



## **Green Buildings in Alexandria** *Policy recommendations*

January 8, 2009  
(Revised February 5, 2009 to include ANSI reference)

***DRAFT FOR COMMENT***

Department of Planning and Zoning  
City of Alexandria, Virginia  
and  
Environmental Resources Management  
Annapolis, Maryland

***Table of Contents***

Executive Summary ..... 1

Green Building Policy Statement.....2

I. Background: City as Green Building Leader.....4

II. Analysis of Proposed Green Building Policy for Alexandria.....7

    A. Green Building Benefits.....7

    B. Policy Statement and Outreach Approach.....9

    C. Leadership in Energy and Environmental Design..... 11

    D. Development Standard.....13

    E. Acceptable Equivalency .....14

    F. Third Party Certification.....15

    G. Flexibility.....15

    H. City Environmental Priorities.....17

    I. Innovation Encouraged.....17

    J. Phased Approach.....18

        1. Incentives for Green Buildings.....18

        2. Sustainable Sites Initiative.....19

    K. Education and Outreach.....20

    L. Monitoring Progress.....21

III. Conclusion: Next Steps.....21

***List of Appendices***

Appendix 1 List of Approved Green Developments in Alexandria

Appendix 2 Greening the Metropolitan Washington Region’s Built Environment

Appendix 3 ERM Green Building White Paper, December 2007 (not attached, but available on the P&Z website)

Appendix 4 Green Building Working Group members

Appendix 5 Chart Comparing Washington, D.C. Region Jurisdictions

Appendix 6 USGBC List of Green Building projects in the City

Appendix 7 Rating Systems Comparison

Appendix 8 ENERGY STAR and the Virginia Uniform Statewide Building Code

Appendix 9 USGBC’s National Summary of State and Local Government Incentives

## *Executive Summary*

Green Buildings are a major component of the City's commitment to sustainable development: the City has required that its own buildings meet high environmental standards for several years; it asks private developers to look to green solutions for their buildings. Furthermore, the City's initiatives through its Strategic Plan and *Eco-City* Charter established the broad policy foundation for a wider and stronger green building practice for the future. It is now time to become more specific, indeed more demanding, and to do so in an orderly way, announcing publicly the City's intentions to partner with the building and development community, as well as with the environmental community, to achieve lasting, superior, and sustainable development.

To accomplish the task of enunciating the City's Green Building Policy, the Department of Planning and Zoning took two steps. First, it hired ERM—Environmental Resources Management, environmental and policy experts, to investigate and report on green building development standards and programs elsewhere and on Alexandria's options for moving ahead with a vigorous green building program.

Second, P&Z formed the Green Building Working Group in order to learn from and to involve the development industry and the community in the work of formulating a City policy. The development industry was helpful in providing staff with a sound understanding of the practical and financial realities in the field. Community and environmental representatives were instrumental in aligning the Green Building work with that of the Environmental Policy Commission and the Eco City process. The combination of voices makes for a strong, dynamic partnership for the environmental challenges that face Alexandria.

As a result of the work of ERM and the Working Group, staff is recommending the Green Building Policy outlined on the following two pages. Participants in the work have not achieved complete consensus on each and every detail. Nevertheless, there is general agreement on the approach and components necessary for a strong and effective policy statement.

Overall, the proposed policy establishes baseline green building standards for both private and public sector construction and provides a framework for the implementation of these standards. The policy is intended to enhance the public health, safety and welfare of residents, workers, and visitors by fostering practices in the design, construction, materials and maintenance of buildings that will minimize per capita energy use, provide energy from renewable sources, divert waste from landfills, use less water and other resources and encourage the use of recycled wastewater in the City of Alexandria. Green building practice also encourages buildings to be located close to public transportation and services and provides amenities that encourage walking and bicycling and therefore offers further potential to achieve a healthy, environmentally sustainable city. The recommended Green Building Policy is intended to advance the sustainability strategies outlined in the City's *Eco-City* Charter and proposed Environmental Action Plan. Given the City's overall environmental policy framework and after the analytical work of the last 18 months, staff recommends adoption of the following Green Building Policy.

## DRAFT GREEN BUILDING POLICY

**Green Building Benefits.** Green buildings bring environmental and economic benefits to present and future generations of the citizens of this City and the region. Even in a developed city with significant historic character, “green” construction is favored over buildings that are not green.

**Policy Statement and Outreach Approach.** The City does not have the legal power to adopt a new code to mandate its Green Building Policy, nor is that approach necessarily desirable. Instead, the City will continue to lead by example through its own public buildings, establish a policy for new private buildings and will make efforts to educate the public, especially the building and development community, about the benefits of green buildings. The City will also take a leadership role to mandate sustainable design for all public buildings.

**Leadership in Energy and Environmental Design.** The LEED rating system will typically be the green building guide and rating system used as a standard for development in the City because it has become the industry preference, especially for commercial construction.

**Development Standard.** Public and private development that requires a Development Site Plan (DSP) or Development Special Use Permit (DSUP) should achieve the following green building standard:

1. *Non-Residential:* LEED Silver.
2. *Residential:* LEED Certified, LEED for Homes, or ANSI/ICC-700 2008 National Green Building Standard.
3. *Mixed use:* Each component should follow the applicable rating standard.
4. *Coordinated Development Districts:* Approvals for CDD areas yet to be developed will incorporate these standards.

In each case, applicable ENERGY STAR systems should be incorporated.

**Equivalency Acceptable.** The above standards provide a performance goal for development. However, to the extent that equivalent rating systems are available and their standards can be demonstrated to be equivalent to the satisfaction of the Director of Planning and Zoning, they are also acceptable.

