

Commissioners:

Generally staff's response is that too much is recommended too quickly and too much is set for Fiscal Year (FY) 2020. Even with additional funding, it is not possible for existing staff to run this many simultaneous projects, new programs or changes in city policy and operations. Most recommendations are not funded in the recently adopted FY2019 budget or the City's 10-year Capital Improvement Program (CIP). Recommendations that are targeted for completion by FY2020 would all have to be included in the next budget cycle that begins this fall. Therefore the adoption of these recommendations would have to be evaluated, vetted, and approved for the budget process to be completed by FY2020.

The City cannot complete the update of the Environmental Action Plan (EAP) in FY2019 and have all these actions/targets completed by FY2020 without research, analysis, development, design and implementation time with constrained resources that will factor into even achieving FY2023 for some actions. Recommendations need to be prioritized for short-term and staff recommends some be moved to mid-term.

The fiscal impacts in the near and long-terms are substantial. Staff recommends not having interim dates in the short-term recommendations but allow flexibility to acknowledge timing for cost effectiveness in implementation. Staff will be evaluating and estimating to the degree feasible fiscal impacts and provide more fiscal information in July.

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1. Energy

Renewable Energy

Goal Transition Alexandria City Government Facilities to 100% clean energy to mitigate Alexandria’s contribution toward climate change.

Target By FY2023¹, supply all City-operated buildings and facilities with 100 percent renewable energy.

Agree with the intent. This target far exceeds all regional and many national goals and commitments. Furthermore, peer municipal governments across the U.S. with similar goals have timelines ranging from about 2025-2030 or later. Currently, the financial, staffing, and technical resources required to achieve this target are not available or projected to be available within the necessary timeline. Should this change, it is in the City's best interests to pursue this target through a financially-optimized strategic plan, which may not be agreeable with the FY2023 timeline.

Accountable General Services

Short Term Actions

1. By FY2019, increase Renewable Energy Certificate (REC) purchases to offset 100% of City government facilities electricity use. This is meant to be a temporary measure that is phased down or phased out as direct purchasing² and onsite generation represent an increasing share of City electricity supply over time with RECs offsetting the balance.

¹ Unless otherwise indicated, all targets and actions are intended to be completed no later than the end of the fiscal year identified.

² Direct purchasing includes wholesale transactions such as an offsite PPA, voluntary purchases via a utility-run green tariff program, or other methods which are able to demonstrate regional additionality.

Council approved funding for FY2019 to achieve approximately 60% of this action's recommendation. Staff suggests eliminating the FY2019 deadline and considering a short-term recommendation to be within FY2023 that also provides flexibility for other opportunities.

2. By FY2019, agree to pursue joint procurement of renewable energy with other regional entities with sufficient combined electricity use through direct purchasing opportunities.

Staff agrees with the intent and respects the EPC's specific interest in leveraging the region's electricity demand to purchase renewable energy directly from suppliers. Staff knowledge of direct purchasing continues to grow and though it acknowledges this is an excellent opportunity to demonstrate regional cooperation, staff recommends the City not limit its pursuit of renewable energy to only regional partners.

Furthermore, the selection, negotiation, and implementation of a long-term direct purchasing instrument, including utility-scale purchase power agreements (PPA), among several regional (or non-regional) partners will be a complex process. This will require substantial staff time and effort, and would impact the prioritization of other short-term recommendations by the EPC in Phase one.

Staff recognizes that the pursuit of other related recommendations, such as the incorporation of electric vehicles and charging infrastructure into City operations, may increase energy use in the short-term until electricity supply and use issues change. Therefore, staff suggests and will work with EPC on a short-term action that provides sufficient resources and staffing to pursue an energy supply transition plan to achieve the goal of 100% renewable energy. Through a series of short-, mid-, and long-term goals, this plan would evaluate and phase the strategic implementation of energy efficiency, on-site generation, battery storage, and off-site direct purchasing opportunities, as well as other related opportunities and issues.³

³ Examples include, but are not limited to, Philadelphia's Municipal Energy Plan (<https://beta.phila.gov/media/20170927092513/MunicipalEnergyMasterPlan.pdf>) or San Diego's Sustainable

3. By FY2023, ensure that onsite renewable electricity generation⁴ combined with direct purchasing of offsite renewable electricity account for at least 80% of electricity use at all City-operated buildings and facilities. REC purchases will make up the remainder to achieve 100% renewable energy supply.

Staff responses to this section's Target and Short Term Action 2 also serve as a response to this action. Committing to 100% by FY 2023 exceeds all regional goals and commitments. This timeline assumes that many on-site capital projects could be identified, budgeted, planned, designed, and constructed simultaneously while also identifying and coordinating a PPA. Staff needs to develop an economically-viable pathway to achieve this goal with a realistic timeline.

