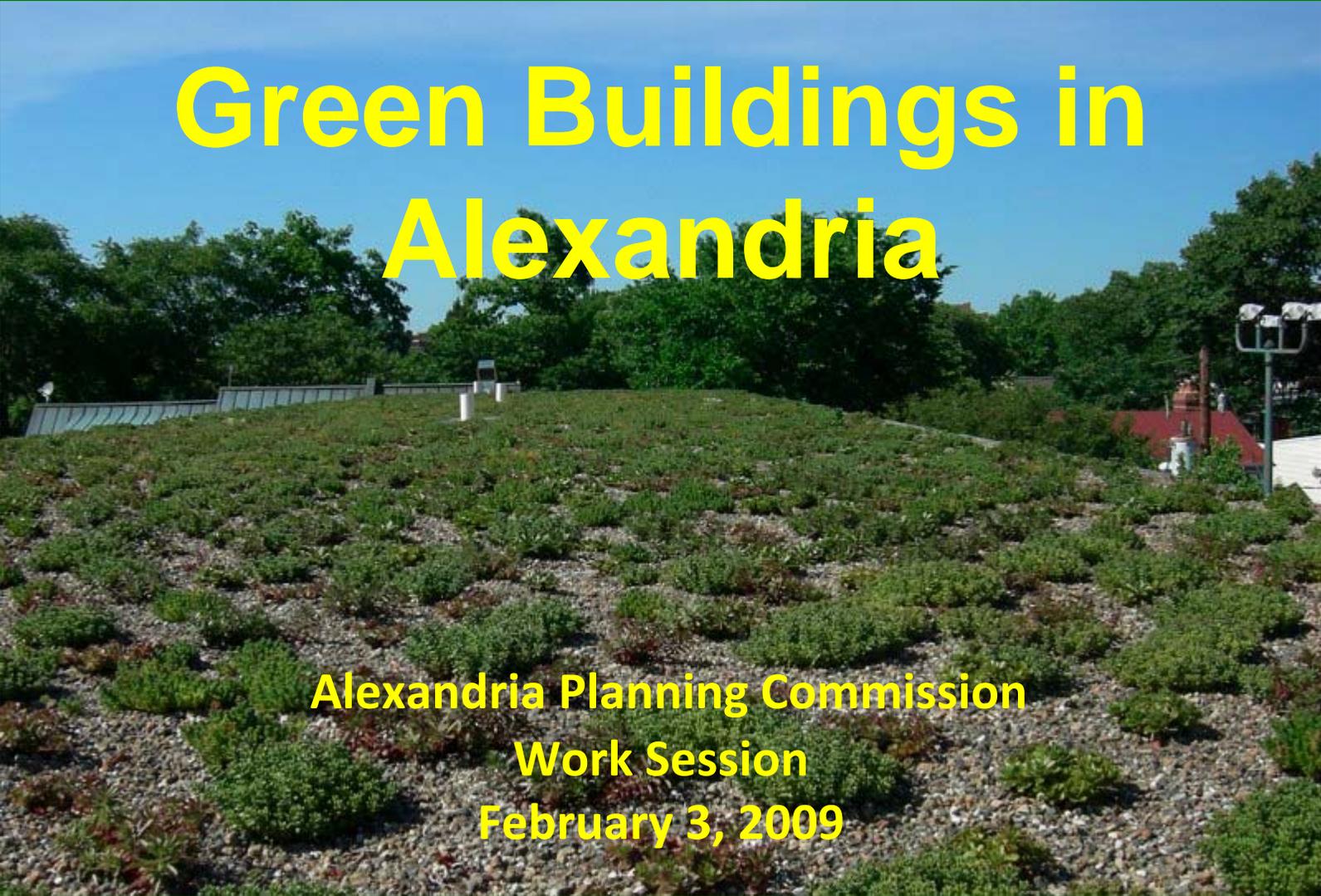


# Green Buildings in Alexandria

A photograph of a green roof. The roof is covered with a dense layer of low-growing, green and reddish-brown plants. The plants are growing in a layer of gravel. In the background, there are trees and a clear blue sky. A white vent pipe is visible on the roof. To the right, a street light pole is visible.

Alexandria Planning Commission  
Work Session  
February 3, 2009

# What is Green Building?

Increasing the efficiency with which buildings use resources while reducing building impacts on health and the environment



Green buildings reduce the overall impact by:

- Efficiently using energy, water, and other resources
- Protecting occupant health
- Reducing waste, pollution and environmental degradation

# Why Focus on this Issue?

- **By 2030 the City of Alexandria will grow by approximately 35,000 residents - an increase of 25%**
- **By 2030 the City of Alexandria will provide another 35,000 jobs - an increase of 34% over 2005**
- **Over the next 30 years, there is a potential for millions of square feet of new office and residential development**
- **Over the next 30 years, substantial part of the City's building stock will be renovated or built new**

