

DOCKET ITEM #6

Green Building Policy

Application	General Data	
Public hearing and consideration of the Green Building Policy	Planning Commission Hearing:	June 4, 2019
	City Council Hearing:	June 22, 2019
Applicant: Department of Planning & Zoning		

Staff Recommendation: APPROVAL

Staff Reviewers:

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I. DISCUSSION

The 2019 update to the Green Building Policy, originally enacted in 2009, proposes to further reduce the environmental impacts of new private and public (City-owned and managed buildings including schools) development projects¹, requiring Development Site Plan (DSP) or Development Special Use Permit (DSUP) approval. Staff proposes to elevate green building certification levels for new public and private development projects; define the standards for three third-party rating systems; and designate specific certification credits in the areas of energy use, water use, and indoor environmental quality. New public buildings would achieve Net-Zero Energy (NZE) and enhanced stormwater treatment standards for new public buildings when feasible. Reduced greenhouse gas emissions and energy use, reduced potable water use, and an increase in human health and quality of life would result through implementation of the proposed Green Building Policy.

The proposed 2019 Green Building Policy is the fulfillment of an Environmental Action Plan (EAP) Phase 1 short-term action in the Green Building chapter which City Council adopted in October 2018.

II. BACKGROUND

Green Building Policy 2009 and Accomplishments

The City of Alexandria's Green Building Policy from 2009 calls for a third-party green building certification for new private and public Development Site Plan (DSP) and Development Special Use Permit (DSUP) projects. The Leadership in Energy and Environmental Design (LEED) rating of Certified (40-49 points) for residential buildings and LEED Silver (50-59 points) for non-residential development serves as the standard for the 2009 Green Building Policy. Third-party rating system equivalents to LEED for all DSP and DSUP development projects are also accepted. To achieve the LEED certification levels, applicants must achieve prerequisite points and select from a menu of credits in several areas related to building development and performance to achieve the points necessary for the relevant certification level. Development applicants have the option to gain certification through other rating systems, hiring consultants to determine the certification levels comparable to the LEED standards.

Compliance with the 2009 Green Building Policy is significantly high since it was enacted ten years ago. More than 95% of the development square footage constructed or currently under construction in the City is compliant with the 2009 policy. That equates to approximately 10 million square feet of green building development constructed pursuant to the DSP or DSUP process.

¹ Privately-owned residential properties with City funding are considered private development.

III. GREEN BUILDING POLICY UPDATE 2019

A. Policy Development

Task Force, Consultants, Interdepartmental Staff Work Group

The Green Building Policy update is the result of a Department of Planning & Zoning-coordinated effort with the Green Building Policy Task Force, two consultants hired to analyze the environmental benefits and cost implications of prioritized green building strategies, and an Interdepartmental Staff Work Group (consisting of staff from the Departments of Planning & Zoning, Transportation and Environmental Services, General Services, the Office of Management and Budget, Code Administration, and the Office of Housing)

The Green Building Task Force was established by City Council resolution in September 2018 to develop a revised Green Building Policy that supports EAP goals. It is composed of 15 members with environmental, technical and real estate development experience in building-related fields. The Task Force includes a Planning Commission member, an Environmental Policy Commission (EPC) member, and a representative from Alexandria City Public Schools (ACPS). At four meetings scheduled between November 2018 and April 2019, the Task Force prioritized five strategies for consultant study, reviewed consultant analyses and commented on staff-proposed outlines for the Green Building Policy and EAP Phase 2 actions. The Task Force provided a letter of endorsement for the proposed policy, included as an attachment to this report.

The Integral Group consultants provided a benefits analysis of successful and cutting-edge green building practices that mirrored the Task Force-selected priority strategies. The WSP consultants' analysis focused on the costs of implementing the priority strategies, including the development cost of increasing LEED certification ratings and the costs associated with applying Net Zero Energy (NZE) standards to new development projects.

Civic Engagement

The public was invited to participate in the development of the Green Building Policy update at several intervals since the first Task Force meeting in November 2018. Opportunities for public comment were provided during the four meetings of the Task Force and all meeting materials were posted on the Green Building website (<https://www.alexandriava.gov/GreenBuilding>). A February 28 education program, *The Forum on Green Building Practices*, offered approximately 80 attendees the chance to learn about green building practices and to ask questions of experts in the field. In addition, drafts of the updated policy were available for public comment at the City's March 9 Eco-City Summit and the April 27 Earth Day event. An overview of the final draft policy was open for public comment via the Green Building website between May 1 and May 15.

The public was also encouraged to provide feedback on the draft policy proposal at the May 7 Planning Commission, the March 18 Environmental Policy Commission and the May 2 Alexandria Housing Affordability Advisory Committee (AHAAC) meetings. The Task Force representative of the National Association of Industrial and Office Parks (NAIOP) briefed his organization on May 15.

Public comments supported Net-Zero Energy standards for public schools, certification options for more than one rating system, and incentive programs for existing, residential properties. NAIOP representatives expressed concerns regarding the cost of certification as it applies to small-scale commercial, residential and non-profit-organizations' development projects that are commonly proposed in the City. Although incorporating green building methods is possible in these projects, the certification fees can negatively impact profit margins as the costs cannot be scaled across the relatively small building square footages. The group also stated an interest in incentives for incorporating the higher standards proposed for green building in the proposal. These comments are addressed in the proposed Green Building Policy and in the EAP Phase 2 recommendations, which are to be considered as a separate item on the City Council's June 22 docket.

B. The Proposed Policy

The proposed policy incorporates standards that position the City of Alexandria at the forefront of municipalities with green building policies. The policy establishes progressive standards for new public and private development, with higher standards for new public development, and existing public buildings. The proposed policy standards would take effect in March 2020 and are outlined in detail in the policy. They are summarized here:

1. PRIVATE new development and major renovations requiring DSP or DSUP approval

a. Certification levels defined for three rating systems:

- LEED Silver
- Two Green Globes
- Earthcraft Multifamily (ECMF) Gold
Earthcraft Light Commercial (ECLC) Certified (projects up to 80,000 square feet)

AND

- In addition to the LEED, Green Globes or EarthCraft green building rating systems, projects may choose an alternative path for certification through an independent, third-party certifier. The independent, third-party certifier must verify that the performance standards of the Green Building Policy are met. Following adoption of the policy, the City will develop a process for selection of standard independent third-party certifiers that an applicant may choose from to verify compliance with the policy or it may

pay a fee to the City to use in soliciting the services of an independent third-party certifier to verify compliance.