Energy Advisory Board (SEAB) recommendations to the City of San Diego on a municipal energy strategy plan (https://www.sandiego.gov/sites/default/files/seab_municipal_energy_strategy_plan_content_recommendations_3_2_17.pdf) <https://beta.phila.gov/media/20170927092513/MunicipalEnergyMasterPlan.pdf>) or San Diego's Sustainable Energy Advisory Board (SEAB) recommendations to the City of San Diego on a municipal energy strategy plan (https://www.sandiego.gov/sites/default/files/seab_municipal_energy_strategy_plan_content_recommendations_3_2_17.pdf)

⁴ Within the technical potential of onsite renewable electricity generation.

Energy Efficiency

Goal Accelerate implementation of all feasible energy efficiency and emission reduction measures for City-owned buildings and infrastructure, and City-affiliated transportation.

Target By FY2023, City-owned buildings and infrastructure should use 22% less energy on average (per square foot or relevant normalized metric) as compared to 2018 levels of energy use.

Agree with intent. Current and projected funding and staffing resources are currently not available to implement the magnitude of energy use reduction projects to meet this target. Need to change the target or significantly increase staff resources to meet it. The target fails to take into account cost effectiveness, consideration of funding constraints, phasing, project development, coordination, and implementation.

Accountable General Services; Transportation & Environmental Services

Short Term Actions

1. By FY2019, establish an energy efficiency policy and evaluation cycle for City-owned buildings and infrastructure that specifies when energy capital (lights, boilers, etc.) or building features should be evaluated for energy efficiency improvements.⁵

No funding or resources are available in the already approved FY2019 budget to develop a comprehensive and tactical energy strategy. Staff recommends an action to propose funding and staff resources to development a portfolio-wide energy optimization investment plan independent or as part of a broader energy supply transition planning effort as recommended in the Renewable Energy section. Timing

⁵ See Chula Vista, California (pop. ~260k) – City Operations Sustainability Plan, which identifies energy efficiency goals for municipal buildings. <http://www.chulavistaca.gov/home/showdocument?id=9725>.

and 22% over a base year of 2018 is too aggressive for staff resources, funding, and feasible outcome of all projects.

2. By FY2021, initiate electric vehicle pilot programs for DASH, ACPS, and the City vehicle fleet in order to evaluate costs, benefits, technical feasibility, and implementation opportunities to transition City fleet vehicles to electric vehicle technology, and vehicle charging infrastructure at City facilities.⁶

The city may not have legal authority to require ACPS electric vehicles. Adding electrical vehicle loads to buildings can increase the electrical use and could adversely affect reducing the GHG goal in the short-term. EV energy impact will need to be tracked. Any pilot program(s) will be dependent upon identifying capital and/or operating funding.

3. By FY2021, complete retrofits of all City facilities' conventional lighting with LED lighting and by FY2023 retrofit 100% of streetlights and outdoor lighting to LED technology subject to the availability of a suitable, safe LED solution and zoning constraints.⁷

Lighting retrofits for all City facilities will be dependent on future City CIP funding and staffing allocated to lighting retrofits. Not all existing lighting is amenable for retrofit, either financially or technically. Funding to retrofit parks and outdoor lighting is limited or not currently specified in the City's CIP. The current City CIP only specifies funding to support converting approximately 16% of streetlights by FY2023. There are not enough staff or resources to meet these aggressive targets. City will need to either significantly increase staff and resources or move target dates. FY2023 recommendation of 100% is not coordinated with the practicable considerations of negotiations and implementation plan with Dominion for LED street light upgrades.

⁶ Pilot programs for DASH and ACPS would be subject to approval by the applicable boards.

⁷ Staff should consider the use of Energy Savings Performance Contracts or other financing mechanisms that can allow the blending of lighting projects with long-term energy efficiency measures.

Community Energy Use

Goal Reduce greenhouse gas emissions associated with community energy consumption in support of the City’s global greenhouse gas emissions reduction goals.

Target By FY2023, reduce the greenhouse gas emissions per capita associated with community energy use in Alexandria by 30% below 2005 levels.

Agree with intent

Accountable General Services; Transportation & Environmental Services; Planning & Zoning

Short Term Actions

1. By FY2019, expand participation in state-level policy and regulatory activities relevant to identifying and creating opportunities to reduce greenhouse gas emissions associated with community energy use. This should include lobbying for bills that would expand renewable energy purchasing by the community or utility, advocating for the state of Virginia to join the Regional Greenhouse Gas Initiative (RGGI), setting a Renewable Portfolio Standard for electricity generation, and granting Alexandria authority to undertake energy and transportation initiatives to reduce greenhouse gas emissions that are currently prohibited by state law. This should also include intervening in regulatory dockets related to the composition of the utility generation supply mix, utility energy efficiency programs, or utility rates.

The timing, staffing, and resources required for effective state-level involvement need to be evaluated and coordinated with the City Attorney’s Office (CAO) and City’s legislative team. Substantial regulatory influence may require expertise outside the City or regional partners, and therefore additional funding.