# Green Buildings

The green construction industry will climb from 2 percent of all residential starts in 2005, to between 5 percent and 10 percent in 2010 - driven by higher energy costs and a growing public concern about human impact on the environment



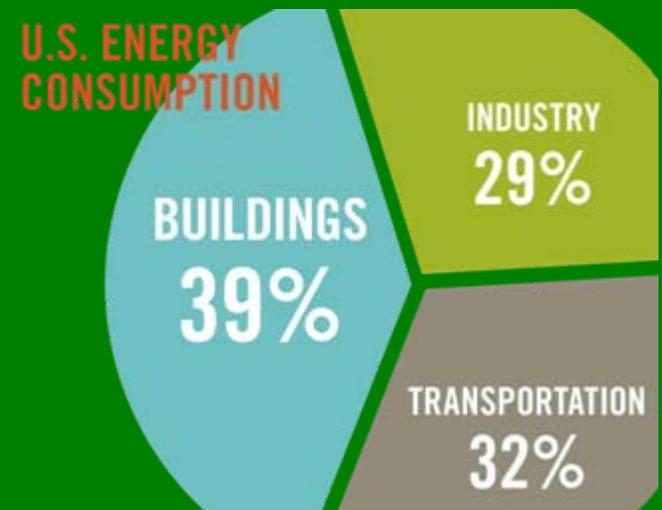
# A Challenge for the City

## Buildings use

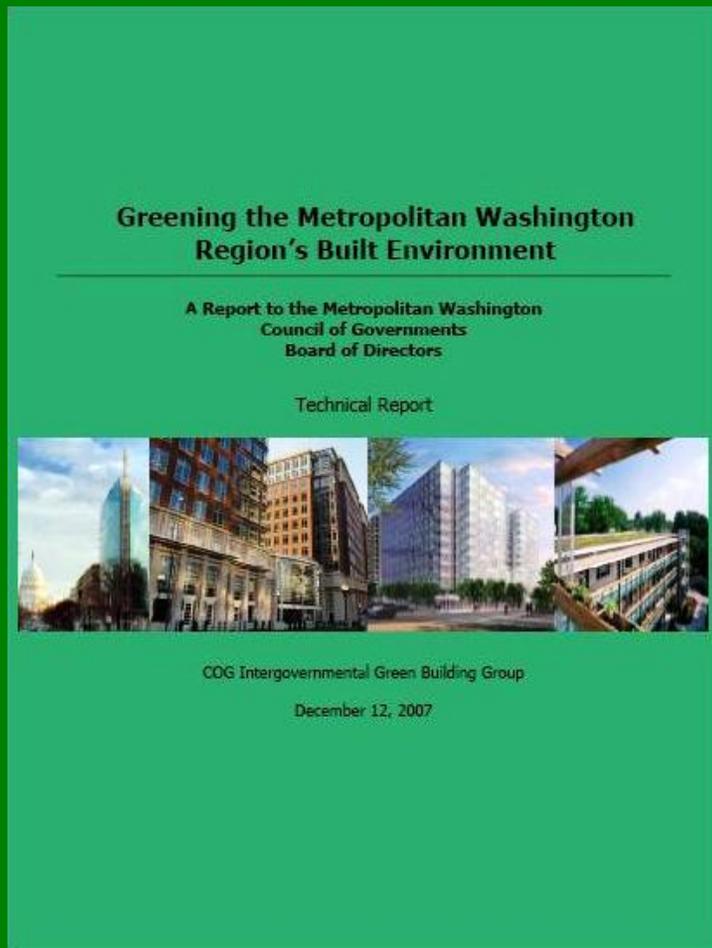
- 12% of Potable Water
- 39% of Energy
- 70% of Electricity
- 40% of all raw materials