- b. Directed Use Performance Points included in the minimum level of certification:
 - Energy Use in areas of EUI reduction, Renewable Energy, Advanced Metering
 - Water Efficiency in areas of Indoor Water Use Reduction and Outdoor Water Use Reduction
 - Indoor Environmental Quality in areas of Low-emitting/low-VOC materials, Thermal Comfort and Indoor Air Quality
- c. The City's stormwater treatment requirements will continue to be met. The current requirement is 60-percent treatment through green infrastructure.

2. PUBLIC new development and major renovations requiring DSP or DSUP approval

- a. Certification levels defined for three rating systems:
 - LEED Gold
 - Three Green Globes
 - Earthcraft Light Commercial (ECLC) Gold (projects up to 80,000 square feet)

AND

- In addition to the LEED, Green Globes or EarthCraft green building rating systems, The City may choose an alternative path for certification through an independent, third-party certifier. The independent, third-party certifier must verify that the performance standards of the Green Building Policy are met. Following adoption of the policy, a process will be developed for selection of standard independent third-party certifiers that the City may choose from to verify compliance with the policy or the City may pay a fee for soliciting the services of an independent third-party certifier to verify compliance.
- b. Directed Use Performance Points included as part of certification:
 - Energy Use in areas of EUI reduction, Renewable Energy, Advanced Metering and Enhanced Commissioning
 - Water Efficiency in areas of Indoor Water Use Reduction and Outdoor Water Use Reduction
 - Indoor Environmental Quality in areas of Low-emitting/low-VOC materials, Thermal Comfort, Indoor Air Quality and Daylighting

c. Net-Zero Energy and Stormwater Treatment

- Net Zero Energy (NZE) through a combination of energy efficiency and renewable energy systems. One hundred percent of the required stormwater treatment through green infrastructure.
- Public developments will meet the above Net-Zero Energy and stormwater treatment standards unless it is technically infeasible, not cost effective, and situationally inappropriate. Site characteristics including density, building typology and City budgetary constraints may limit the feasibility of reaching NZE or 100% stormwater treatment. This will be evaluated by City staff with the development application on a case-by-case basis.

3. PUBLIC existing building renovations that do not require DSP or DSUP approval

- a. City will apply LEED Interior Design and Construction (ID+C) and LEED Operations and Maintenance (O&M) rating systems as a guideline for interior design and construction projects and targeted renovations of individual building systems (e.g.; HVAC, carpeting, roof, windows, plumbing). Actual third-party certification may be pursued when technically and financially feasible.

The Task Force generally agreed with the staff recommendation for the policy update. The proposed standards associated with energy performance points for private development and the commitment to Net Zero Energy for public buildings were discussion items that elicited different points of view. The development community represented on the Task Force found the energy performance points related to enhanced commissioning and advanced metering for private development, especially multifamily and hotels, to be financially and technically challenging and not applicable to the early stage, short-term building ownership structure of most development projects. Those representing environmental perspectives believed that these practices were important to measuring actual building performance and should be maintained in the policy. The staff recommendation balances the two views by including enhanced commissioning and advanced metering for new public projects, as the City has a long-term ownership interest in building performance, limiting the advanced metering to non-residential private projects (excluding hotels) and providing enhanced commissioning as optional for private projects.

Regarding Net Zero Energy for new public projects and major renovations of public buildings, some Task Force members believed that exemptions for feasibility, cost and site constraints should not be applied to proposals. Others on the Task Force, who have attempted to incorporate NZE into projects, stated that site conditions, building use and typology and site density are significant factors in assuring the construction of a NZE building. Staff research has confirmed that other municipalities, including neighboring Arlington, Virginia, recognize that NZE standards are not possible in all situations and include similar exemptions as proposed in this policy.

Policy Flexibility

Flexibility will continue to be a component of the Green Building Policy in a similar manner since the adoption of the 2009 policy. On a case-by-case basis, the Director of Planning and Zoning will determine if a request for flexibility from the policy is justified based on information provided in the development application and will consider project size, proposed use and proposed alternate green building practices. The project size and use criteria for evaluation address comments from the development community regarding the financial constraints of applying the same green building standards to a small-scale commercial, residential or non-profit-applicant development project that can be otherwise distributed over several square feet for a larger-scale development project.

Although flexibility was incorporated into policy implementation, the approach resulted in high compliance with the original Green Building Policy. Since its adoption in 2009, flexibility was requested and granted for less than five percent of the new development square footage approved. Those that received flexibility were typically small residential projects, additions to existing buildings, or developments associated with non-profit applicants. Of those projects that requested flexibility from the Policy, the majority achieved one level of certification lower than the Policy's standard, or agreed to pursue other strategies to incorporate green building design elements into the project but without achieving actual certification. Moreover, in some cases, developments exceeded the minimum standards of the policy.

Policy Enforcement

Enforcement of the Green Building Policy will be similar in structure to enforcement of the original 2009 Policy. The standard conditions of approval for DSP and DSUP projects will continue to include a condition for compliance with the Policy. The updated condition will identify documentation required at key points in the development process to ensure that the project is on-track to meet the standards of the policy.

Further, staff will update the Development Concept Plan 2 Checklist to include a requirement for a preliminary compliance narrative that indicates the applicant team is aware of the City's Green Building Policy and understands how it is applied. This recommendation was discussed with the Task Force, of which some members from the development community voiced concern with the Concept Plan 2 stage being too early in the process to determine if a project can meet the standards of the Green Building Policy. Others on the Task Force voiced the importance of an integrated design process which combines the team early in the design process. This strategy is shown to reduce time and materials and maximize resource efficiency throughout the design and construction periods.² With consideration of all comments from the Task Force, staff finds that a preliminary statement at the Concept Plan 2 stage will encourage the development team to begin

² WSP "Green Building Strategies Cost Analysis" Final Technical Report; dated March 1, 2019.

planning to incorporate the standards of the Green Building Policy, especially as the building massing, orientation and site layout are developed at the Concept 2 Plan stage.