2. By FY2020, adopt an ordinance implementing a Commercial Property Assessed Clean Energy (C-PACE) program to support sustainable economic development opportunities.⁸

Staff agrees with the intent. Staff is currently facilitating and coordinating educational opportunities about C-PACE; however, staffing levels and program funding are insufficient for the program's implementation, which would require additional community outreach, business community engagement, program design, ordinance development and passage, administration procurement, and launch. Furthermore, the FY2019 budget has already been adopted, which hinders access to these required additional resources.

3. By FY2020, develop a community electric vehicle charging infrastructure strategy.⁹

Electrical vehicle charging infrastructure is being added to development projects through the planning and zoning process, though this may increase overall community electricity use in the short-term it can also improve local air quality at the same time. Electric vehicle use and the installation of charging stations will need to be monitored for short-term increases in GHG emissions resulting from transportations transition of conventional fuels to electricity, as well.

⁸ Arlington adopted a C-PACE program in late 2017. <https://newsroom.arlingtonva.us/release/arlington-first-in-virginia-with-new-financing-tool-for-sustainable-buildings/>. Ann Arbor, MI adopted a C-PACE program in 2010. <https://www.a2gov.org/a2energy/commercial/Pages/default.aspx>.

⁹ Sacramento approved Electric Vehicle (EV) Strategy in 2017, which seeks to spur the use of zero emission vehicles by establishing outreach programs, expanded charging infrastructure, and new incentives to increase adoption. <https://www.cityofsacramento.org/Public-Works/Electric-Vehicle-Initiatives/EV-Strategy>

2. Climate Change

Adaptation

Goal Make Alexandria resilient and sustainable to climate change impacts.

Target By FY2023, Alexandria will have agreed-upon metrics for measuring its residents' exposure to climate risks.

Accountable Transportation & Environmental Services; Health, Planning & Zoning

Short Term Actions

1. Through at least FY2021, provide budget support for an ongoing study¹⁰ by the Metropolitan Washington Council of Governments (MWCOG) and the U.S. Army Corps of Engineers (USACE) on ways to address coastal flooding and storm damage, taking into account projected rise in sea level. The study is scheduled to be completed by 2021 and Alexandria committed approximately \$300,000 over the duration of the study.

Cost share partners have dropped out and the study is on hold. Staff recommends supporting these general efforts but not specifying a single project. A recommended revised action would be: Provide budget support on regional efforts to address coastal flooding and storm damage, taking into account projected rise in sea level. This recommendation could move to a mid-term action.

2. By FY2023, Alexandria will develop a plan, either independently or in cooperation with regional partners, on strategies for addressing the public health impacts of

¹⁰ The 2017 announcement of the MWCOG/USACE study: <https://goo.gl/jF2ynb>

climate change, including extreme heat events, air quality impacts, vector-borne illnesses, and other potential threats.¹¹¹²

Staff agrees in doing this action in conjunction with the Health Department staff and their Comprehensive Community-Driven Health Assessment results and significant public input as a part of Phase 2 EAP update under the Environmental Health section and not in Phase 1 recommendations.

3. By FY2023, maintain class 6 Community Rating System (CRS) rating for flood insurance as FEMA's criteria are updated.¹³

Agree. Staff resources are 1 FTE to maintain this. See this link for [The Costs & Benefits of the CRS Program in Virginia](#).

¹¹ See *The Impacts of Climate Change and Human Health in the United States: A Scientific Assessment*: <https://health2016.globalchange.gov>

¹² See NRDC, *Climate Change and Health in Virginia*: <https://assets.nrdc.org/sites/default/files/climate-change-health-impacts-virginia-ib.pdf>

¹³ See <https://www.fema.gov/national-flood-insurance-program-community-rating-system>

Mitigation

Goal Institutionalize procedures to facilitate meeting the City's goals for mitigation of community greenhouse gas emissions.

Target By FY2022, reduce per capita greenhouse gas (GHG) emissions in Alexandria to 10 metric tons per year. After FY2022, achieve annual emissions reductions of at least 5% per year in order to meet the City's longstanding goal of reducing emissions 80% below 2005 levels by 2050.

Agree with intent. Other factors outside our control are also significant factors in our GHG emissions. Dominion is <5% renewable now. Fuel mix is a significant factor in our GHG emissions.

Accountable City Manager, Transportation & Environmental Services; Planning & Zoning; Office of Management and Budget

Short Term Actions

1. By FY2019, the City will establish a Joint Climate Change Task Force, including but not limited to city staff and representatives of the Environmental Policy Commission, the Transportation Commission, the Planning Commission, the Budget and Fiscal Affairs Advisory Committee, and the Public Health Advisory Commission. The Task Force's primary charge will be to recommend actions that can meet the city's targets for community-wide GHG emissions reduction, evaluate the effectiveness of these actions through comparison to emissions inventories, and monitor climate change science, health, and policy developments of potential interest to the city and its residents. The Task Force will advise City Council, carry out the necessary analysis, and provide community engagement.