## and generate

- 38% of CO<sub>2</sub> emissions



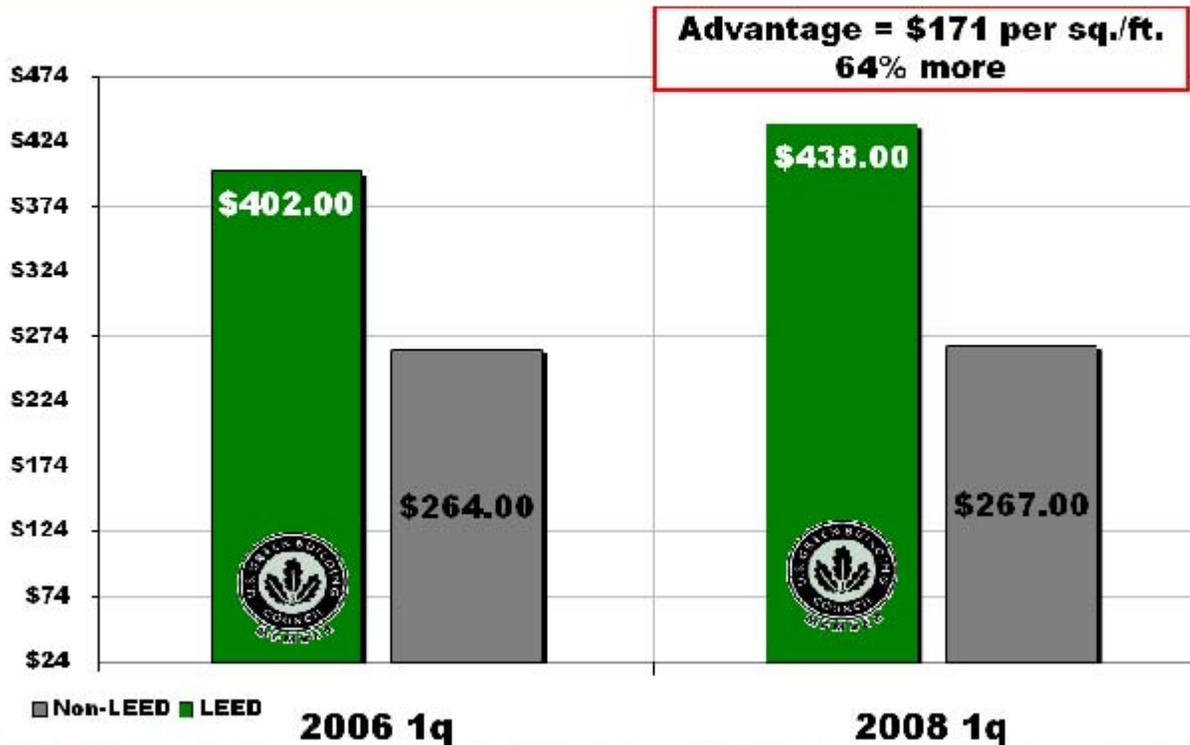
# COG Report Findings



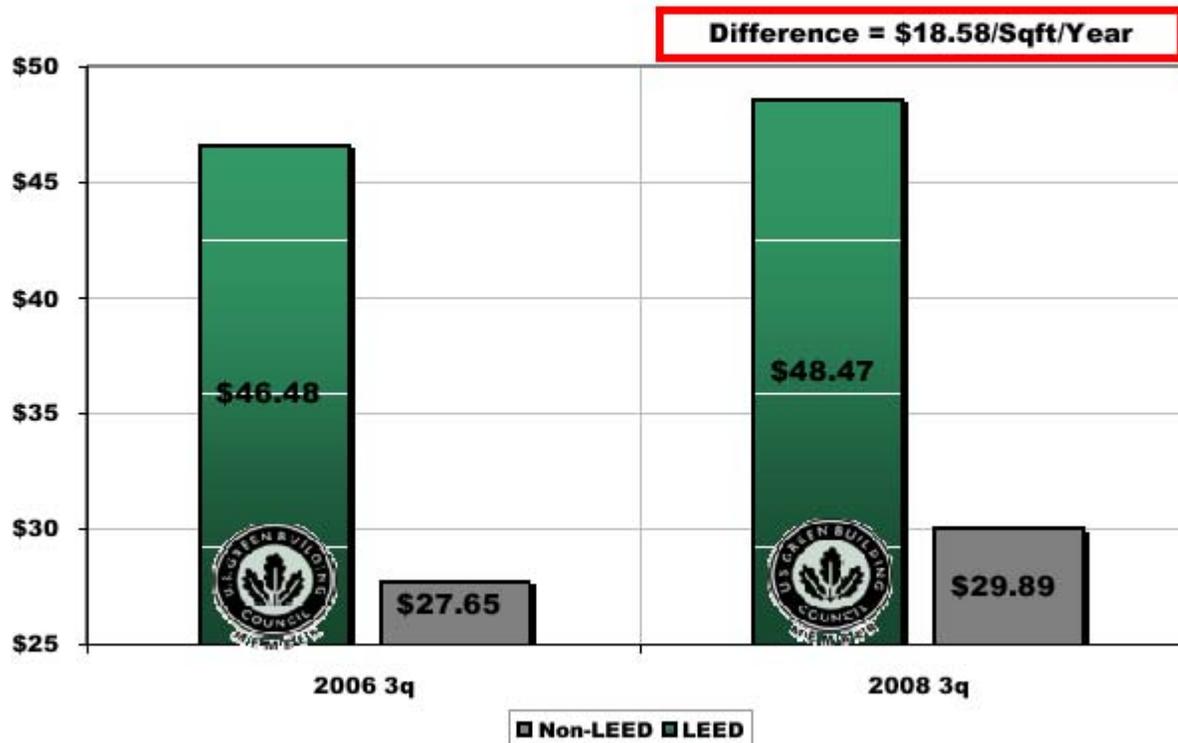
## GREEN BUILDINGS:

- Consume up to 50% less energy
- Produce 35% less CO2 emissions
- Consume 40% less water
- Produce 70% less solid waste