C. Estimated Policy Benefits

The Integral Group consultants estimated the environmental benefits associated with the updated policy as:

Reduction in energy use and greenhouse gas emissions

The total energy use of projected future development will be reduced by 20 percent compared to if those buildings were built to the City's current 2009 Green Building Policy standards. This equates to a reduction of more than 63,000 metric tons of greenhouse gas emissions (GHGs) per year. Compared to the current GHG emissions of Alexandria as a whole, these targets will reduce citywide GHG emissions by more than three percent. While this number may not seem significant at first glance, this is in-line with the GHG emissions savings for new construction policies in other jurisdictions. The magnitude is also comparable to a particularly aggressive example, the District of Columbia. Its Clean Energy DC Plan forecasts a citywide GHG emissions reduction of 4.6 percent. The higher percentage reduction represents the ability of the District to control its own energy code, which Virginia municipalities are not permitted to do without state enabling authority.

Reducing potable water use

Potable water use of projected future development will be reduced by at least 421 million gallons per year, or a 29 percent reduction in water use from new construction.

Improving human health and quality of life

Indoor environmental quality is emerging as a priority area for developers of new and existing buildings as tenants and new residential property owners are choosing to locate in green buildings that promote human health. Residents and employees of municipalities are voicing the same preference for community facilities, including schools. The proposed indoor environmental quality measures will result in significant decreases in multiple indoor exposures/pollutants and is shown to result in fewer reports of mold and inadequate ventilation. Improved health outcomes and work and learning productivity among participants who occupy green buildings suggests the potential to improve long-term health and quality of life.

IV. FUTURE GREEN BUILDING POLICY UPDATES AND THE ENVIRONMENTAL ACTION PLAN PHASE 2

The work of the Task Force, consultants, and the staff interdepartmental work group also informs the Phase 2 updates for the Green Building Chapter of the EAP, reviewed as a separate document and docket item by City Council in June 2019. The short, mid and long-term actions proposed for this EAP chapter are designed to further reduce the environmental impacts of new and

existing buildings and are related to future updates of the policy. The actions proposed for the Green Building chapter include initiatives that require time to establish, such as developing a performance monitoring program, establishing regulatory incentives, creating a performance-based procurement process to reduce costs of NZE projects, and initiating and completing a NZE pilot program to standardize the practice of net zero public building construction. Staff recommends that the Green Building Policy is updated regularly every five to seven-years as needed, with a Task Force, to incorporate these programmatic items into the Green Building Policy as they are implemented.

In addition to the recommended five to seven-year updates, staff will administratively maintain the 2019 Green Building Policy to coincide with new versions or updates to the LEED, Green Globes, and Earthcraft green building rating systems, changes to the building code, and/or updates to state, federal or other City policies. Examples of such updates may include minor revisions to the title, quantity or criteria of the Performance Points to maintain similar performance design targets within the latest version of the third-party rating systems. The administrative updates will not change to the intent of the approved policy, the minimum level of certification or the Performance Point categories adopted with the 2019 Green Building Policy.

IV. SUMMARY

Staff recommends approval of the 2019 Green Building Policy as described in the staff report and provided in the attached docket item. The estimated reductions in energy use, greenhouse gas emissions and potable water use as well as the improvements to indoor environmental quality further the Environmental Action Plan's overarching goals for a sustainable City.

APPENDIX A DEFINITIONS

Development Site Plan (DSP): Required for any development that: 1) Contains three or more dwelling units, 2) Is a new building or addition 3,000 square feet or larger, 3) Is an addition that is 1/3 or more of the existing gross square feet of the building, or 4) Falls under the criteria listed in Section 11-400 of the Zoning Ordinance. The Planning Commission holds a public hearing and takes final action of approval for DSPs.

Development Special Use Permit (DSUP): Required for any development requiring a DSP and requesting approval of a Special Use Permit for: 1) A modification of parking ratios, 2) A modification to the yard, landscape or open space requirements, 3) Increased building height or floor area ratio (FAR), 4) Bonus density or height for the provision of affordable housing, or 5) Special requirements listed in the applicable zone in the Zoning Ordinance. The Planning Commission hears requests for DSUPs at public hearing and forwards a recommendation to City Council. City Council holds a subsequent public hearing and takes final action of approval on DSUPs.

Earthcraft Multifamily (ECMF): A third-party green building rating system operated by Viridian that utilizes a HERS rating, program guidelines, points-based worksheet, site visits, and diagnostic testing to verify that each project complies with program standards and current green building best practices.

Earthcraft Light Commercial (ECLC): A third-party green building rating system operated by Viridian recognized for environmentally responsible design and construction practices for small-scale commercial buildings up to 80,000 square feet.

Green Globes: A third-party green building rating system, online assessment protocol, and guidance for green building design, operation and management facilitated by the Green Building Initiative (GBI).

Leadership in Energy and Environmental Design (LEED): A third-party green building rating system developed by the United States Green Building Council (USGBC).

Net Zero Energy (NZE): Where one hundred percent of a building's energy needs on a net annual basis is supplied by renewable energy.

Performance Points: Specific minimum credit points each project must achieve within the minimum level of certification for the selected green building rating system.

Private Development: New or renovated privately-owned buildings that require a DSP or DSUP approval. Privately-owned residential properties with City funding are considered private development.

Public Building Renovation: Interior design, construction, and targeted building system improvement projects in existing City-owned buildings, including Alexandria City Public Schools, that do not require a DSP or DSUP approval.

Public Development: New or renovated City-owned buildings, including Alexandria City Public Schools, that require a DSP or DSUP approval.

Major Renovation: An improvement or alteration to an existing building to a degree that such improvement or alteration requires a DSP or DSUP approval.

May 15, 2019

Members of the Green Building Policy Update Task Force:

I am a longtime resident and practicing architect in the city of Alexandria. I have strong concerns regarding the energy aspects of the Draft 2040 Green Building Policy.