New task force or commission is not supported by staff at this time to evaluate GHG reduction and update Climate Action Plan due to limited staff resources and overlap of EPC role. Additional resources would likely be needed or staff resources will be spent on supporting this new group and not on implementation efforts. Staff recommends updating the Climate Action Plan by FY2023.

2. By FY2020, the City, with input from the Joint Climate Change Task Force, will begin an ongoing marketing campaign to spread the adoption of strategies and practices among Alexandria residents and businesses to reduce community GHG emissions. The campaign should be launched with a retreat, open to city residents and stakeholders, to boost community engagement, solicit recommendations, and communicate the City's commitment to addressing climate change.

Staff supports GHG priorities for input into the legislative package and engaging the community to actively participate but without additional burden of staff support for a new task force.

3. By FY2020, the City Manager's office, with advice from the Task Force, will determine appropriate policies and guidelines for estimating projected GHG impacts of capital improvement projects and city programs likely to have a significant impact on community-wide greenhouse gas emissions and the long-term costs associated with those emissions.

Staff generally agrees with the intent, but there would be an additional cost to each project and city program to conduct these GHG evaluations, and additional funding, staffing, and technical resources would be needed to develop and implement this policy. Not all CIP projects or City programs would be applicable, and equity issues or other City priorities may need to be considered when evaluating projects and programs for GHG impacts.

4. By FY2021, the Task Force will work with City staff to produce an updated Climate Change Action plan to achieve community-wide GHG emissions reductions of at least 35% below 2005 levels by 2026, and that are consistent with the city's goal of reducing emissions 80% below 2005 levels by 2050. The plan will include recommendations for specific policies and programs to achieve emissions reductions through: improvements in energy efficiency in both new and existing buildings transportation system changes to reduce vehicle miles traveled and speed the transition to zero-emissions vehicles, increase renewable energy production and availability for city residents, work with the commercial sector to curtail consumption of fossil fuels, and engage Alexandria residents in reducing emissions.

The plan will also recommend financial incentives, financing mechanisms, and City budgets required to achieve designated goals.

This recommendation to GHG 35% below 2005 by 2026 should be aligned with EAP targets and Paris commitment and not conflicting with other GHG targets. The timing by 2026 is aggressive compared to other targets.

3. Green Buildings

Staff Overview Response to the EPC Recommended Green Building Goals, Targets and Actions for Private and Public Buildings:

The City's Green Building Policy (GBP) will be updated in FY2019. Through this analysis process, with support of third-party consultant, the update will consider topics such as:

- The strengths and weaknesses of the current GBP
- The effectiveness of the current GBP
- Strategies to make the biggest environmental impact
- Balancing the GBP with other City plans and policies
- Expansion of the GBP to non-development applications

Overall, the GBP update in FY2019 is an essential process that will inform the green building goals, targets, and actions to be adopted by City Council with the EAP. Therefore, the green building recommendations in the EAP should lay the groundwork for the forthcoming GBP update and must be mindful to exclude overly-specific actions in the EAP update that require analysis of costs, impacts and technical feasibility that will be completed through the process of updating the GBP in FY2019.

Public Buildings

Goal	Optimize the economic, environmental and social performance of buildings in the City of Alexandria. <i>Staff agrees with this goal.</i>
Target	By FY2023, all new or renovated City-owned buildings shall be at least 50% more energy efficient than code; new or renovated school buildings shall seek to meet a <i>net zero energy</i> standard; and the City will seek credible third party certification for all new construction, major renovation and half of the existing building portfolio.
Accountable	Planning & Zoning; Transportation & Environmental Services; Department of Code Administration

Short Term Actions

Recommended steps to achieve the goal. Many short-term actions will require community engagement activities with relevant stakeholders which may inform implementation.

1. All publicly funded new non-school buildings, including all new construction and *major renovations*¹⁴ shall optimize energy demand so that any project initiated between FY2019 and FY2023 is at least 50% more efficient than code¹⁵.
2. All publicly funded school building projects initiated during or after FY2020 shall seek to meet a *net zero energy* standard.

Staff Response to Actions #1 & 2: Treatment of public buildings will be evaluated as part of the forthcoming Green Building Policy update. The proposed timelines for FY2020 and FY2023 are aspirational and conflict with public building projects and identified funding levels in the current CIP which will be initiated or delivered after those timeframes. In addition, financial resources for staff education, etc. may be necessary. Further, staff has concerns regarding the technical and financial feasibility of applying more stringent green building requirements to schools as this may have legal implications which necessitates further analysis.