# LEED Rated Buildings Sales Price / Square Foot



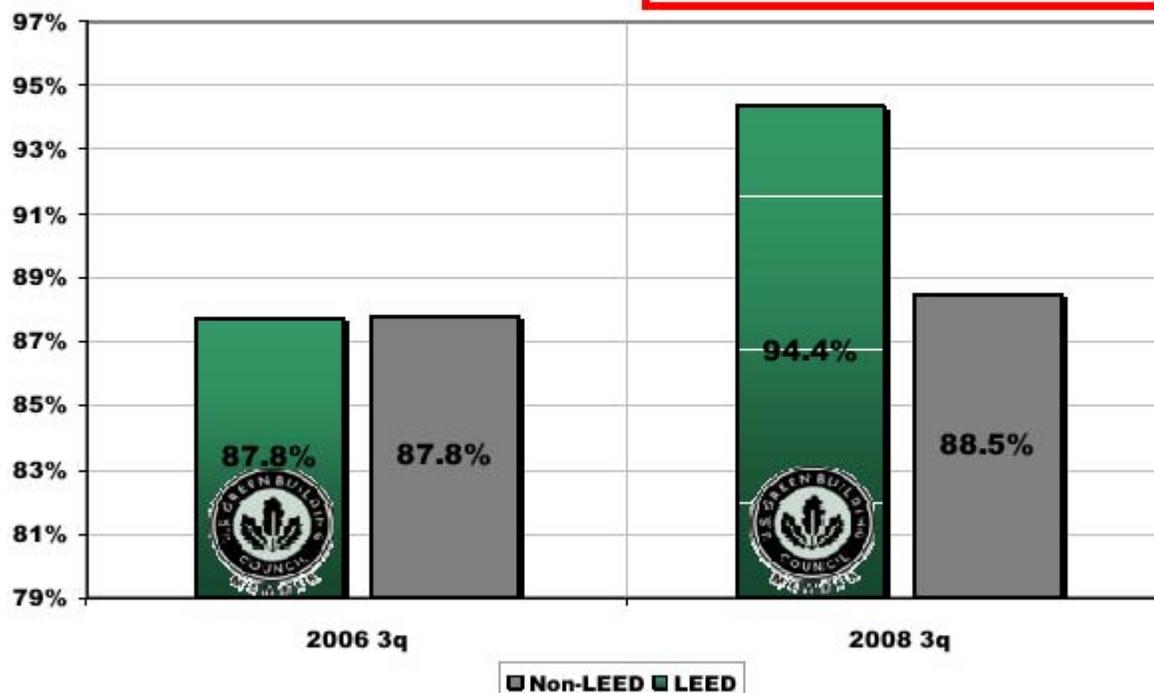
# Direct Rental Rates National



# Occupancy Rates National



**Difference = 588 Basis Points**



# Benefits of Green Building

- Environmental benefits
- Economic benefits
- Health and community benefits



# Benefits of Green Buildings

**Figure IV-2. Reduced Energy Use in Green Buildings as Compared with Conventional Buildings**

	<b>Certified</b>	<b>Silver</b>	<b>Gold</b>	<b>Average</b>
<b>Energy Efficiency (above standard code)</b>	18%	30%	37%	28%
<b>On-Site Renewable Energy</b>	0%	0%	4%	2%
<b>Green Power</b>	10%	0%	7%	6%
<b>Total</b>	<b>28%</b>	<b>30%</b>	<b>48%</b>	<b>36%</b>