**Third Party Certification.** Certification of compliance with green building standards will be provided by independent and accredited third party professionals retained by the applicant and approved in advance by the Director of Planning and Zoning. The City will require the applicant to achieve the green standard approved in its development application within two years of issuance of a certificate of occupancy.

**Flexibility.** The above standards are applicable to all development subject to a site plan or DSUP. The types and scale of developments within each category vary greatly, however, and

certain building types (for example, medical, hotel, industry, affordable housing, historic buildings, churches, redevelopment of small retail or restaurant establishments, and renovations or small additions to existing buildings) may require a more flexible approach. The Director of Planning and Zoning will consider whether special circumstances in the size, scale, location or use of the building justify an exemption or alternative method of compliance with City policy on a case by case basis and will strive to establish consistent criteria and thresholds for such alternatives based on experience with this policy.

**City Environmental Priorities.** In assessing compliance with the above standards, including as a matter of equivalency and of flexibility, priority elements in the project's design and construction are those which:

- enhance energy efficiency
- increase water conservation and reduce stormwater runoff, and
- reduce the overall carbon footprint.

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

**Phased Approach.** While it is important to establish this policy and implement its critical elements immediately, there are also elements of the green building program that will take longer and will look to the evolving green building industry, and those elements should be implemented over time. Examples of future work include the development of incentives for applicants who reach the highest levels of environmental achievement; incorporation of a sustainable sites, or holistic, approach; and the calculation of financial benefits to the public from development of green buildings.

**Education and Outreach.** This key element of the City's approach to green buildings requires a partnership with the community, especially the building and development industry, as it and the City continue their effort to educate themselves and others about the benefits of and best ways to achieve green buildings. Together, they should track successes in City projects, changes in national and regional approaches to green buildings, advances in technology, and economic savings on individual projects as well as for public infrastructure systems. They should also provide web based information, hold forums on green buildings, and generally communicate the added benefits of higher rated green buildings to the community. The City will work collaboratively with environmental organizations and the building industry to recognize, award and publicize green building efforts in the City.

**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 POLICY FOR THE CITY OF ALEXANDRIA**

Building “green” is an approach to building design, construction and management that reduces or eliminates the negative impact of buildings on the environment while promoting enhanced building performance and occupant health. Green Buildings use less energy, consume less water, generate fewer air pollutants and provide healthier indoor environments.

This report has been prepared to consolidate the thoughts, analysis, and experience of experts in the green building field, as well as of a group of local practitioners – builders, architects, environmentalists, and policy analysts -- with those of city staff about the best approach for the City of Alexandria as it moves forward in the 21<sup>st</sup> Century to implement “green” policies for its built environment.

## **I. BACKGROUND: CITY AS GREEN BUILDING LEADER**

### **A. City and Regional Policy Framework**

The City of Alexandria is among a number of jurisdictions in the forefront of environmental change. It has established policies and taken real steps to become a sustainable City into the 21<sup>st</sup> Century.

*Strategic Plan:* City Council’s Strategic Plan for 2004 to 2015 includes several elements relative to sustainable development and green buildings. The goals, objectives, and policy actions from the Plan include emphasis on environmentally sensitive development, on becoming less dependent on the automobile and on improving air and water quality in Alexandria.

*Climate Protection Agreement:* Mayor Euille endorsed and signed the 2005 U.S. Mayors Climate Protection Agreement along with 278 other mayors from 43 states representing a total population of 48.5 million citizens. The agreement commits Alexandria to meeting or exceeding the Kyoto Protocol greenhouse gas reduction targets through the use of local land use planning, urban forest restoration, public outreach campaigns, and other reduction strategies.

*International Council on Local Environmental Initiatives:* In January 2008, the City adopted a resolution to join the International Council on Local Environmental Initiatives (ICLEI), a membership association of 1,000 local governments committed to advancing climate protection and sustainable development. As part of the ICLEI membership requirement, City staff is developing a City-wide greenhouse gas (GHG) emissions inventory. Upon completion of the emission inventory, the City will create a Climate Action Plan to become part of the *Eco-City/Environmental Action Plan*.

*Eco-City Alexandria:* With the assistance of Virginia Tech’s Urban Affairs and Planning program, the City embarked on the *Eco-City* project which established a new environmental policy framework for the City. Approved in June 2008, the City’s *Eco-City* Environmental Charter outlines the City’s guiding principles, vision, and overall environmental future, including regarding sustainable development policy.

Environmental Action Plan: An Environmental Action Plan, to serve as the road map for city leaders, staff, and citizens to implement the principles of the *Eco-City* Environmental Charter, is proposed for adoption by Council. Phase One of the Action Plan is slated for adoption by City Council in early 2009 and Phase Two by summer of 2009. The proposed Phase One Environmental Action Plan includes a section of goals and actions relative to green buildings. The Green Building Policy recommended in this report is consistent with these Phase One goals and actions.

Leading by Green Building Example: The City has committed to build new city facilities as green buildings in order to increase energy efficiency, save city financial resources, reduce the environmental impacts of demolition, construction and operation of buildings, and create healthy, productive workplaces for city employees and visitors. The list of public buildings that include green elements is long and includes:

- 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

Staff has established LEED-Silver as the requirement for new municipal building construction, and three buildings are on track to meet or exceed that goal—the Charles Houston Recreation Center (LEED Silver), the DASH Bus Maintenance Facility (LEED Silver), and the Alexandria Police headquarters building (LEED Gold). The City encourages lifecycle analysis of its public projects under its green building policies and contract requirements for services and commodities have been realigned to favor green products, such as paints, lights, carpet, and other products. Service providers and contractors with LEED certification are preferred on these municipal projects. The General Services Department Director and the Capital Projects Division Chief are already LEED accredited, and two project managers are training for their accreditation – one in Commercial Interiors and one in Existing Buildings – two specific LEED rating systems.

