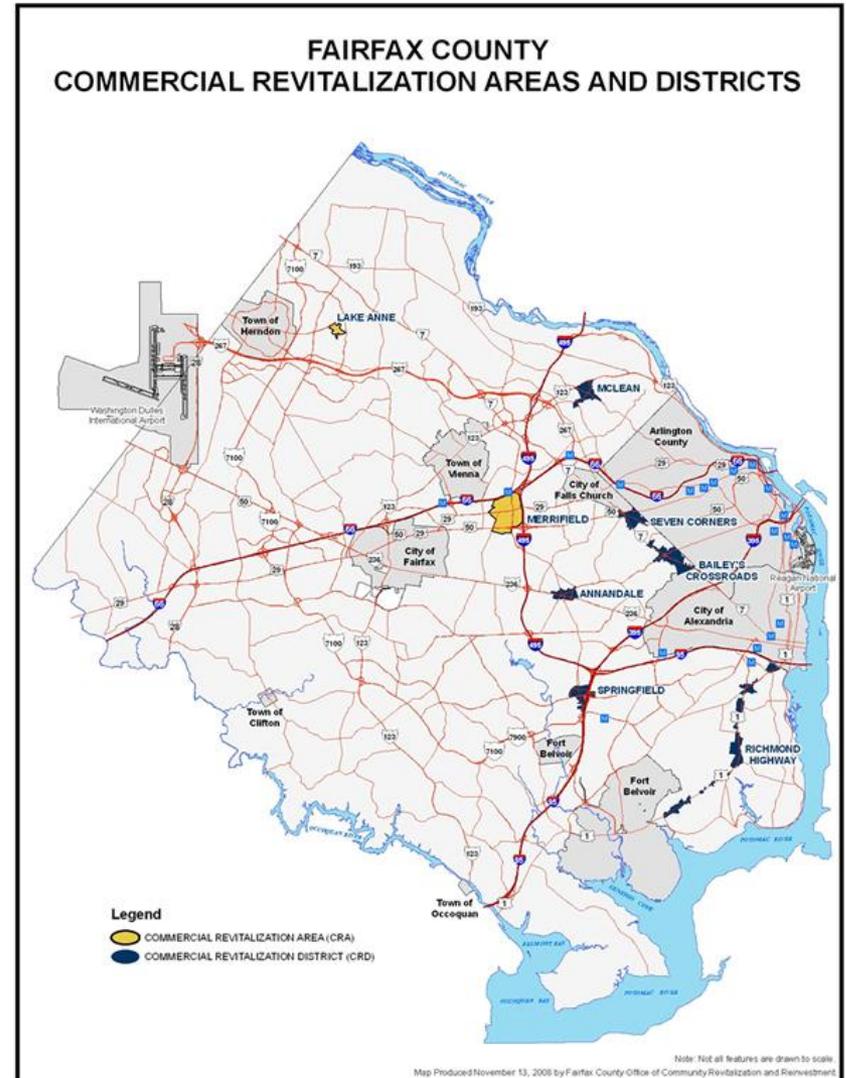
- Sustainable Development Policy for Capital Projects

<http://www.fairfaxcounty.gov/news/2008/030.htm>

- Comprehensive Plan policy

<http://www.fairfaxcounty.gov/dpz/comprehensiveplan/policyplan/environment.pdf>

(see Objective 13)



# Transforming Tysons

<http://www.fairfaxcounty.gov/dpz/tysonscorner/>

- Plan adopted June 22, 2010—Livable urban center with TOD emphasis and green building expectations
- Several rezoning applications under review
- Opportunities for stormwater and energy innovation during zoning process

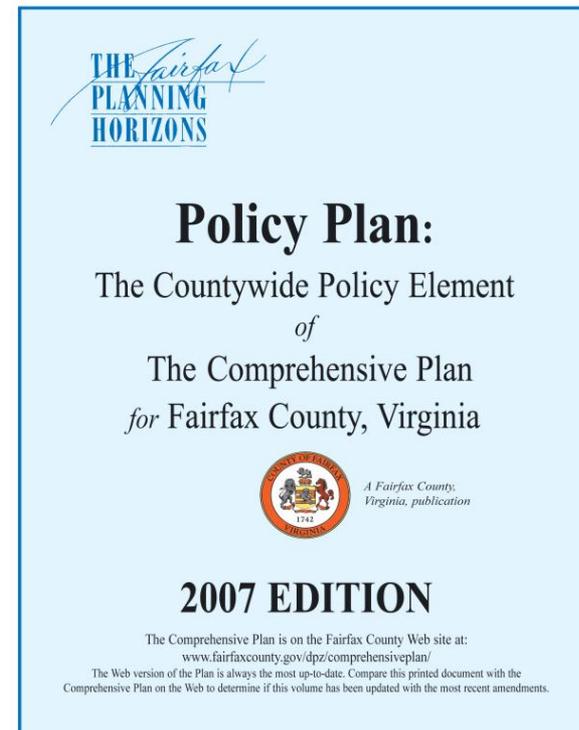


Georgelas proposal—Tysons West/Spring Hill

# Policy Plan Environment Section

<http://www.fairfaxcounty.gov/dpz/comprehensiveplan/policyplan/environment.pdf>

- Environmental Pollution
  - Air Quality
  - Water Quality/Stormwater Management
  - Potomac Estuary/Chesapeake Bay
  - Noise
  - Light Pollution
- Environmental Hazards
  - Soil Constraints
  - Flood Impacts
  - Pipelines/Transmission Lines
- Environmental Resources
  - Environmental Quality Corridors
  - Tree Cover
  - Conservation Easements
- Environmental Coordination
- Resource **Conservation/Green Building Practices (includes energy)**
- Chesapeake Bay Supplement