3. By FY2020, projects initiated for all new publicly funded buildings, including all new construction and major renovations, shall manage onsite rainwater from the 98th percentile rainfall¹⁶ event and shall reduce whole building (indoor and outdoor) water consumption by at least 50%¹⁷

Staff agrees with promoting the use of green infrastructure (GI) on public facilities for stormwater management. The City adopted a Memo to Industry effective 4/1/2018 that established a policy for development with over 2,500 square feet of land-disturbance to meet at least 65% of stormwater treatment using GI. This approach was vetted and approved through multiple meetings with the development community. In staff's opinion and discussed in the vetting process, 65% is feasible to attain on most developments in the City and encourages the use of GI. Prioritizing the use of GI practices is consistent with the City's Eco-City Charter guiding principle of protecting our water resources

¹⁴ Defined as: either (a) The total cost of the renovation relating to the building enclosure or the building systems is higher than 25% of the value of the building, excluding the value of the land upon which the building is situated; or (b) More than 25% of the square footage of the surface of the building enclosure and/or more than 25% of the energy using portions of the MEP systems undergo renovation.

¹⁵ building code being enforced at time of project initiation

¹⁶ 85th percentile rainfall event for zero-lot line projects

¹⁷ an example baseline and design calculation for the 50% reduction can be found here:

<https://www.usgbc.org/node/10877754?return=/credits/new-construction/v4/pilot-credits>

through the use environmentally responsible stormwater control, while addressing our Chesapeake Bay pollutant removal requirements.

However, the recommended EAP actions are inconsistent with Virginia and City of Alexandria requirements for stormwater management. The Virginia Stormwater Management Program's (VSMP) design storm is the 1" event which is approximately the 90th percentile storm. This criteria was developed by the Virginia Department of Environmental Quality (VDEQ) and the Center for Watershed Protection, and was determined to meet Federal and State requirements to control nonpoint source pollution and localized flooding. Based on our analysis, the 98th percentile storm for Alexandria would be over 2" of rainfall, potentially doubling the size of the capture area for GI – impacting buildable area and dramatically increasing project costs. (Fiscal impacts will be explored in more detail at a later time.)

The term "managed on site" could be inferred to mean treated onsite or retained on site. Assuming managing is equivalent to retaining the 98th percentile rainstorm on site, it is not technically feasible in most areas of the City. Full infiltration is difficult or impossible due to poorly drained soil types (C/D) throughout the City; therefore, most green infrastructure (GI) practices require underdrains to be compliant with Virginia Best Management Practices (BMP) clearinghouse design guidelines. These underdrains hinder an ability to retain water onsite. Managing the 98th percentile rain event onsite would also have significant impact on the cost of projects. As this goal is much higher than legally required, projects would be required to implement significantly more and/or larger infrastructure at a much greater cost.

The term 'major renovation' must consider the definitions found in other sections of City code. If applied as proposed, interior renovations may be required to meet stormwater regulations on an exterior portion of the site. This may lead to disturbance of over 2,500 square feet which would then lead to additional requirements under the City and State VSMP regulations. For example, the City Hall interior renovations would not only have requirements to manage stormwater onsite, but the installation of these management structures may also generate additional stormwater requirements under the mandated VSMP regulations.

Water reuse would be problematic from a stormwater perspective in Virginia as well. Plumbing systems would have to be redesigned to include separate piping with backflow preventers and labeled as non-potable water system within the building. This would again add significant costs to major renovation projects. Virginia Plumbing code section 1303 regulates the treatment of rainwater for use in non-potable applications.

Additionally, further analysis is necessary to determine if reducing whole building (indoor and outdoor) water consumption by 50% over current consumption levels is feasible as the City has already taken efforts to reduce water consumption (indoor and outdoor). A majority of water use is irrigation oriented, and the City has made significant improvements in reducing water use. If the EPC targets reducing water consumption, staff recommends suggesting an appropriate benchmark value to achieve that reflects climate, type of operations, and building characteristics.

4. By FY2023, the City shall develop and implement a plan to track, disclose and optimize operational performance for 95%¹⁸ of City-owned buildings and achieve minimum level of certification under a nationally recognized third party certification program for 50% of eligible publicly owned buildings.

Staff is in agreement with the EPC to develop and implement a plan to track, disclose, and optimize operational performance of City buildings could be feasible by FY2023 with additional funding and staffing resources. Staff interprets the definition of “operational performance” to mean energy performance; however, further coordination with the EPC is needed to confirm the Commission’s understanding. Moreover, clarification is needed on the typology of buildings to be included in the EPC’s recommendation of 95% of City building floor area. Additionally, significant funding and staff resources are needed to implement the EPC’s recommendation for the City to achieve minimum level of certification under a nationally recognized third-party certification program for 50% of eligible publicly owned buildings.

¹⁸ All percentages based on building area

Private Buildings

Goal Optimize the economic, environmental and social performance of buildings in the City of Alexandria.

Staff agrees with this goal.