Private Green Building Development: The City’s green building experience has been an important catalyst for private development, demonstrating how public sector projects can reach high levels of environmental performance. Building on these efforts, the City has been working with private developments especially within the last three years to incorporate LEED and comparable certification levels into most major recent projects. For several years, all major development applications have been reviewed for compliance with an established checklist of environmental factors, applicants have been given information on recycling building materials, and approvals have included conditions requiring such green elements as green roofs, cisterns, and energy efficient appliances. While the checklist and guidelines are voluntary, Staff and applicants negotiate to achieve the highest number of LEED or equivalent points as possible, and the City’s efforts have resulted in a long list of recent green projects. Appendix 1 to this report lists development in the City – both public and private – approved in recent years with strong green and sustainable building elements.

Washington Metropolitan Council of Governments: COG has taken a leadership role in the region as to sustainability generally and Green Buildings in particular. In its December 2007 report, *Greening the Washington Metropolitan Region's Built Environment* (attached as Appendix 2), COG establishes a standard for green buildings and recommends consistency across jurisdictions in the region. Specifically, COG is recommending that LEED become the region's preferred green rating system for new commercial construction and for high-rise residential projects, citing the fact that most localities in the region already use LEED as a guide if not a mandatory system. COG recommends that public projects achieve a LEED-Silver standard and that commercial and high rise residential projects achieve a LEED-Certified standard.

## **B. Establishing a Long-Term Green Building Policy**

### Green Building White Paper

It was within this strong policy framework, in July 2007, that the Department of Planning and Zoning hired ERM—Environmental Resources Management to undertake a thorough investigation of Green Building development standards, best practice case studies, and implementation programs, and then formulate a recommended course of action. ERM's initial work resulted in *The Green Building White Paper for the City of Alexandria*, December 25<sup>th</sup> 2007 (Appendix 3). The ERM White Paper includes detailed information about green building rating systems, case studies from other jurisdictions, and practical advice with regard to establishing a Green Building Policy for Alexandria. One of the major recommendations of the White Paper was that the City should reach out to the development industry and the community to develop a sound understanding and reinforce its commitment to green building and sustainable development in the city.

### Green Building Working Group

A working group consisting of city staff from relevant departments, builders, developers, and not-for-profit organizations was established in 2008, and its members participated in a round of facilitated meetings, in order to lay the foundations for the Green Building Policy recommendations contained in this report. A list of the working group members and the organizations they represent is included in Appendix 4 of this report.

The Green Building Working Group was established by the City to help gather information, practical experience and an understanding of the market, and to move toward a working partnership among the City, the community and the building industry as the City creates and implements its Green Building Policy. The Working Group has proven invaluable as a policy research and conceptualization vehicle. It brought a cross section of city officials together to work both within and beyond the working group. Likewise an influential group of development industry and community leaders invested their time and effort in the opportunity to contribute to this public policy formulation process. A full spectrum of views about desirable green building development codes, incentives, and the range of development that should be targeted was expressed in the course of the working group's deliberations. While unanimous agreement on all points was never anticipated, discussion and debate has resulted in a healthy understanding and respect of all party's perspectives.

## **II. ANALYSIS OF PROPOSED GREEN BUILDING POLICY**

The proposed Green Building Policy for Alexandria contains a series of elements that, taken together, amount to a formal program for evaluating the environmental achievements of development within the City while allowing for flexibility as to types of buildings and location, and also allowing for growth and change as green building knowledge and evaluation evolves in the future. Each component of the two page policy (above at pp. 2-3) is restated below and explained in greater detail.

### **A. Benefits of Green Buildings.**

*Green buildings bring environmental and economic benefits to present and future generations of the citizens of this City and the region. Even in a developed city with significant historic character, “green” construction is favored over buildings that are not green.*

It is an understatement to recognize that Alexandria faces significant real estate development and building challenges over the next two decades. The City projects that by 2030 it will add another 35,232 residents (26% increase) and another 35,755 jobs (34% increase) over 2005 figures. The United States Department of Interior has forecast that 75% of all U.S. buildings will be built new or renovated by 2035. The Environmental Protection Agency has reported that building construction, maintenance, and disposal account for:

- 12% of potable water use;
- 39% of primary energy use;
- 70% of electricity consumption;
- 40% of all raw materials extraction; and,
- 38% of carbon dioxide emissions.

If the forecasted future development follows the unsustainable model that has characterized much of the conventional United States urban development to date, then the City will face major costs in necessary services, infrastructure and city administration and to its quality of life. Sustainable development which applies green building practice can reduce or eliminate the negative impact of buildings on the environment while promoting enhanced building performance and occupant health—thereby creating a civic asset rather than an on-going liability.

Green building practices provide both site specific and citywide benefits through savings in energy, resource use, and through the reduction of outdoor and indoor pollutants. And the avalanche of new green building projects in recent years has begun to provide significant data about the benefits of green buildings. In general, green buildings:

- Consume 30% to 50% less energy;
- Produce 35% less in carbon dioxide emissions;

- Consume 40% less water; and,
- Produce 70% less solid waste
- Improve public health and building occupant productivity.

Green buildings create economic efficiencies for building owners and operators, increase real estate value, and reduce the tax burden by using existing urban infrastructure more efficiently and through load reduction, and reduce otherwise urgent and expensive infrastructure upgrading.