# National Recognition

- **2011** - Governor's Environmental Excellence award for stormwater outreach.
- **2011** - American Planning Association's Daniel Burnham Award for the Comprehensive Plan for the Tysons Corner Urban Center. This award, which recognizes advancement of the science and art of planning, is granted to only one urban plan in the nation each year.
- **2010** - Governor's Environmental Excellence Environmental Program (Government) Bronze Award for the Wastewater Management Program's Community Outreach Program.
- **2010** - National Recreation and Park Association Gold Medal Award for the Fairfax County Park Authority
- **2009** - National Association of Clean Water Agencies (NACWA) Platinum 12 Peak Performance Award. The Platinum Award pays special tribute to those municipal wastewater treatment facilities that for twelve consecutive years achieved 100% compliance with all National Pollutant Discharge Elimination System (NPDES) permitted limits during a calendar year.
- **2009** - National Association of Counties "Achievement Award" for Herrity Building Garage Vegetative Roof.
- **2008** - National Association of Clean Water Agencies (NACWA) Platinum 11 Peak Performance Award. The Platinum Award pays special tribute to those municipal wastewater treatment facilities that for eleven consecutive years achieved 100% compliance with all National Pollutant Discharge Elimination System (NPDES) permitted limits during a calendar year.
- **2008** - MarCom Platinum Winner, Fairfax County Park Authority Non-native Invasive ID and Control handbook
- **2008** - Communicator Award of Excellence, Fairfax County Park Authority Non-native Invasive ID and Control handbook
- **2008** - Public Technology Institute "Solutions Award" in the "Sustainability" category for the "Plug-In Hybrid Vehicle Fleet Trial."
- **2007** - National Association of Clean Water Agencies (NACWA) Platinum 10 Peak Performance Award. The Platinum Award pays special tribute to those municipal wastewater treatment facilities that for ten consecutive years achieved 100% compliance with all National Pollutant Discharge Elimination System (NPDES) permitted limits during a calendar year.
- **2007** - Green Power Partner recognized by the U.S. Environmental Protection Agency (EPA) for efforts to reduce the risk of climate change through green power purchasing.
- **2007** - Energy Star Partner recognized by the U.S. Environmental Protection Agency.
- **2007** - Solid Waste Association of North America (SWANA) Bronze Excellence Award in category for Integrated Solid Waste Management Program.
- **2007** - Environmental Project of the Year – American Public Works Association – for the I-95 Landfill Closure project.

# National Recognition

- **2006** - National Association of Clean Water Agencies (NACWA) Platinum 9 Peak Performance Award. The Platinum Award pays special tribute to those municipal wastewater treatment facilities that for nine consecutive years achieved 100% compliance with all National Pollutant Discharge Elimination System (NPDES) permitted limits during a calendar year.
- **2006** - Businesses for the Bay Environmental Excellence Award for Local Government for Outstanding Nutrient Reduction.
- **2006** - National Association of Counties “Achievement Award” for Environmental Excellence for Fairfax County---A 20-Year Vision - Environmental Improvement Program.
- **2006** - Fairfax County was first among large counties in National Association of Counties “Change a Light Campaign”, a two-month nationwide campaign challenging county employees to change incandescent bulbs with compact florescent bulbs.
- **2006** - Community Partner of the Year – Environmental Protection Agency – Landfill gas utilization at I-95 (Noman Cole, Energy Production, Heating system).
- **2005** - Businesses for the Bay Environmental Excellence Award for Local Government for Outstanding Nutrient Reduction.
- **2005** - National Association of Clean Water Agencies (NACWA) Gold Peak Performance Award for 100% compliance with all NPDES permitted limits during a calendar year.
- **2005** - U.S. Environmental Protection Agency “Landfill Methane Outreach Program Community Partner of the Year Award” for use of landfill gas as a renewable energy source, saving the county \$5,000 a year in fuel.
- **2005** - National Association of Counties “Achievement Award” for Improving Air Quality in the Washington Metropolitan Region, a Commitment to Air Quality Excellence - Air Quality Protection Strategy.

# National Recognition

- **2004** - Chesapeake Bay Program Chesapeake Bay Partner Community—Gold Award
- **2004** - National Association of Counties “Achievement Award” for Watershed Management Planning.
- **2004** - National Association of Clean Water Agencies (NACWA) Excellence in Management Award to honor member agencies who have implemented successful programs (over a continuous three-year period) that address the range of management challenges faced by public wastewater utilities in today’s competitive environment.
- **2004** - National Association of Clean Water Agencies (NACWA) Gold Peak Performance Award for 100% compliance with all NPDES permitted limits during a calendar year.
- **2003** - EPA Clean Water Partner for its leadership role in the protection of the Chesapeake Bay. The recognition was given to the county for the efforts of Wastewater Management, which has voluntarily monitored the ecology of Gunston Cove and the surrounding area for almost 20 years.
- **2003** - National Association of Clean Water Agencies (NACWA) Gold Peak Performance Award for 100% compliance with all NPDES permitted limits during a calendar year.
- **2003** - National Association of Counties ‘Achievement Award’ for its Keep it Green “E-Waste” Program in recognition of an innovative program which contributes to and enhances county government in the United States.
- **2002** - Association of Metropolitan Sewage Agencies (AMSA) Platinum Peak Performance Award. The Platinum Award pays special tribute to those municipal wastewater treatment facilities that for five consecutive years received Gold Awards for achieving 100% compliance with all National Pollutant Discharge Elimination System (NPDES) permitted limits during a calendar year.
- **2002** - Virginia Recycling Association (VRA) Excellence in the Spotlight Award for the Business Recycling Program.

# Questions?

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