The October IPCC Climate Report made painfully clear that we live in a climate emergency. The report stated unequivocally that we have 10 to 12 years to reduce carbon emissions by 50% or face catastrophic global warming. Any actions we take after 2030 will be essentially meaningless; the tipping points will have passed. I urge you to make your decisions concerning Alexandria's energy policy in the context of this emergency.

As you may be aware, New York, the District of Columbia, and other cities are taking actions commensurate with the challenge we face – actions designed specifically to meet the IPCC target. Though we are a small city, I believe we can rise to the challenge as well. The present 2040 Draft Green Building Policy proposes small and incremental energy improvements which fall far short of meeting that challenge. Rather than dwelling upon those shortcomings, I would like to make the following recommendations for actions:

- *Require all new City-owned buildings to achieve net zero annual energy use.*
- *Require all major renovations of City buildings achieve net zero annual energy use.*
- *Establish that all special use permits require net zero annual energy use.*
- *Create an energy surtax on the fossil fuel energy used by all private buildings to create a fund to subsidize and incentivize energy upgrades among private developers and homeowners.*

These recommendations, except those regarding private buildings, are comparable to the policies of the District of Columbia and New York City. They are elaborated upon below:

New City buildings and Special Use Permit Buildings

The argument is often made that pushing such strict energy standards will cost the City too much, or discourage developers. When looking at the increased front-end costs (3-5%) for a high-performance building against the energy savings leveraged over twenty years, we see a far different story. This is laid out in the analysis attached to this letter.

Existing City buildings

Existing buildings are the largest contributors to climate change in our cities. They far outnumber the few new buildings we create, and their carbon emissions are far higher than today's buildings. Significant performance improvement (50% or more) can be achieved economically when a major renovation is done. The work involves primarily upgrades to the building envelope. The larger the building (and consequent smaller area of building envelope relative to interior area), the lower the added cost percentage for the retrofit.

Private homes and private development

Because Alexandria does not have the authority to enact energy codes comparable to those of DC and NYC, I urge the City to explore other zoning and tax incentives to private developers and homeowners to build and retrofit to net zero annual energy use. The adoption of PACE-Commercial will hopefully be a catalyst for new developments and renovations in the City, particularly if pushed aggressively by the City. A similarly promising model for a new Alexandria approach is the District's Sustainable Energy Utility ([DCSEU](#)). I hope you will investigate the possibilities for such a program on this side of the river.

Thank you for your consideration of these proposals at this critical moment.

Sincerely,

David Peabody, AIA, CPHC

COMPARATIVE ENERGY AND COST FIGURES FOR A 25,000 SF MIDRISE RESIDENTIAL BUILDING AT LEED-GOLD VS PASSIVE HOUSE

Overview

This spreadsheet compares the costs of two hypothetical buildings: one is built to the LEED-Gold standard; the other is built to the Passive House Standard.

For the LEED-Gold building we used an EUI (Energy Use Index number) of 5% > ANSI/ASHRAE/IESNA Standard 90.1–2010, as called for in LEED v.4.

For the Passive House building we used an EUI based upon the 38 kBtu/sf/yr of source (primary) energy that is standard for Passive House performance.

Regarding costs, we assumed the Passive House building to be LEED-Gold, plus the envelope upgrades to achieve Passive House levels.

Without adding the LEED-Gold requirements, the Passive House building would cost approximately the same as the LEED building.

Input

	energy numbers		solar numbers				
	Site energy of EUI kBtu/sf/yr	Total kWh/yr	kW Solar required	PV area required	roof sf req.d	Allowable stories*	Cost of solar
Bldg A: LEED midrise residential	42	307737	258.2	13588	18117	1.3	\$ 645,422
Bldg B: Passive House midrise residential	15.6	114520	96.1	5056	6742	3.7	\$ 240,184

* Allowable stories in height that the building form can take and still be able to have onsite solar to achieve NZE.

	construction costs			energy savings				
	Constr. Cost/sf	Total cost	Upgrade cost	Energy cost/yr	Energy cost/sf	Ann. Energy savings	savings generated addit.funds*	years for investment payback*
Bldg A: LEED midrise residential	\$ 150	\$ 3,750,000		\$ 41,852	\$ 1.67			
Bldg B: Passive House midrise residential	\$ 158	\$ 3,937,500	\$ 187,500	\$ 15,575	\$ 0.62	\$26,278	\$57,543	7.1

* as determined by NHT Leverage Mortgage Calculator on a separat sheet of this spreadsheet

Results

With no solar:					
	Building B is	\$57,543	or	1.5%	cheaper to build w/ leveraged energy savings factored in
With solar to achieve NZE:					
	Building A costs	\$ 3,750,000	for construction, plus	\$ 645,422	for solar, for a total cost of \$ 4,395,422
	Building B costs	\$ 3,937,500	construction, plus	\$ 240,184	for solar, for a total cost of \$ 4,177,684
	Building B is	\$ 217,739	or	5.0%	cheaper to build in front end costs

Assumptions

Building gross area	25000 sf
PV area / roof area	0.75
PV output per year	1192 kWh/kW
Solar panel produces	19 W/sf
EUI of 45 requires	11.1 W/sf
Solar panel produces	13.2312 kWh/sf/yr

Cost of electricity	\$ 0.14 /kWh
Annual PV Generation	\$ 1.85 /sf/yr
Solar cost	\$ 2,500 /kW
Area required for 1kW	90.1 sf
Solar cost/sf	\$ 27.75 /sf
PH upgrade costs 3-5% more than code construction	

(LEED-Gold level)

Notes

- Peabody Architects

(Passive House level)

Site electrical energy/source energy =	2.7		1									
Electrical Energy Cost	\$ 0.14	per Kwh										
Gross floor area	25000	sf										
PH required total primary energy for conditioned area	42.2	kbtu/sf/yr										
PH required site EUI	15.63	kbtu/sf/yr										
output/yr per kw of solar	1192	kw										
<table border="1"> <thead> <tr> <th></th> <th>KWH</th> <th>Kbtu</th> </tr> </thead> <tbody> <tr> <td>Annual source/primary energy</td> <td>309203</td> <td>1055000</td> </tr> <tr> <td>Annual site energy</td> <td>114520</td> <td>390741</td> </tr> </tbody> </table>					KWH	Kbtu	Annual source/primary energy	309203	1055000	Annual site energy	114520	390741
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watts/sf of panels	19 W											
Total PV panel area required	5056 sf											
Total roof area required	6742 sf											
2												

1. Passive House buildings typically use a maximum of around 38 kBtu/sf/yr of **source** (primary) energy for the **conditioned** area of a building. Following ASHRAE 90.1 and 2015 IECC standards, the LEED-Gold energy maximum is based upon **site** energy for the **gross** area of a building. To create an apples:apples comparison here, we use the ratio of .9 for conditioned area/gross area for a building of this size. That changes the effective total primary and site energy numbers for a passive house structure to those shown here.
2. Assumes 75% of available roof space available is usable for PV panels.