**Figure ES-1. Financial Benefits of Green Buildings  
Summary of Findings (per ft<sup>2</sup>)**

Category	20-year NPV
Energy Value	\$5.79
Emissions Value	\$1.18
Water Value	\$0.51
Waste Value (construction only) - 1 year	\$0.03
Commissioning O&M Value	\$8.47
Productivity and Health Value (Certified and Silver)	\$36.89
Productivity and Health Value (Gold and Platinum)	\$55.33
Less Green Cost Premium	(\$4.00)
<b>Total 20-year NPV (Certified and Silver)</b>	<b>\$48.87</b>
<b>Total 20-year NPV (Gold and Platinum)</b>	<b>\$67.31</b>

*Source: Capital E Analysis*

A General Services Administration (GSA) survey of 12 of its green buildings found the following specific benefits:

- 26% less energy usage than national average (65 kBtu/sf/yr vs. 88 kBtu/sf/yr);
- 13% lower aggregate maintenance costs than the national average (\$2.88/sf vs. \$3.30/sf);
- 27% higher occupant satisfaction than the national average;
- 33% fewer carbon emissions than the national average (19 lbs/sf/yr vrs. 29 lbs/sf/yr)
- Two LEED-Gold buildings in the study consumed 54% less water than the national average.

A recent study by Rob Watson of Greener Buildings found that since the inception of LEED, more than half of New Construction and Core and Shell projects have delivered at least a 30% water reduction, with 20% savings from Existing Buildings Operations & Maintenance, while almost 90% of NC and CS projects have achieved 50% reduction in water use for landscaping.

Last year, a New Buildings Institute (NBI) report, released in 2007 and updated in 2008, found that LEED buildings in various occupancy categories saved 25% to 30% of measured energy compared to average commercial energy consumption figures reported by the Department of Energy.

**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*

Based on the above data, there is a clear benefit to the environment from green buildings. That fact has been recognized by the City and the region, by GSA and by many other jurisdictions who are adopting standards and policies to drive future building practice.

It is important to acknowledge that some green building features and systems can result in added initial design and construction costs. Current industry estimates range from a 0-2% cost increase for LEED Certified buildings, to a 2-3% for LEED Silver buildings and a 3-5% for LEED Gold buildings. A USGBC study of 33 buildings in all categories found an average cost increase of 1.84%. However, each project has a unique set of factors including size, location, LEED certification level, project credits, timing, architecture and a host of other items that will determine specific project cost. Trends show that costs for green buildings are decreasing as the market continues to grow and mature. It is expected that these costs will decrease even further as designers, builders, subcontractors and manufacturers gain experience in an expanding market. It is not the intent of the proposed Green Building Policy to create a hardship for the construction industry. Rather than seeing green building features as an added cost element, green features should be recognized as a way to increase the building's value for owners and developers by lowering operating costs and providing a more desirable environment for occupants.

## **B. Policy Statement and Outreach Approach**

*The City does not have the legal power to adopt a new code to mandate its Green Building Policy, nor is that approach necessarily desirable. Instead, the City will continue to lead by example through its own public buildings, establish this policy for new private buildings and will make efforts to educate the public, especially the building and development community, about the benefits of green buildings. The City will also take a leadership role to mandate sustainable design for all public buildings.*

A key issue for the City is the *type* of policy that is most appropriate, given its historic character, its neighborhoods, its development process and its relationship with the building and development industry. One component of the analysis leading to the proposed policy was a close look at what other jurisdictions across the country and the region have been doing with regard to green buildings. ERM's Green Building White Paper is devoted to case studies of the following

jurisdictions, including a discussion of their green building programs, the review process, and the applicability to Alexandria.

Arlington County, Virginia  
Fairfax County, Virginia  
Montgomery County, Maryland  
Normal, Illinois  
Pasadena, California  
Portland, Oregon  
Scottsdale, Arizona  
Seattle, Washington

In addition, ERM has researched and compiled a comparison chart of 12 jurisdictions in the Washington region, which is attached as Appendix 5.

A review of other jurisdictions in the nation and the region shows that some are moving toward a mandatory regulatory approach, adopting an ordinance that sets out specific requirements for different building and development types. Montgomery County is an example, where a new ordinance mandates LEED certification for all private development over 10,000 square feet. On the other hand, Virginia law limits Alexandria's options, similar to in the affordable housing field, so that a mandatory regulatory scheme would likely apply only to those cases including a density bonus, thus limiting the scope of green building practice. While the City could ask Richmond for assistance, that effort would take time and might not be successful. Furthermore, the building and development industry is not supportive of a legislative change. Staff also notes that an ongoing process, outlined in Appendix 6, proposes changes to the Virginia Uniform Statewide Building Code (USBC), so that it embraces green building technology.

In formulating the recommended green building approach for the City four options were considered:

*The Status Quo:* Taking no action to formulate a policy was not seriously considered viable because it puts at risk the City's competitive position and livability standards.

*Own Code, Entitlement and Enforcement:* This option anticipates that the City would not rely on an independent rating system, such as LEED, but would create its own standards, covering the range of typical Alexandria development cases, and Alexandria's own technical solutions and rating system for energy efficiency, water retention, and other environmental goals. It would require a significant budget allocation for drafting and keeping the code current, together with the high cost of staff to administer and enforce the code. This option was determined to be unnecessarily expensive, not cost effective, and unnecessary given market trends and the high standard of available existing green building codes and certification.

*Ordinance but Third Party Option:* As a variation, the City could adopt a mandatory regulation but reference an existing, independent rating system for the substantive requirements of the program and rely on third party verification instead of using trained staff to administer and review applications. Given the legal restrictions limiting a mandatory scheme to those projects that qualify by being approved for density bonuses, this option was found to severely limit green

building practice. Such an approach has been adopted in other jurisdictions and may eventually become more appropriate in the City of Alexandria.