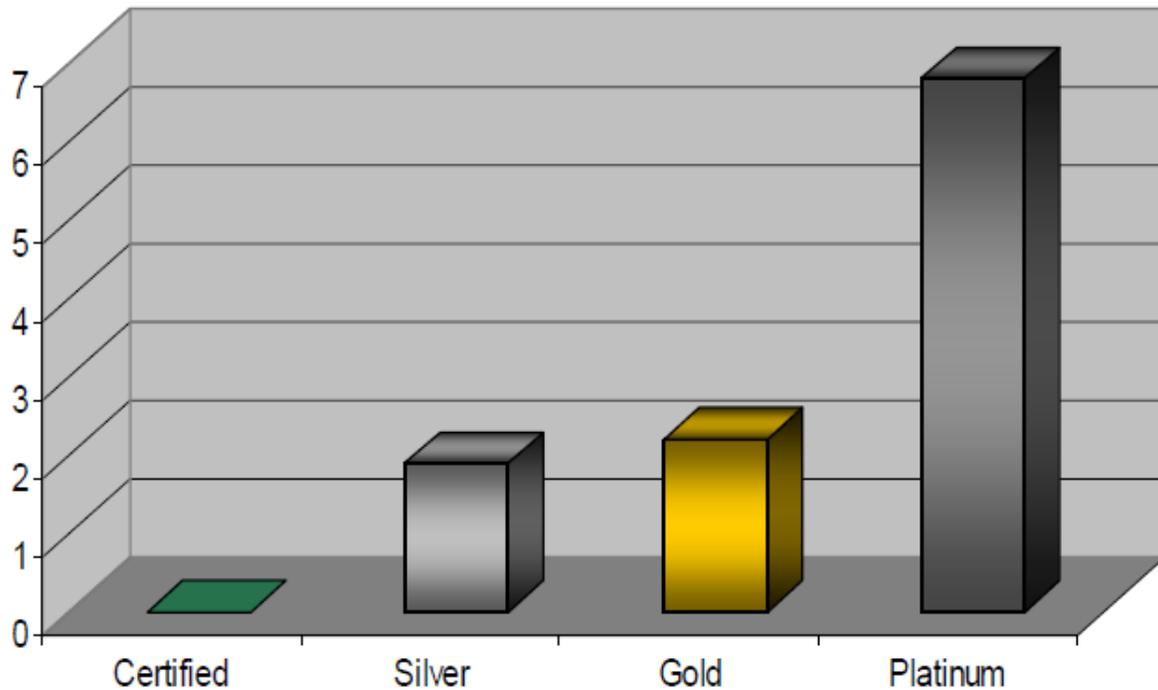
*Source: USGBC, Capital E Analysis*

# What are the Costs

Extra Costs per LEED Category to certify building in 2007

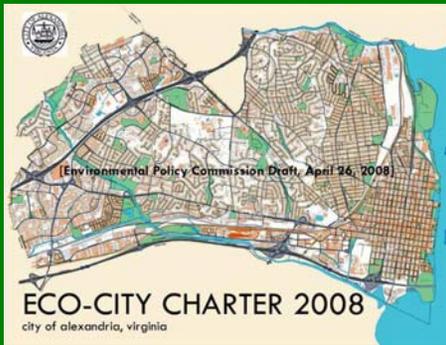
## Extra Costs in Percentage to Build Green

Source: USGBC



# The City's Commitment to Sustainable Development

- *Strategic Plan*
- *Climate Protection Agreement*
- *International Council on Local Environmental Initiatives*
- *Eco-City Alexandria*
- *Environmental Action Plan*



# The Eco-City Charter

Green Buildings Are a Key Component  
of the City's Eco-City Program

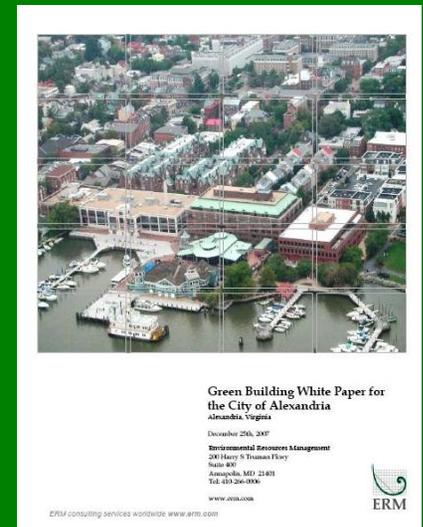
## Building Green Principles:

- Reduce overall environmental impact of new development, redevelopment, and renovation
- Integrate green building and sustainability standards into all private and public development

# Green Building White Paper

In establishing a Green Building Policy – researched:

- Green Building development standards
- Green building ratings systems
- Best practice case studies
- Implementation programs
- Outreach to development industry and community



# What is the City Doing Now

- Checklist
- LEED assessment checklist explaining how the development will voluntarily comply with LEED
- Ongoing public education



**City of Alexandria, VA**  
Green and Sustainable Building Checklist-Tracking

Project Name: \_\_\_\_\_  
Date: \_\_\_\_\_  
Address: \_\_\_\_\_  
DISUP/DSF: \_\_\_\_\_

**Sustainable Site Planning** measures

Y	N	
<input type="checkbox"/>	<input type="checkbox"/>	Brownfield Redevelopment
<input type="checkbox"/>	<input type="checkbox"/>	Alternative Transportation, Public Transportation Access
<input type="checkbox"/>	<input type="checkbox"/>	Alternative Transportation, Bicycle Storage, Changing or Shower Rooms
<input type="checkbox"/>	<input type="checkbox"/>	Alternative Transportation, First-Cut, Shared Vehicles
<input type="checkbox"/>	<input type="checkbox"/>	Alternative Transportation, Reduced Parking ratio and/or Carpooling, alternative vehicle
<input type="checkbox"/>	<input type="checkbox"/>	Reduced Site Disturbance, Protect or Restore Open Space, or Tree Canopy, minimize impervious surface
<input type="checkbox"/>	<input type="checkbox"/>	Landscaper & Exterior Design to Reduce Heat Islands, Non-Roof
<input type="checkbox"/>	<input type="checkbox"/>	Landscaper & Exterior Design to Reduce Heat Islands, Roof
<input type="checkbox"/>	<input type="checkbox"/>	Water Efficient Landscaping, use of Native Plants
<input type="checkbox"/>	<input type="checkbox"/>	Water Use Reduction, 20%-30% Reduction
<input type="checkbox"/>	<input type="checkbox"/>	Other: _____