Solar Systems Leverage Calculations				
LEED-Gold Approach				
Energy Savings Measures	Cost		Solar Annual Savings	Payback
Owner-Paid Measures				
PV System	\$	645,422.39	\$	41,852.29
TOTALS	\$	645,422.39	\$	41,852.29
GRANT TOTALS	\$	645,422.39	\$	41,852.29
Savings			\$	41,852.29
Debt Coverage				1.23
Available for Debt Service			\$	34,026
Interest Rate				6%
Amoritization				20
Leverage			\$390,278.39	
Upgrade Cost			\$	645,422.39
Additional Available Funds			(\$255,144.00)	

Solar Assumptions

Energy savings over 42 EUI building: \$1.23/sf from PHPP energy modeling

Solar Systems Leverage Calculations					
Passive House Approach					
Energy Savings Measures	Cost		Savings over 45 EUI	Payback	
Owner-Paid Measures					
PV System	\$	240,183.64	\$	15,574.66	
TOTALS	\$	240,183.64	\$	15,574.66	15.42
GRANT TOTALS	\$	240,183.64	\$	15,574.66	15.42
Savings			\$	15,574.66	
Debt Coverage				1.23	
Available for Debt Service			\$	12,662	
Interest Rate				6%	
Amoritization				20	
Leverage			\$145,235.87		
Upgrade Cost			\$ 240,183.64		
Additional Available Funds			(\$94,947.77)		

Solar Assumptions

Energy savings over 42 EUI building: \$1.23/sf from PHPP energy modeling

Energy Efficiency Leverage Calculations

Energy Savings Measures	Cost	Savings over 45 EUI	Payback
Owner-Paid Measures			
PH upgrade (5%)	\$ 187,500	\$ 26,277.63	7.14
TOTALS	\$ 187,500	\$ 26,277.63	7.14
GRANT TOTALS	\$ 187,500	\$ 26,277.63	7.14
Savings		\$ 26,277.63	
Debt Coverage		1.23	
Available for Debt Service		\$ 21,364	
Interest Rate		6%	
Amortization		20	
Leverage		\$245,042.52	
Upgrade Cost		\$ 187,500.00	
Additional Available Funds		\$57,542.52	

Energy Efficiency Leverage Assumptions

42 EUI at \$150/sf for LEED-Gold buildings
 PH upgrade cost of 5% = \$157.50/sf
 Energy savings over 42 EUI building: \$1.23/sf
 from PHPP energy modeling

May 22, 2019

Re: AHAAC Comments on the Proposed 2019 Green Building Policy Update

The Alexandria Housing Affordability Advisory Committee (AHAAC) has been following the Green Building Task Force's work to review the City's Green Building Policy over the last several months as part of the Environmental Action Plan update. The affordable housing development community was represented specifically by a stakeholder on the Task Force that examined the proposed changes.

Overall, AHAAC is very supportive of the City's efforts to improve the efficiency of Alexandria's buildings. In many ways, the affordable housing development community has led the way in green building policy as all new construction affordable housing projects that have been built or planned over the last five years meet the criteria of the proposed policy update. However, there are two areas of concern to AHAAC regarding the proposed green building policy update. The first area involves the proposed requirement for renovation projects that require a development special use permit (DSUP) or development site plan (DSP) to achieve an Earthcraft Gold certification, and the second is the use of a bonus density program to encourage increased green building standards.

Existing multi-family housing, especially garden-style apartments, provides a significant source of affordable housing in the City of Alexandria. The requirement that renovations of existing stock achieve the same efficiency standards as new construction comes with substantial cost and difficulty, and almost guarantees that product will not remain affordable. In addition, it makes it more difficult for mission minded developers to acquire and renovate these buildings with the goal of permanent preservation of affordability. AHAAC acknowledges that limiting this requirement to projects that require a DSUP or DSP reduces the impact to projects that likely include affordable housing, however, we believe there is an opportunity the City should not miss to amend the policy to allow a project that provides a minimum amount of affordable housing to be exempt from this requirement to incentivize provision of affordable housing.

AHAAC's second area of concern pertains to the Policy's recommendation to evaluate in the mid term the use of bonus density in exchange for an increase in building efficiency. Virginia's enabling legislation strictly limits a local jurisdiction's ability to implement regulations that require the provision of affordable housing within new development. Due to these limitations, zoning tools like inclusionary zoning cannot be used in Alexandria. The provision of bonus density is the one zoning tool that allows Alexandria to require the provision of affordable housing. The Housing Master Plan made several recommendations to further encourage developers to take advantage of this tool and City Council has approved recommendations to enhance its use, the most recent of which increased the allowable density increase from 20 percent to 30 percent.

AHAAC's concern involves any policy change that allows developers to take advantage of bonus density in return for increasing the efficiency of their own asset while limiting the use of that density for the provision of affordable housing. While increased building efficiency is a desirable outcome, this policy will further dilute the effectiveness of Section 7-700 (the City's affordable housing bonus density and height tool). We have watched a similar concern become a reality in Old Town North as two developers

have opted to take advantage of the arts bonus density program in lieu of additional density yielding affordable housing. While the arts bonus density program impacts approximately 20 development sites in Old Town North, the current green building policy may have citywide applications.

The Green Building Task Force has acknowledged this concern and stated it does not desire to have the green building density bonus compete with bonus density currently allowed for affordable housing. As a compromise it has been suggested that developers be required to use all bonus density allowed under Section 7-700 before using any allowable further increase attributable to the green building policy. AHAAC believes this is a fair compromise, but questions have been raised as to whether the City can legally require a developer to use one program versus another. Therefore, AHAAC would recommend that the City delay implementing a green building bonus density program until an affirmative opinion that addresses these issues is provided.