*Policy and Outreach Option:* This option is the one that has been chosen by staff and embraced by the Green Building Working Group. It involves the adoption and application of a strong policy statement that announces standards for development, based on existing independent rating systems. It requires verification by accredited third parties. The policy also relies on education and outreach in the building and development community as well as with the public at large to share knowledge about the benefits – both environmental and financial – of green buildings.

The Working Group agreed that a simple statement, one that could be adopted and implemented immediately, that minimizes cost and staff burden, and that provides flexibility in its approach to a variety of uses and building types would be the best course for the City. In addition, the green building field is fluid and will change. Thus, the policy must be flexible and phased. Finally, it was important to the Working Group that the policy should be one that encourages cost-effective innovation in a period where green building solutions are evolving at a rapid pace.

No new taxes, development levies, or additional permit fees are proposed at this time to cover the cost of this program. Initial emphasis is on third party partnership and on green building outreach and education. Significant resources have not been devoted to a complicated compliance, enforcement, and penalty system at this time, in anticipation that the building and development industry will act in its own interest. If circumstances prove otherwise over time, then this approach can be revisited and refined as necessary.

### **C. Leadership in Energy and Environmental Design.**

*The LEED rating system will typically be the green building guide and rating system used as a standard for development in the City because it has become the industry preference, especially for commercial construction.*

Staff is recommending that the City use LEED as the typical rating system by which to review projects subject to the City's Green Building Policy. While additional rating systems are included for residential development, and equivalent systems may be recognized (see below), the City should recognize LEED as the strong industry and government preference, especially for nonresidential buildings.

LEED is a green-building rating system developed by the United States Green Building Council (UDGBC) that includes mandatory requirements for factors such as energy and water efficiency. The rating system awards additional points for criteria in the following six categories:

- Sustainable Sites
- Water Efficiency
- Energy and Atmosphere
- Materials and Resources
- Indoor Air Quality

The resulting point total determines a building's final rating. 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), and LEED Platinum (52 to 69 points). It is not difficult to achieve 30 points under the LEED system. Outside analyses have found that of a potential 69 points, some 26-30 points are relatively easy to achieve.

<b>LEED</b>	<b>Points Possible</b>	<b>Easy Points</b>
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>

The LEED system is the clear preference to incorporate into the City’s Green Building Policy for a series of reasons. First, it is a robust, independent system, administered by the USGBC, and already in the process of an important update. It can be incorporated into the City’s system by reference and implemented without cost, staff training or further effort. LEED has been used widely throughout the United States and has been adopted by many federal programs as well as by other cities. The City has already adopted LEED for its own public building projects and several staff members are already LEED accredited or in the process of achieving LEED accreditation. COG has recommended that LEED be adopted as the preferred building rating system for buildings in the Washington Metropolitan region. As evidence of its widespread application, in late 2007, the USGBC listed 18 Green Building projects within the City of Alexandria that were applying for LEED certification. See Appendix 6 for list of LEED registered buildings in City of Alexandria.

The LEED system is especially suited to Alexandria because it is sensitive to the challenges of applying its standards to historic buildings, and USGBC has developed workshops to assist designers to apply LEED concepts to historic projects. LEED is a holistic approach, recognizing everything from locational and site characteristics and transportation impacts to energy efficient utility systems. It includes subsets of standards for different types of buildings, including building renovations, and has systems for both residential and nonresidential development.

The LEED system for analyzing and rating green building practices has become an industry leader but there are many green building rating systems in various development stages throughout the world. Therefore, a principal task of the work of the City’s consultant and the Working Group has been to review existing green building codes and rating systems and determine the most appropriate for Alexandria at this time. The Green Building Working Group included members who had a practical experience and knowledge of LEED, NAHB Green Home Building Guidelines, Earth Craft House, Green Communities, Green Globes, and ENERGY STAR. A comparison of different rating systems can be found at Appendix 7.

#### **D. Development Standard.**

***Public and private development that requires a Development Site Plan (DSP) or Development Special Use Permit (DSUP) should achieve the following green building standard:***

- 1. Non-Residential: LEED Silver.***
- 2. Residential: LEED Certified, LEED for Homes, or ANSI/ICC-700 2008 National Green Building Standard.***
- 3. Mixed use: Each component should follow the applicable rating standard.***
- 4. Coordinated Development Districts: Approvals for CDD areas yet to be developed will incorporate these standards.***

***In each case, applicable ENERGY STAR systems should be incorporated.***

This element of the proposed Green Building Policy addresses the specific expectations for buildings under the policy and identifies specific rating systems for nonresidential and residential development as well as the specific level of certification expected. The policy statement applies equally to public and private development and identifies projects that require a DSP or DSUP as those to which the policy applies. Smaller projects, such as a simple house addition, which do not require Planning Commission or City Council approval, will not be subject to the policy.

While LEED is the rating system cited as the standard for nonresidential development, the policy includes alternatives of LEED Certified, LEED for Homes, or ANSI/ICC-700 2008 National Green Building Standard for residential development, thus recognizing that there are equally appropriate alternative systems. The policy recognizes that mixed use development includes both forms of development, and applies the relevant standard to the applicable portion of the project. As to CDD development, the proposed policy looks forward to future developments within those areas and states that those projects are expected to achieve the stated standards.

#### **Energy Star**

Energy Star is an additional requirement and refers to a system developed by EPA for achieving energy efficiency in buildings. It provides strategies, tools and professional assistance to help buildings and industrial plants improve energy efficiency and it is estimated that Energy Star buildings use about 35 percent less energy than average buildings. More than 3,200 buildings in all 50 states representing near 575 million square feet have earned the Energy Star label. It is included as an additional requirement. Appendix 8 gives additional background on the ENERGY STAR system as well as the process by which the Virginia Uniform System of Building Codes is being updated to incorporate green elements. The foundation of these proposed policy recommendations was presented to the City of Alexandria Environmental Policy Commission at its September 2008 meeting. The Commission was generally supportive of the approach and sought the incorporation of Energy Star ratings compliance as part of the policy.