**Sustainable Building Techniques-Materials** measures

Y	N	
<input type="checkbox"/>	<input type="checkbox"/>	Optimize Energy and Water Performance, High efficiency Mechanical, appliances, plumbing, and fixtures
<input type="checkbox"/>	<input type="checkbox"/>	Storage & Collection of Recyclables
<input type="checkbox"/>	<input type="checkbox"/>	Construction Waste Management, Divert 90%
<input type="checkbox"/>	<input type="checkbox"/>	Construction Waste Management, Divert 75%
<input type="checkbox"/>	<input type="checkbox"/>	Resource Reuse, Specify 5%
<input type="checkbox"/>	<input type="checkbox"/>	Resource Reuse, Specify 10%
<input type="checkbox"/>	<input type="checkbox"/>	Recycled Content, Specify 5%
<input type="checkbox"/>	<input type="checkbox"/>	Recycled Content, Specify 10%
<input type="checkbox"/>	<input type="checkbox"/>	Local/Regional Materials, 20% Manufactured Locally
<input type="checkbox"/>	<input type="checkbox"/>	Local/Regional Materials, of 20% others, 60% Harvested Locally

# What is LEED?

- A green building rating system
- A tool for buildings of all types and size
- Third party certification



# What types of buildings can use LEED?

LEED certification is available for all building types

- new construction and major renovation
- existing buildings
- commercial interiors
- core & shell
- schools and homes



# How does LEED work?

- Point based system
- Projects earn points for satisfying specific green building criteria
- Six categories:  
Sustainable Sites, Water Efficiency, Energy & Atmosphere, Materials & Resources, Indoor Environmental Quality and Innovation in Design
- Different levels of LEED  
Certification Certified, Silver, Gold and Platinum



# How Difficult to Meet LEED

**For new construction projects:**

**Basic certification is awarded for buildings scoring 26 to 32 points**



**Higher certification levels include:**

**LEED Silver (33 to 38 points)**

**LEED Gold (39 to 51 points)**

**LEED Platinum (52 to 69 points)**

# How Difficult to Meet LEED

<u>LEED</u>	<u>Points Possible</u>	<u>Easy Points</u>
Sustainable Sites	14	6-7
Water Efficiency	5	4-5
Energy & Atmosphere	17	0-1
Materials & Resources	13	6-8
Indoor Environmental Quality	15	5-7
Innovation and Design	5	1-2
<b>TOTAL</b>	<b>69</b>	<b>22-30</b>

- *How many LEED Accredited Professionals does it take to change a light bulb?*
- Four—one to tell you how to earn LEED points by changing it, one to change it, one to document the change, and one to deliver the check to the U.S. Green Building Council for certifying the change.

# What Are Other Places Doing

## Arlington

- LEED Scorecard
- FAR incentive
- Contribution to Green Building Fund
- Energy Star requirement
- Voluntary Green Home Choice program

# What Are Other Places Doing

## Fairfax County

- **Comprehensive Plan support**
- **LEED Certification for nonresidential and MF**
- **Energy Star for higher density**
- **Policy support for better site design**
- **Negotiated proffers**

# What Are Other Places Doing

## Montgomery County

- Development projects over 10,000 sq ft meet LEED certification or equivalent
- Developing green building implementation plan
- Going Green at Home outreach and education
- Master and Sector Plans

# What Are Other Places Doing

## DC

- LEED checklist after Jan 2009 for commercial buildings over 50,000 SF
- LEED certification after Jan 2010 for commercial buildings over 50,000 SF - public
- LEED certification after Jan 2012 for commercial buildings over 50,000 SF
- Expedited permitting