Target By FY2020, the City's Green Building Policy will apply to all new construction and major renovation of private residential, non-residential, historic and mixed-use buildings projects, and will include quantifiable targets for the reduction of Greenhouse Gas Emissions (GHGs), whole building water use, and storm-water flows.

Accountable Planning & Zoning; Transportation & Environmental Services;
Department of Code Administration

Short Term Actions

Recommended steps to achieve the goal. Many short-term actions will require community engagement activities with relevant stakeholders which may inform implementation.

1. In updating the Green Building in FY2019, Staff shall study and strongly consider incorporating the following recommendations for all new construction and major renovation of private residential, non-residential, historic and mixed-use buildings projects initiated between FY2020 and FY2023:
 - a. Install *Advanced Energy Monitoring/Sub-metering*¹⁹
 - b. Designed at least 40% more energy efficiently than code.
 - c. Meet the 'renewable ready' provisions of the International Green Construction Code
 - d. Implement low impact development or green infrastructure so that rainwater from the 95th percentile rainfall²⁰ event is managed on-site

¹⁹ In accordance with LEED v4 EA Credit: Advanced Energy Metering

²⁰ 85th percentile rainfall event for zero-lot line projects

- e. Implement strategies that reduce whole building (indoor and outdoor) water consumption by at least 25%²¹

Application of the EPC's recommended action to apply the GBP to all new construction and major renovation of private residential, non-residential, historic and mixed-use buildings requires a multi-faceted effort and further analysis through the GBP update to determine technical and financial feasibility; including the various recommendations the EPC suggests (i.e. Install Advanced Energy Monitoring/Sub-metering). Triggers/thresholds for application of the Policy to all new construction and major renovation must also be considered. Subsequently, significant staff resources are required for enforcement of the GBP on non-development applications and monitoring of post-occupancy performance on all projects subject to the Policy. Staff also believes that the GBP must be flexible because it is unlikely that one set of criteria can be successfully applied to all building categories (i.e. new construction, renovations and historic buildings).

In addition to the previously mentioned concerns in reference to managing stormwater on public facilities, Virginia is a Dillion rule state and it is staff's opinion that the requirement to manage the 95th percent rainfall event onsite cannot be legally enforced on private development. Additionally, City soils are poorly draining and don't allow the type of infiltration needed to manage these larger storms. Based on our analysis, the 95th percentile storm for Alexandria is approximately 1.5". Designing for this larger storm event will dramatically increase the size of the onsite GI, when impacting buildable area and project costs (with fiscal impacts explored later.) It is also important to note that the City does not have the legal authority to require stormwater management on major renovation projects or any projects that do not disturb more than 2,500 square feet of land.

Further, the City has limited legal authority to require buildings to exceed the Virginia Energy Conservation code requirements or to be renewable ready.

2. By FY2020, designate one or more Green Development Zones²² to incentivize private developers to meet and/or exceed the City's Green Building Policy and to recruit green businesses to Alexandria. Staff shall consider Green Development Zone incentive strategies including, but not limited to:

²¹ an example baseline and design calculation for the 50% reduction can be found here:

<https://www.usgbc.org/node/10877754?return=/credits/new-construction/v4/pilot-credits>

²² <https://law.lis.virginia.gov/vacode/title58.1/chapter38/section58.1-3854/>

- a. FAR density increases
- b. Real estate property tax abatement
- c. Partial/total waiver of permitting fees
- d. Establishment of green building revolving fund

Potential incentives for application of one or more Green Development Zones will be evaluated through the GBP update process in FY2019. Further, incentives such as the EPC's recommendation for real estate property tax abatement require coordination, evaluation, and Council's approval; therefore, it is likely not feasible to designate one or more Green Development Zones by FY2020.

3. By FY2023, the City's Green Building Policy shall be reviewed and updated to apply to the next five-year period of FY2024-2029.

Staff understands the importance of evaluating the performance of the GBP once it is updated and plans to continue an annual inventory of the projects subject to the Policy. However, significant staff resources and funding would be required to implement a complete update to the GBP in FY2023 to the next five-year period. Further, five years is not an adequate timeframe to evaluate the performance of the updated Policy as it is typical for a project to take several years to be completed following the initial application. Lastly, the industry has undergone expedient advancement of green building technologies and methods over the last ten years. Moving forward, the pace of green building technology has steadied, and staff believes that another major update to the GBP will not be warranted by 2023.

4. Land Use and Open Space

Open Space

Goal Increase open space quantity and improve the environmental quality of open space by increasing native biodiversity, reducing impervious surfaces and incorporating innovative design strategies.

Staff supports this goal

Target Through FY2023, Alexandria's open space ratio of 7.3 per 1000 residents²³ is maintained or increased, the quality and characteristics of shared open space is ecologically and environmentally diverse and beneficial, publicly accessible, and open space requirements are consistently applied and inclusive of innovative and sustainable design.