Thank you again for the opportunity to provide comments and for your responsiveness to our concerns. We hope that we can continue to provide guidance on how new policies impact the provision of affordable housing.

Please feel free to contact me if AHAAC can assist you any further.

Sincerely,

/s/ Robyn J. Konkel

Robyn J. Konkel
AHAAC Chair

May 24, 2019

City of Alexandria Planning Commission
Alexandria City Hall
301 King Street
Alexandria, VA 22314

Dear Commissioners:

On behalf of the Green Building Initiative (GBI), we are submitting this letter to express our strong support for the thoughtful and innovative update to the City of Alexandria's Green Building Policy, which is being considered by the Planning Commission on June 4, 2019.

GBI is a 501(c)(3) who owns and operates the Green Globes Green Building Certification system. Green Globes first entered the US market in 2004, and in 2005 GBI was recognized as the first ANSI Standards developer for third-party commercial green building certification systems. In 2010, GBI launched its Green Globes ANSI standard into the marketplace, updating it in 2013. In 2013, the federal government recognized both Green Globes and LEED as green building certification systems eligible for use by the federal government nationwide. Today, GBI is in the process of finalizing our latest ANSI update to our Green Globes for New Construction standard, which governs both new construction and major renovations. Green Globes 2019 is expected to be finalized this summer and will launch alongside of the still-operating Green Globes 2013.

GBI's mission emphasizes expanding the base of sustainability and green building by providing a third-party certification system that focuses on recognizing the unique needs of each building. Green Globes helps to achieve the benefits of sustainability and energy efficiency by providing a system that is user-friendly, team-oriented, and guided by our Green Globes Assessors who work with project teams to achieve the best possible performance, and who conduct final in-person assessments on each building to confirm that it is earning all of the points for certification that it was designed to.

We strongly support the Green Building Policy update presented by the staff of the Department of Planning and Zoning for several reasons:

1. The policy seeks to recognize the changing marketplace for third-party certification by allowing several certification systems to compete within the jurisdiction, providing choices for project teams, builders and developers.
2. Alexandria has chosen to look at green building requirements in an innovative way. Instead of mandating the use of one or more green building certification systems in a blanket approach, Alexandria has identified the areas of sustainability and energy savings that is believed will best meet the goals and needs of the city. Then, they have done the homework to look

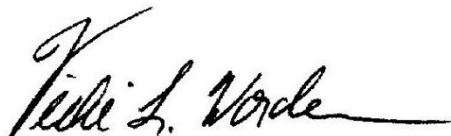
deeper into the certification systems to mandate those items that directly and specifically address Alexandria's priorities. This method of identifying "directed use" criteria within the certification systems is at the forefront of the next wave of green building policy updates we see coming on the horizon in states and localities. We believe that Alexandria's Green Building Policy will serve as an example to other cities for how to prioritize the green building and sustainability goals that best meet the needs of local citizens.

3. The updated Green Building Policy puts the City of Alexandria into the position of leading by example for the local private sector community. The city's decision to hold itself to higher levels of certification will not only provide important data on the experience and outcomes of building to and achieving these higher levels in this region, it also serves as a touchpoint for private sector projects who can learn from the city's efforts and themselves strive toward greater savings that are demonstrated by the city.
4. The updated Green Building Policy sets a high bar for demonstrating Alexandria's—both private and public sector members of the community—commitment to green building and sustainability, but at the same time recognizes the importance of ensuring that development priorities are not hindered. The policy includes specific language related to flexibility with the green building mandates on a case-by-case basis. We believe that this is important, as it will allow Alexandria to more appropriately study those areas within the certification requirements that could be difficult for local public and private project teams to achieve. The data collection that will come from this analysis will be invaluable in helping Alexandria to evolve its policy in the years and decades to follow.

The city has sought the input of a wide-range of stakeholder views as it developed this policy update. Throughout the process, the city considered the on-the-ground realities of project and building development in Alexandria and adjusted or found accommodation to make the updated policy a reflection of a strong commitment to green building and sustainability that acknowledges the economic and project development realities for this locality. While we know that this phase of the Environmental Action Plan (EAP) is just the beginning of Alexandria's long-range plan for addressing these important issues, we believe that it provides a strong foundation for the next phases. GBI urges the Planning Commission to support this Green Building Policy update.

Thank you for giving consideration to our views.

Best regards,



Vicki L. Worden, CEO
Green Building Initiative



Jenna Morgan Hamilton, VP, National Affairs
Green Building Initiative
Member, Alexandria Green Building Policy Update Task Force

City of Alexandria, Virginia

MEMORANDUM

DATE: May 23, 2019

TO: CHAIR MACEK AND MEMBERS OF THE PLANNING COMMISSION

FROM: KARL W. MORITZ, DIRECTOR, DEPARTMENT OF PLANNING & ZONING

SUBJECT: DOCKET ITEM #6

Planning Staff provides the enclosed list for the Planning Commission's reference. In summary, this list demonstrates the Development Site Plan (DSP) and Development Special Use Permit (DSUP) applications approved between FY2010 and FY2017 that: 1) requested flexibility from the 2009 Green Building Policy, 2) are small projects (less than 75,000 square feet or 50 residential dwelling units), and/or 3) are projects that exceeded the standards of 2009 Green Building Policy.

This list does not show the total number of DSP and DSUP projects approved between FY2010 and FY2017. The total number of such applications approved during this timeframe is 111, while the total number of projects on this list is 51.

In summary, the findings provided by this include:

1. 20 of the 51 projects were approved with flexibility from the 2009 Green Building Policy. Most of these projects agreed to provide alternative measures to build "green." Only three projects requested total exemption.
2. Three small projects exceeded the standards of the 2009 Green Building Policy (one of which received flexibility in its approval).
3. There were eleven DSPs approved:
 - a. Only two of the DSPs requested flexibility from the 2009 Green Building Policy. However, these projects agreed to build to LEED Certified standards but not achieve actual certification. Both projects are small projects.
 - b. Eight of the approved DSPs are small projects that agreed to comply with the 2009 Green Building Policy, with no request for flexibility.