# Green Building City Projects

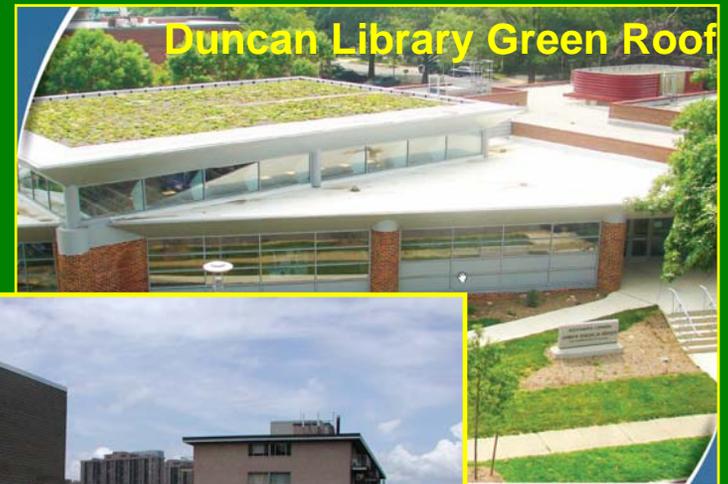
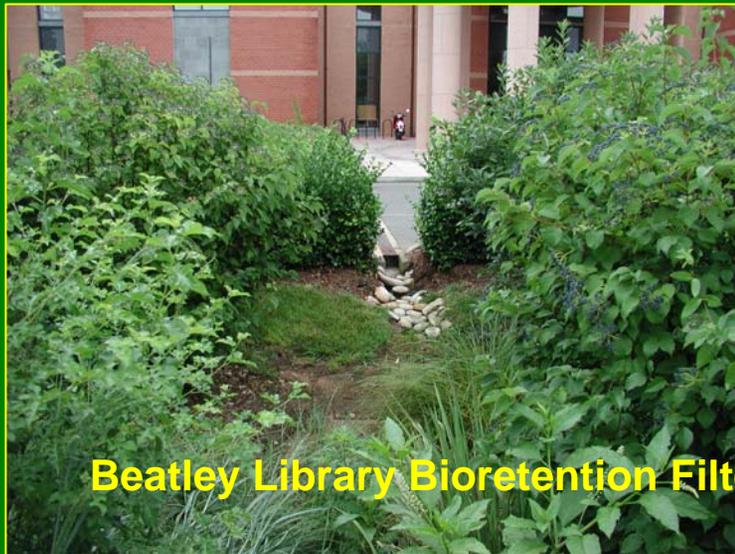
## Leading by Green Building Example

- Duncan Library
- Health Department
- T.C. Williams High School
- Glebe Park ARHA housing
- Charles Houston
- DASH facility
- Potomac Yard fire station housing
- Public Safety Center



# Green Building

- Green Building Policy for City facilities
- LEED certification goal - SILVER for City buildings
- Green roofs on Health Dept. and Duncan Library



# Green Building

- **Green building checklist since 2004 for all development projects**
- **Over 80 projects that have been subject to the checklist to date**



# Green Building Working Group

- **City Staff , Builders, Developers, Non-profit organizations**
- **Help gather information**
- **Discuss priorities and possible incentives**
- **Discuss options and opportunities**
- **Form the foundations for the Green Building Policy recommendations**

# Priorities

- **Enhance Energy Efficiency**
- **Increase Water Conservation and Reduce Storm Water Runoff**
- **Reduce the Overall Carbon Footprint**

# Green Building Policy

## Statement of Green Building Benefits

**Green buildings bring environmental and economic benefits to present and future generations**

**Green construction is favored over buildings that are not green.**

# Green Building Policy

## Policy Statement and Outreach Approach

The City will continue to lead by example

Establish a policy for new private buildings

Make efforts to educate the public

# Green Building Policy

## Leadership in Energy and Environmental Design (LEED)

The LEED rating system will typically be the green building rating system the City

It has become the industry preference, especially for commercial construction

# Green Building Standard

## For Development Site Plan (DSP) or Development Special Use Permit (DSUP)

- **Non-Residential: LEED Silver**
- **Residential: LEED Certified, LEED for Homes,  
or ANSI/ICC-700 2008 National Green Building Standard**
- **Mixed use: Each component should follow the  
applicable rating standard**
- **Approvals for CDD areas**

**ENERGY STAR systems**

# Green Building Policy

## Equivalency Acceptable

To the extent that equivalent rating systems are available and their standards can be demonstrated to be equivalent, they are also acceptable

# Green Building Policy

## Third Party Certification

Certification by independent and accredited third party professionals

Require compliance with the green standard within two years

# Green Building Policy

## Flexibility

Developments vary in size and scale and may require a more flexible approach

The Director of P&Z will consider whether special circumstances justify an exemption

Establish consistent criteria and thresholds for such alternatives based on experience with this policy

# Green Building Policy

## Innovation Encouraged

Building owners and developers are encouraged to innovate and achieve higher green building performance than the minimum set in this policy

# Green Building Policy

## Phased Approach

There are elements of the green building program that will take longer and should be implemented over time

Development of incentives for highest levels of environmental achievement

Incorporation of a sustainable sites, or holistic, approach

Calculation of financial benefits to the public from development of green buildings

# Incentives

## Possible Near Term Incentives:

- On- street parking for Flex vehicles or visitor parking
- City provided bike racks
- Other development features on city property that would assist the developer with LEED points
- Reduced parking near Metro without the necessity of SUP approval

# Incentives

## Incentives Requiring Further study

- FAR and/or building height
- Tracking or expedited processing
- Processing fee reduction or waiver
- Tax credits or rebates

# Green Building Policy

## Education and Outreach

Continue education about the benefits of and best ways to achieve green buildings

Track successes in City projects, changes in national and regional approaches to green buildings

Provide web based information, hold forums on green buildings, and generally communicate the added benefits of higher rated green buildings

# Green Building Policy

## Monitoring Progress

All building projects in the City should be monitored to report the effectiveness of this policy to the Planning Commission and City Council on an annual basis

# Green Building Forum

- **Public Forum held Jan 28**
- **Discussion of benefits of green buildings**
- **Discussion of draft policy**
- **General Comments**



# Green Building Forum

## General Comments/Questions

How does this policy differ from actual regulation?