Accountable Planning & Zoning; Recreation, Parks and Cultural Affairs; Office of Historic Alexandria; Transportation & Environmental Services; City Boards and Commissions including Parks and Recreation Commission and Beautification Commission

Short Term Actions

1. Protect and add high quality open space through acquisition, preservation and conservation as prescribed in the 2017 Open Space Master Plan and, by FY2023, evaluate increasing the target to 7.5 per 1000 residents.

Staff is in agreement to implement the Open Space Master plan and evaluate increasing the target for public open space.

²³ The ratio, set in the 2002 Open Space Plan and re-committed to in the 2017 Open Space Plan Update, was based on 9322 acres of public open space and a population of 128,283 persons divided by 1,000.

2. Enforce existing open space acreage commitments in Small Area Plans (approximately 293 acres) and require consistent and meaningful open space on private development in at least the amount required within basic zoning regulations. Meaningful includes at ground level; vegetated with native plants including large shade trees; no more than 20% impervious surfaces; implementing a framework for developer contributions to off-site open space, and; providing open space within commercial zones.
 - Staff currently addresses several activities stated in this short-term action and recommends that these elements not be in the EPC recommendation as these are existing and established practices and policies:
 - Enforces the 293-acre commitments of publicly accessible open space in SAPs.
 - Ensures that new developments incorporate appropriate forms of private and public open space and evaluates the open space balance on a case-by-case basis.
 - A framework for developer contributions to off-site publicly accessible open space exists as in-lieu contributions.
 - Public open space is currently vegetated with native plants and shade trees through application of the landscape guidelines, which are currently being updated.
 - For private open space requirements in the Zoning Ordinance, the Planning & Zoning Department will re-evaluate the Zoning Ordinance definition of open space and requirements within zones, according to sound urban design principles which include a range of open space types, in addition to publicly accessible areas.
 - For public open space, the Open Space Master Plan Update (2017) has established that impervious surfaces currently constitute 13% of the total acreage within the City's protected open space. The plan update recommends the City should look towards maintaining its impervious surfaces within its protected, publicly accessible open spaces to less than 25% of the total area. This will be challenging, as plazas and synthetic turf athletic fields are considered both impervious and open space. The ability to reduce the amount of impervious surfaces will likely be found in parking lot paving, trail surfacing, and playground surfacing.
3. By FY2020, City Council will:
 - a. reinstate the Open Space Fund; and

- b.* reestablish the Open Space Steering Committee to evaluate, prioritize, and publish a list of potential open space sites on both public and private property (vacant lots, forested and natural areas, stream valleys). Tools to be considered for open space preservation or restoration will include purchase, easements, or repurposing land as funds can be made available, development occurs, or partnerships can facilitate.
- Although the tax set-aside earmarked for public open space has been eliminated, the Open Space Fund continues to exist and receives CIP funds. Re-establishing a tax set-aside has budget implications and would require City Council approval. In addition, staff resources are required to analyze and propose an appropriate tax set-aside fee.
 - The re-establishment of an Open Space Steering Committee for public open space can occur but would require additional staff resources that are not currently available, though may be possible in the short-term action timeframe of five years.
4. By FY2023, increase by 50% to 450 acres the amount of natural lands actively managed, including invasive species control and restoration; assemble and publicize a list of additional public lands in need of invasive species removal; and work with public and private partners to facilitate additional projects for removal and restoration.
- Staff generally agrees.
 - Maintaining an accurate, up-to-date list of public lands in need of invasive species removal is not practical as plant growth rates fluctuate due to environmental stressors, including changing seasonal and weather conditions. RPCA staff actively works with public and private partners to remove invasive species on a regular basis and advertises opportunities through the Buddie Ford Nature Center and through the City's volunteer website www.alexandriava.gov/volunteers.
 - RPCA could generate an annual report to publicize the increase in natural lands that have been managed toward the stated goal of 450 acres.

Tree Canopy

Goal Alexandria’s urban forest canopy coverage is healthy, diverse and targeted to specific land uses and natural features thereby providing broad environmental and social benefits such as improved air quality, enhanced property values, stormwater and flood mitigation, public health benefits, and vibrant public spaces.

Staff supports this goal

Target By FY2023, average overall tree canopy is a minimum of 40%. The 2016 analysis indicates a 36% tree canopy coverage. The next analysis in 2019 will provide an update on progress toward the 40% goal.

Accountable Recreation, Parks and Cultural Affairs; Planning & Zoning; Transportation & Environmental Services; City Boards and Commissions including Parks and Recreation Commission and Beautification Commission

Short Term Actions

1. By FY2019, develop a legislative proposal in consultation with neighboring jurisdictions and interested stakeholder groups that would give the City additional authority or support to increase tree protection, preservation, and tree canopy expansion. Include the proposal in the annual budget priority package to Richmond and advocate jointly with other jurisdictions to secure legislator sponsorship and support.
 - Staff agrees with the legislative proposal themes for initiatives involving private land and recommends that a legislative package is developed as needed over the five-year time frame of a short-term action. Limiting the legislative package development to one year could restrict the potential for state legislative approval. The City Council approves a legislative package in the Fall of each year and the next package to be developed will be reviewed in FY2020.