4. Five projects exceeded the standards of the Policy:

a. Of these five projects, three are small projects.

- One of the three projects received flexibility from the 2009 Green Building Policy in its development approval.

The list on the following page is color-coded per the below legend. Many projects have more than one of these designations:

	Flexibility Approved
	DSP
	Small (less than 75,000 sf or less than 50 residential units)
	Exceeds Policy

FY of Approval	Project Name	Project Address	Project Details	Comply (SF)	Doesn't Comply (SF)	Green Building Requirement	Meets Policy (Y/N)	City Project Number	Notes
FY10	Church of God	634 N. Patrick Street	2,725 sf addition to the existing church		2,725	Requested flexibility – will incorporate green building design elements into the project	NO	DSUP 2007-0002	Flexibility, Small
FY10	Restaurant Depot	4600 Eisenhower Ave	72,000 sf warehouse		72,000	Requested flexibility - will achieve LEED Certification instead of LEED Silver	NO	DSUP2009-00003	Flexibility
FY10	Virginia Theological Seminary	3737 Seminary Road	1,660 sf addition to maintenance building		1,660	Requested flexibility – will incorporate green building design elements into the project	NO	DSUP 2009-0015	Flexibility, Small
FY10	The King Building at 923	5200 Filmore Avenue	1,492 sf addition for a two story restaurant and two residential units		1,492	Requested flexibility – will incorporate green building design elements into the project	NO	DSUP 2010-0002	Flexibility, Small
FY11	Charles Barrett Elementary School	115 Martha Custis Drive	14, 274 sf modular classrooms and Expansion to cafeteria		14,274	Requested flexibility – will achieve 50 points on LEED scale but will not obtain certification	NO	DSUP 2010-0005	Flexibility, Small
FY11	James K Polk Elementary School	5000 Polk Avenue	11,768 sf modular classrooms		11,768	Will strive for LEED Silver, but will meet LEED Certification at minimum.	YES	DSUP 2010-0009	Flexibility, Small, Exceeded Policy
FY11	Patrick Henry Elementary School	4643 Taney Avenue	13,681 sf modular classrooms		13,681	Requested flexibility – will achieve 50 points on LEED scale but will not obtain certification	NO	DSUP 2010-0010	Flexibility, Small
FY11	Yates Corner	515 Mount Vernon Avenue	23,706 sf retail and office	23,706		LEED Silver or Equivalent green building certification	YES	DSUP 2010-0023	Small
FY12	Potomac Yard – Landbays I & J West and L Townhouses	2501 Jefferson Davis Hwy.	344 residential units		898,640	Will strive to achieve 45 points using LEED Homes rating system	NO	DSUP 2008-0022	Flexibility
FY12	Edsall Road Gas Station	5740 Edsall Road	4,035 sf self service station, convenience store, and cash wash facility		4,035	Flexibility from the City’s Green Building Policy due to building scale and scope.	NO	DSUP 2011-0032	Flexibility, Small
FY12	AlexRenew	340 Hoofs Run Drive	Utility tank, athletic field, and 60,000 sf administration building	60,000		LEED Silver for the future administration building	YES	DSUP 2013-00019	Small, Exceeded Policy
FY13	Virginia Theological Seminary Chapel of the Ages	3737 Seminary Road	20,811 sf Chapel	20,811		LEED Silver or Equivalent green building certification	YES	DSUP 2011-0029	Small, Exceeded Policy
FY13	Enterprise Rent-a-car	4700 Eisenhower Avenue	94,384 sf vehicle storage and repair facility		94,384	Requested flexibility – will incorporate green building design elements into the project	NO	DSUP 2012-0007	Flexibility
FY13	Del Ray Greens (Extension of pre-2009 DSUP)	2903 Mount Vernon Avenue	2,056 sf retail and 3,571 sf office	5,627		LEED Silver or Equivalent green building certification	YES	DSUP 2012-0010	Small
FY13	Jefferson Houston School	1501 Cameron Street	130,769 sf public school	130,769		LEED Silver or Equivalent green building certification	YES	DSUP 2012-0011	Exceeded Policy
FY13	Princess & Alfred Street Townhouses	813 Princess Street	5,297 sf Residential (3 townhouses)	5,297		LEED Certified or Equivalent green building certification	YES	DSUP 2012-0018	Small
FY13	FMR Pump Station	3650 Commonwealth Ave	610 sf addition to pump station		610	Requested flexibility	NO	DSUP 2012-0027	Flexibility, Small
FY13	Washington Suites Apartments	100 S. Reynolds Street	Change of use and 8,000 parking garage		8,000	Requested flexibility since building is existing	NO	DSUP 2012-0032	Flexibility, Small
FY13	Eisenhower East Block 19	2250 Mill Road	Residential Multifamily Apartment Building	518,400		LEED Certified or Equivalent green building certification	YES	DSUP 2013-0002	Exceeded Policy
FY13	George Mason Elementary Addition	2601 Cameron Mills Rd.	10,789 sf new classrooms and cafeteria		10,789	Requested flexibility – will strive for LEED Silver equivalency but will not obtain certification	NO	DSUP 2012-0034	Flexibility, Small
FY13	The Middleton Townhouses	333 N. Royal Street	10,692 sf Residential (4 townhouses)	10,692		LEED Certified or Equivalent green building certification	YES	DSUP 2012-0029	Small
FY14	Cromley Row	317 N. Columbus St.	10,180 sf Residential (5 Townhouses)	10,180		LEED Certified or Equivalent green building certification	YES	DSP 2012-0024	Small, DSP
FY14	Tony’s Corner	2700 Jefferson Davis Hwy.	10,525 sf Retail	10,525		LEED Silver or Equivalent green building certification	YES	DSP 2012-0030	Small, DSP
FY14	Slaters Lane Residences	800 Slaters lane	56,686 sf Residential (33 units)	56,686		LEED Certified or Equivalent green building certification	YES	DSUP 2012-0031	Small
FY14	Travelodge Redevelopment	700 N. Washington St.	35,786 sf Residential and 6,354 sq. ft. Retail	41,432		LEED Certified or Equivalent green building certification	YES	DSUP 2013-0002	Small
FY14	The Dorn Buildng	521 E. Howell Avenue	2,956 sf Retail		2,956	Requesting Flexibility – will achieve points for LEED Silver but not get certified	NO	DSP 2013-0010	Flexibility, Small, DSP
FY14	The King Building at 923 (Extension)	5200 Filmore Avenue	1,492 sf addition for a two story restaurant and two residential units		1,492	Requested flexibility – will incorporate green building design elements into the project	NO	DSUP 2013-0012	Flexibility, Small
FY14	Wilkes Townhomes Development	711 Wilkes Street	12,622 sf Residential (6 townhouses)	12,622		LEED Certified or Equivalent green building certification	YES	DSP 2013-0020	Small, DSP
FY14	South Patrick Street Residences	206, 208, 210, & 212 S. Patrick Street	17,220 sf Residential (5 townhouses)	17,220		LEED Certified or Equivalent green building certification	YES	DSUP 2013-0021	Small
FY14	1505 Powhatan Townhouses	1505 Powhatan St.	36,610 sf Residential (16 townhouses)	36,610		LEED Certified or Equivalent green building certification	YES	DSUP 2013-0022	Small
FY14	Health Department Redevelopment and 511 Oronoco Street	509 N. St. Asaph and 511, 513 and 515 Oronoco Street	69,873 sf Residential (16 units)	69,873		LEED Certified or Equivalent green building certification	YES	DSUP 2013-0001	Small