When would the policy take effect?

How will the city address "greening" existing buildings?

Is LEED the best rating system to use?

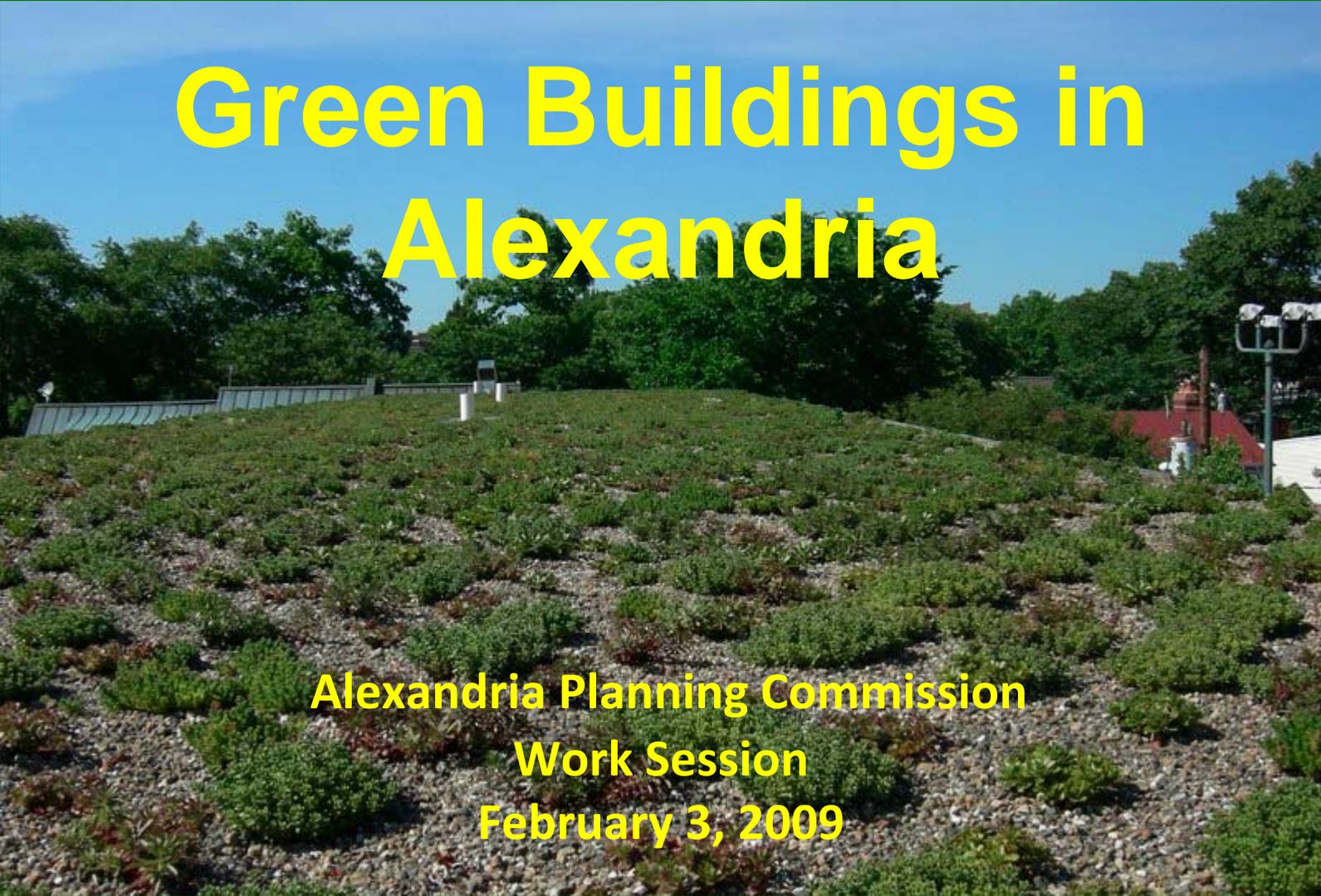
How will the City monitor and track the success of the policy?



# Next Steps

- **Continued Outreach**
- **City Council Work Session – February**
- **Policy Adoption March 2009**

# Green Buildings in Alexandria

A photograph of a green roof, likely on a building, covered in low-growing, green and brownish plants. The roof is surrounded by trees and a clear blue sky. In the background, a building with a red roof and a utility pole with two light fixtures are visible.

Alexandria Planning Commission  
Work Session  
February 3, 2009