Review the City's current tree canopy coverage and update strategies to achieve the target including:

- (a) By FY2020, complete an analysis of increasing tree preservation and increased tree canopy coverage opportunities in the Zoning Ordinance for private property.
 - Planning & Zoning staff recommends this to be scheduled as a five-year action for the scheduling of staff resources.
- (b) By FY2020 complete an options paper, with recommendations for action, of potential incentives, policy opportunities, and potential funding sources to incentivize tree preservation on both city and private property.
 - Staff s the action as an RPCA initiative and suggests that the word “complete” is revised to “provide.”
- (c) By FY2022, the City will develop a program to conduct outreach and facilitate, via coordination, technical assistance, and incentives, and in collaboration with non-governmental organizations and other public and private partners as available, every property owner planting a least one native tree.
 - Staff agrees with the general concept and suggests removing the phrase, “every property owner planting a least one native tree,” given that not all property owners have available land to plant a tree. In addition, the City does not have the legal authority to require property owners to plant a tree on their properties. RPCA outreach activities will provide options for residents to plant new trees in other areas of the City to contribute to an increase in the overall tree canopy.

Staff recommended short-term action:

Staff will analyze the possibility of requiring five years of on-site maintenance for new plantings on development projects and update the contribution fee paid to the Living Landscape Fund for sites that are unable to meet the required amount of tree canopy cover.

5. Solid Waste

Recycling

Goal Reduce greenhouse gas emissions and other forms of pollution by optimizing the collection and processing of solid waste and improving the quality of collected recyclables in response to more restrictive global recycling markets.

Target Establish a Greenhouse Gas Emissions baseline for the collection and processing of solid waste by FY2019, measure emissions at least annually through a waste characterization study, and reduce the emissions rate by at least 12% by FY2023.

Accountable Transportation & Environmental Services

Short Term Actions

1. By FY2019, eliminate glass from single stream recycling and install special containers for only glass at all recycling drop-off centers to improve the recyclability of glass; and temporarily lower the City's recycling goal to 42% to account for the removal of glass from single stream recycling and reset the goal back to 50% no later than FY2023.

Agree with intent: Timing is not feasible due to related collection and processing contracts and the publishing of the Guide to Recycling, Yard Waste, and Trash Collection Services. The feasibility needs to be coordinated with Solid Waste Strategic Plan. Not able to commit to a date at this time.

2. By FY2019 launch a "Recycle Right" education campaign to promote and define recycling best practices with a focus on reducing recyclables contamination, discouraging the disposal of recyclables inside plastic bags, and maximizing the reduction in greenhouse gas (GHG) emissions.

Agree

3. By FY2019, coordinate with ACPS to establish an agreed protocol for weighing recyclables and establishing recycling rate goals at all ACPS schools. Support school recycling through outreach by training educators in solid waste best practices, hosting rich online materials and inviting outreach from local solid-waste disposal providers and environmental groups.

Agree with intent: ACPS has not signed off on the idea to measure and monitor at each school site.

4. By FY2020, update the City's recycling ordinance to reflect changes in the global recycling market and to prioritize recycling practices that maximize the reduction in greenhouse gas emissions (GHG) by ensuring that the most resource and energy intensive materials such as aluminum and plastics are being properly recycled. Considerations for the updated ordinance shall include convenience, signage, education, and an annual diversion plan for all multi-family and commercial properties.

Agree

Reduce

Goal Reduce total solid waste collected from City-served residential customers.

Target By FY2023, reduce the total solid waste collected from City-served residential customers by 5% compared with 2017 as the baseline.

Accountable Transportation & Environmental Services; Recreation, Parks and Cultural Affairs

Short Term Actions

Agree: Items 1, 2 and 3

1. By FY2019, develop a legislative proposal in consultation with neighboring jurisdictions and include it in the annual budget priority package to Richmond that would authorize the City to enact a deposit program for glass containers (i.e., a “bottle bill”) and to control the sale of disposable plastic bags (i.e., “bag law” or “plastic bag tax”).
2. By FY2020, the City’s composting programs result in a net reduction in Greenhouse Gas (GHG) emissions.
3. By FY2021, evaluate and make a recommendation to Council on whether to initiate variable-rate pricing for solid waste collection services to reduce waste and provide greater economic equity for residents.
4. By FY2023, reduce convenience packaging (i.e. plastic bags and plastic water bottles) in the City’s waste stream by 50%.

Agree with intent to reduce convenience packing but 50% is extremely high and may need support of a legislative "bottle bill" to make significant impact. Also, does 'waste stream' refer to regular trash or include recycling as well. If it includes recycling, this goal does not seem possible given current consumer behavior.