FY15	The Mill at 515	515 North Washington St.	13,484 sf expansion for 9 additional residential units and conversion of office to 25 residential units	13,484		LEED Certified or Equivalent green building certification	YES	DSUP 2013-0023	Small
FY15	Powhatan Townhouses	1333 Powhatan Street	35,620 sf Residential (18 townhouses)	35,620		LEED Certified or Equivalent green building certification	YES	DSP 2013-0027	Small, DSP
FY15	Marino's Addition	3100 Jefferson Davis Hwy	2,547 sf addition to an existing restaurant		2,547	Requested flexibility – will incorporate green building design elements into the project	NO	DSUP 2014-0005	Flexiblity, Small
FY15	Robinson Terminal South	2 Duke Street	269,183 sf of Residential and 11,473 sf of Commercial	273,661	6,995	Compliance with Green Building Policy with Green Building Policy, with flexibility requested for the historic warehouse.	YES	DSUP 2014-0006	Flexibility
FY15	West-Parc Townhomes	1323 Wilkes Street and 421 South Payne Street	67,830 sf Residential (22 townhouses)	67,830		LEED Certified or Equivalent green building certification	YES	DSUP 2014-0008	Small
FY15	VTs Student Housing	3737 Seminary Road	72,942 sf Residential (39 units)	72,942		LEED Certified or Equivalent green building certification	YES	DSUP 2014-0011	Small
FY15	Southern Towers Clubhouse and Day Care	4901 Seminary Road	42,496 sq. ft. clubhouse and a day care center	42,496		LEED Silver or Equivalent green building certification	YES	DSUP 2014-0024	Small
FY15	Old Dominion Boat Club	0 Prince Street	15,047 sq. ft. boat club		15,047	Requested flexibility	NO	DSUP 2014-0026	Flexibility
FY15	Victory Center (Amendment)	5001 Eisenhower Avenue	Sperate 512,537 sf of office into two office buildings, convert 10,000 sf to retail	512,537		LEED Silver or Equivalent green building certification	YES	DSP 2014-0030	DSP
FY15	Aldi (Duke St)	4580 Duke Street	17,307 sq. ft. grocery store	17,307		LEED Silver or Equivalent green building certification	YES	DSP 2014-0046	DSP, Small
FY15	Landmark Mall Additoinal Floor Area	5801 & 5815 Duke Street	18,000 sq. ft of additional floor area for residential and commercial uses	18,000		LEED Certified for Residential & LEED Silver for Commercial	YES	DSP 2015-0003	DSP, Small
FY16	Park Residences	601 N. Henry Street	18 Residential Town Houses	49,034		LEED Certified or equivalent	YES	DSUP 2014-0017	Small
FY16	1800 Mt. Vernon	1800 Mt. Vernon Avenue	A 4-story mixed use retail/residential building.	54,476		LEED Certified for Residential & LEED Silver for Commercial	YES	DSUP 2014-0019	Small
FY16	Hunting Point Clubhouse	1202 & 1204 S. Washington St.	8,082 sq. ft. residential amenity building	8,082		LEED Certified or Equivalent green building certification	YES	DSP 2014-0025	Small, DSP
FY16	Immanuel Lutheran Church & School Expansion	1801 Russell Road	An addition to an existing private school and church	32,408		LEED Silver or Equivalent green building certification	YES	DSP 2014-0041	Small, DSP
FY16	Old Colony Inn	1101 N. Washington St.	Rennovation and expansion from 49 rooms to 95 rooms with a 40-seat restaurant and 20-seat meeting area.	62,403		LEED Silver or Equivalent green building certification	YES	DSUP 2014-0043	Small
FY16	Towne Motel	800 N. Washington St.	98 guest-room hotel	53,345		LEED Silver or Equivalent green building certification	YES	DSUP 2015-0004	Small
FY16	First Baptist Church Expansion	2932 King St.	Expansion to an existing church		9,540	Requesting Flexibility – will achieve points for LEED Certified but not get certified	NO	DSP 2015-0022	Flexibility, Small, DSP
FY17	Cameron Mills Fire Station	2801 Cameron Mills Road	Construction of a new fire station to replace the old fire station	15,407		LEED Silver or Equivalent green building certification	YES	DSUP2016-0010	Flexibility, Small
FY17	King Street Hotel	1611, 1617, 1619, 1711 King St., 100 Harvard St.	A new mixed-use building with a 124-room hotel, office space, and restaurant on the ground floor	57,574		LEED Silver or Equivalent green building certification	YES	DSUP2016-0024	Small

	Flexibility Approved
	DSP
	Small (less than 75,000 sf or less than 50 residential units)
	Exceeds Policy