#### **LEED-Silver vs. LEED-Certified**

While the Working Group was relatively comfortable with the overall approach, there was no consensus about the specific LEED standard for non-residential development to include in the Policy. Although Staff is recommending LEED-Silver, there was a healthy debate within the

Working Group, voiced by developer representatives, about whether LEED-Certified, which is easier to attain, was not more appropriate. Some development representatives were clear that they believe the City should require only the LEED-Certified level and, if more environmentally friendly elements were desired, the City could provide assistance to make up the difference.

On the other hand, the federal General Services Administration is requiring LEED-Silver for its buildings, and Alexandria, like other cities, is requiring LEED-Silver for its public facilities. Furthermore, the City's own recent experience with private developers as well as experience elsewhere shows that the market is moving towards, and already achieving, LEED-Silver buildings with some regularity. Although COG has recommended LEED-Silver for public buildings and LEED-Certified for private commercial and high-rise development, Arlington County requires LEED-Silver for private nonresidential development. Staff notes that there are also higher LEED levels attainable, namely Gold and Platinum, which the City hopes to achieve at some point in the not too distant future. If the City were to adopt a Green Building standard lower than what many developers now currently achieve for nonresidential buildings, it would send the wrong message about the City's commitment to both equity and green building. Therefore, staff maintains its recommendation that the City's policy statement set LEED-Silver as its standard for non-residential development.

#### **E. Acceptable Equivalency.**

*The above standards provide a performance goal for development. However, to the extent that equivalent rating systems are available and their standards can be demonstrated to be equivalent to the satisfaction of the Director of Planning and Zoning, they are also acceptable.*

It is clear that, while LEED is a widely used rating system, there are others in existence and still more being developed. The green building industry and practice is fluid. The future may see many more alternative systems evolve for achieving high levels of sustainability in building. It is also true that there are varied development projects that come before the City as DSP and DSUP cases. Thus staff as well as the Working Group found it important to make clear in the policy that, although specific rating systems are stated as the standard for the City, a different model may be acceptable.

Under the proposed policy, if an applicant can demonstrate that an alternative system or approach is the "equivalent" of the stated policy standard, then the Director of Planning will consider and may accept it. This approach provides for evolution and development of alternative green building solutions which may better suit a particular development. It should also promote innovation and provides the building and development industry with flexibility.

## **F. Third Party Certification.**

*Certification of compliance with green building standards will be provided by independent and accredited third party professionals retained by the applicant and approved in advance by the Director of Planning & Zoning. The City will require the applicant to achieve the green standard approved in its development application within two years of issuance of a certificate of occupancy.*

To assist both staff and developer applicants, the proposed Green Building Policy includes a certification requirement. Independent, accredited third party verification will be a key component of the implementation of the policy. It is therefore important, as part of the City's stated policy, to alert the building and development community about the need to include an accredited third party professional as part of a development team at the outset of the process. Although some development companies hope to become accredited by LEED, those companies will still require outside independent verification.

Even prior to the submission of a DSUP or site plan, the applicant should enlist the services of a third party certifier to advise it and the City about how the proposed development is going to comply with the relevant green building rating standard as specified by the policy. A report specifying that compliance and the steps to be taken will be required as part of the DSUP or site plan application, together with the name and full contact details of the accredited third party certifier and the green building system which has been used in conceptualizing the project, written certification of the steps that have and are proposed to be taken to secure certification within two years of the date of issue of a certificate of occupancy for the project, and an endorsement of the written certification by the applicant.

After a project is complete, as a pre-requisite to and immediately prior to the issuance of the certificate of occupancy, both the certifier and applicant will confirm in writing that all necessary steps have been taken, procedures followed and building practices effected to secure the third party green building accreditation within two years of the date of issue of the certificate of occupancy. Then, prior to the expiration of two years from the date of issue of the certificate of occupancy the certifier, applicant and building owner will furnish to the city a copy of the accredited third party certification. In lieu thereof, they may furnish such documentation to the absolute discretion and satisfaction of the Director of Planning and Zoning that demonstrates there has been substantial compliance with this policy.

## **G. Flexibility.**

*The above standards are applicable to all development subject to a site plan or DSUP. The types and scale of developments within each category vary greatly, however, and certain building types (for example, medical, hotel, industry, affordable housing, historic buildings, churches, redevelopment of small retail or restaurant establishments, and renovations or small additions to existing buildings) may require a more flexible approach. The Director of Planning and Zoning will consider whether special circumstances in the size, scale, location*

*or use of the building justify an exemption or alternative method of compliance with City policy on a case by case basis and will strive to establish consistent criteria and thresholds for such alternatives based on experience with this policy.*

The proposed Green Building Policy recognizes that for certain development applications there will be challenges to achieving green building certification. While all site plan and DSUP projects will be subject to this new green building standard, there are certain projects that, because of their size or type of development, may not be suited to full compliance with the standard. In a near-completely developed City with historic attributes, there are any number of known and unforeseen circumstances that could work to make compliance with the green building development standard a challenge. Smaller projects that require DSUPs, such as the redevelopment of small restaurants or retail establishments, or small additions to existing buildings may need special attention. Projects may include historic buildings or unique uses, such as a small hotel, medical facility, or industrial use. Finally, financial constraints, such as in the case of a church or affordable housing, may create justifiable obstacles.

The proposed policy therefore allows applicants to request a flexible approach and allows the Director of Planning and Zoning to review requests on a case by case basis and to determine the appropriate level of green building compliance for each. The Director will evaluate the viability of achieving green building certification for these building types and, in so doing, will consider special circumstances, resources, or projects where there is demonstrable hardship or infeasibility imposed by the new Green Building Policy and grant an exemption or alternative method of compliance. The Director will consider the particular circumstances of the project to determine if the Green Building Policy may be waived or a less stringent standard may be applied.

While there was near universal support within the Working Group for a policy that allowed for flexibility, there was also significant and understandable concern with the range of discretion the proposed language affords. Working Group members as well as Planning staff expressed concern about not knowing beforehand the parameters of those cases where exception to the standards would be appropriate. On the other hand, several ideas were suggested about how best to move forward in this context. First, staff feels strongly that not providing some reasonable discretion in the administration and compliance with green building requirements in the early years of the program would make the orderly transition to green building outcomes more problematic than it should be. The last four years of development review with regard to a green building checklist gives staff an appreciation of the variety of cases it will see in the future, the wide range of application of green technology and the ability of staff and applicants working together to fashion unique solutions for exceptional cases.

Planning staff agrees that a policy statement that includes a system with stated criteria for exceptions and parameters for the application of waivers is desirable. However, staff proposes to develop those criteria over time using staff's experience under the proposed Green Building Policy. It is the historical experience with the policy moving forward that will establish the justification for case types and special treatment. Thus, as part of the annual monitoring reports,

and as anticipated in under Phased Approach below, the language of the proposed Policy is expected to be refined over time.

As is always the case, the City will need to balance matters of urban design, economic development, civic policy with the implementation of its Green Building Policy.

## **H. City Environmental Priorities.**

*In assessing compliance with the above standards, including as a matter of equivalency and of flexibility, priority elements in the project's design and construction are those which:*

- *enhance energy efficiency*
- *increase water conservation and reduce storm water runoff, and*
- *reduce the overall carbon footprint.*

Although staff strongly recommends utilizing established independent rating systems for the City's policy on green buildings, and although the LEED system, as an example, rates a variety of worthy environmental goals, such as sustainable sites, energy efficiency, and indoor air quality, it is important that Alexandria put its own footprint on the Green Building Policy by expressing its own environmental priorities. After thorough discussion among staff agencies, consistent with the *Eco-City* Environmental Charter, and after discussion and amendment by the Green Building Working Group, the proposed Green Building Policy identifies three environmental goals as the most important for Alexandria: energy efficiency, water conservation (including controlling storm water runoff) and reducing the overall carbon footprint. These priority goals will guide the implementation and evaluation of the Green Building Policy. While it is hard to imagine that a development subject to the Green Building Policy would be able to achieve the expected standard without doing so, each development and certification report will be reviewed to ensure that the City's priorities are maximized. In addition, under the "equivalency" and "flexibility" tenets of the City policy, weight will be given to the City's priorities in evaluating proposals. In this way, the City combines its priorities with those of the LEED system to achieve its goals.

## **I. Innovation Encouraged**

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

Nothing in the proposed Green Building Policy statement, or the work of the Green Building Working Group, should be taken to suggest that the work of creating the best environmentally sound built environment is finished, or that solutions to all of the green building challenges have been achieved. To the contrary, as the green building work is evolving, and builders are finding new ways to achieve efficiencies, Alexandria wants to be at the forefront, encouraging creativity

and innovative solutions. Therefore, the Green Building Policy explicitly states the fact, encouraging builders, developers and landowners to innovate and to achieve higher performance levels than the minimum set in the City's policy.

## **J. Phased Approach**

*While it is important to establish this policy and implement its critical elements immediately, there are also desired parts of the green building program that will take longer and will look to the evolving green building industry, and those elements should be implemented over time. Examples of future work include the development of incentives for applicants who reach the highest levels of environmental achievement; the calculation of financial benefits to the public from development of green buildings; and including a more complete sustainable sites initiative as part of the City policy.*

In an evolving field, it is important that the City not delay the implementation of its policy awaiting a final determination of an ultimate technology or strategy for the long term. The conversion to green buildings is so important that the City needs to promote the highest levels of technical solutions to help solve the serious and radical environmental changes that are coming, and to do so as soon as practicable. It is for this reason that the City began several years ago with its green building checklist, even before a more comprehensive look at the field could occur. That work has already succeeded to some extent. The adoption of a more permanent, more specific Green Policy Statement, as is proposed here, will keep the bar moving forward. But the City must be open to amending, adjusting or expanding this policy in the future, as additional information and solutions are uncovered. During the discussions of the Green Building Working Group, a series of specific ideas surfaced which warrant sustained consideration and closer analysis. Each of them could become part of the City's Green Building Policy in the future.

### *Incentives for Green Buildings*

First, there was serious and vigorous discussion about the City's potential role in supplying incentives to developers to build "green" buildings, or at least to achieve higher LEED levels in their projects. Other communities are working with incentives of various sorts, and they generally fall within the following categories:

- Development yield incentives—bonus FAR and/or building height;
- Processing time incentives—fast tracking or expedited processing; and,
- Financial Incentives—processing fee reduction or waiver; cash grants and rebates; development agreements including city contribution or capital works programs; and, tax credits or rebates.

Appendix 9 provides the USGBC's national summary of state and local government incentives.

Debate within the Working Group about incentives has been wide ranging, and fairly evenly split between those who believe some sort of carrot would attract a larger audience of eager green

builders and those who believe that green buildings should be the expected development practice, not a special, incentivized result.

A variety of specific potential ideas have been raised, and the Working Group continues to discuss the incentives concept. One concrete idea is for the City to provide street parking for Flex vehicles or visitor parking, or bike racks, or other development features that could be placed on city property that would assist the developer score LEED points. Another suggestion that staff can support is the notion that reduced parking ratios near Metro, to some yet to be determined degree, could be granted without the necessity of SUP approval; reduced parking can result in additional LEED points.

Finally, members of the Work Group have expressed the hope that development features that ultimately reduce public expense on maintenance and expansion of utility infrastructure, should be analyzed and reduced to a calculation that approximates the public benefit on a per development basis so that rebates can be provided to the developer in the amount of benefit the development creates. The analysis necessary for such a system has not been done but should be, whether or not a specific rebate is ever granted as a policy matter.

The resolution of fiscal and other incentives should be a major focus of future work on Green Buildings, and the Green Building Working Group, or a subcommittee thereof, should continue to meet and work on this issue.

#### *Sustainable Sites Initiative*

An example of the evolution in the field of green buildings is the emerging Sustainable Sites Initiative, which is an effort to develop guidelines and performance benchmarks for site development that will reduce the adverse environmental impacts of planned landscapes. It is a partnership of the American Society of Landscape Architects, the Lady Bird Johnson Wildflower Center and the United States Botanic Garden in conjunction with a diverse group of stakeholder organizations. The Guidelines and Performance Benchmarks being developed will include criteria for site design, implementation and maintenance. The Initiative will analyze, consolidate and advance the research needed to establish sound metrics and create regional guidelines and incentives for sustainable sites.

The Initiative seeks to apply sustainability principles to any site, with or without buildings, which will be protected, developed or redeveloped for public or private purposes. The Sustainable Sites Initiative Guidelines and Performance Benchmarks can apply to all landscapes including commercial and public sites, parks, campuses, roadsides, residential landscapes, recreation centers and utility corridors.

Existing green building rating systems address some site issues but do not fully address landscape sustainability. The Sustainable Sites Initiative is intended to fill this gap. The City should therefore monitor its progress and may wish to incorporate its elements in its Green Building Policy in order to provide more comprehensive criteria for sustainable landscapes and site components. Staff intends to explore the use of the Sustainable Sites Initiative as part of a comprehensive green development program.

## **K. Education and Outreach.**

*This key element of the City's approach to green buildings requires a partnership with the community, especially the building and development industry, as it and the City continue their effort to educate themselves and others about the benefits of and best ways to achieve green buildings. Together, they should track successes in City projects, changes in national and regional approaches to green buildings, advances in technology, and economic savings on individual projects as well as for public infrastructure systems. They should also provide web based information, hold forums on green buildings, and generally communicate the added benefits of higher rated green buildings to the community. The City will work collaboratively with environmental organizations and the building industry to recognize, award and publicize green building efforts in the City.*

In deciding that a regulatory approach to green buildings was inappropriate at this time for Alexandria, staff and the Green Building Working Group agreed that one of the imperative ingredients in the City's policy and practice must be education. Only by ensuring that the community as a whole, as well as especially the building, architecture and development industry, are fully versed in the wisdom of green buildings in general and the specific methods of achieving environmental efficiencies and meeting the City standards in particular will there be full compliance with the City's policy. In addition, while builders are quick to identify increased upfront costs of building "green," more needs to be done to advertise the cost savings to buildings over time to make the program more acceptable.

The proposed Green Building Policy requires that the City be assertive and proactive in its education efforts, and it will need to partner with the development and environmental community in doing so. There are many programs available, including financial grants for builders who follow specific green methods in their buildings, or who experiment with new green technology. The City needs to provide a clearinghouse of data for interested builders, and has begun to do so on the P&Z website.

In addition, a comprehensive program should be developed in collaboration with the development industry and the community to effect on-going green building training, education, and outreach across all building types including single family dwelling construction, Historic District rehabilitation and for a variety of types of renovation projects.

The City's outreach effort must include recognition for those in the community who do the best work in the green building field, and those local developers who achieve the highest rating levels of environmental efficiencies in their buildings. Therefore, the proposed Green Building Policy specifically states that there will be awards given for the highest achievements, and awards will be based on a collaborative effort with the building industry and environmental organizations.

## **L. 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.***

As with all new programs, especially those in fields that are rapidly changing, and those, like this one, that include a significant discretionary component, it is imperative that the City monitor the progress of development approvals under the new Green Building Policy. Thus the proposed policy statement includes a reporting component requiring that P&Z address achievements as well as concerns to the Planning Commission and City Council on an annual basis.

Staff expects that its annual reports will include a list of the developments approved during the prior year under the new Policy; detail about how each one achieved the Policy standard; examples of equivalent standards that were substituted for the standard stated in the Policy; and recognition of any particularly significant innovation or creative building solutions. An additional important component of the annual report will list those projects that the Director of Planning and Zoning determined warranted treatment different from the Policy's standard. In each case, the Director should explain why an exception was justified as well as those green features the development was able to achieve, even if less than the Policy standard would otherwise require.

Finally, the City should continue to monitor green building initiatives being undertaken by other Washington Metro Region governments, innovation in the green building codes, and lessons learned from the impact and administration of the proposed Green Building Policy and make recommendations for program modifications.

## **III. CONCLUSION: NEXT STEPS**

This report and the proposed Green Building Policy will be disseminated to the public and will be discussed at the Green Building Forum to be held on January 28, 2009, at the Masonic Temple. At that time a moderated panel discussion will provide background and analysis of key features in the green building field and explain how the proposed Green Building Policy will be implemented. To the extent there are varying views on elements of the proposed Policy, they are welcomed. The Forum is being held precisely so the community has a time and place for full discussion. In addition, staff will review any comments it receives in reaction to the proposed Policy and this report. The *Green Building Policy*, with any additions or changes that may be appropriate as a result of public comment, will be then presented to the Planning Commission and City Council for adoption.