ATTACHMENT 2

Draft

City of Alexandria

ENVIRONMENTAL ACTION PLAN 2040

ECO-CITY ALEXANDRIA

EAP 2040 –draft for comments

Short-term fiscal years 2019 through 2023
Mid-term fiscal years 2024 through 2028
Long-term fiscal years 2029 and beyond

1. Climate Change

Goal Increase the City's preparedness to respond to the impacts of climate change and environmental emergencies.

Target Reduce GHG emissions by 50 percent by FY2030 and 80 percent by FY2050 (baseline 2005) with significant contributions at the state and federal level with renewable energy and energy efficiency mandates.

Short-Term Actions

1.1.1 By FY2021, establish a multidisciplinary task force to guide an update of the Energy and Climate Change Action Plan. The Plan will include recommendations for specific policies and programs, each with funding strategies, to achieve emissions reductions targets through: improvements in energy efficiency for both new and existing private and public buildings; increasing of renewable energy production and availability for city residents and businesses; working to curtail consumption of fossil fuels; engaging Alexandria residents and businesses emissions reducing actions; and, identifying opportunities for climate adaptation policies and practices.

Cost Estimate: $305,000

Cost Breakdown: $150,000 is for consultant services to propose recommendations for policies and programs and $155,000 is for staff (1 FTE) to support a new task force.

1.1.2 By FY2022, determine appropriate policies and guidelines for estimating projected greenhouse gas emissions impacts from City operating and capital improvement program expenditures and investments through the City's budget process; this includes identifying the types of projects and programs likely to have a significant impact on community-wide greenhouse gas emissions and resolving how to consider greenhouse gas emissions impacts alongside other city priorities when evaluating options, then calculate costs of programs and projects marked for greenhouse gas emissions assessments. By FY2024, using a Community Energy Model, a forecast of greenhouse gas emissions should be included in the

evaluation of the cost of programs and projects alongside other city priorities to meet Environmental Action Plan goals. Results should be published consistent with the City's budget process practices.

Cost Estimate: Total annual costs are dependent on the number of projects per year

Cost Breakdown: Total annual costs are dependent on the number of projects per year that meet the guidelines (to be developed), but process will require one to three percent of project costs to estimate the GHG emissions.

Mid Term Actions

1.1.3 By FY2024, complete a climate vulnerability assessment of community and infrastructure systems to evaluate the vulnerabilities and risks to the City and the Alexandria community's financial and social-welfare resulting from changing climate conditions. Identify climate adaptation solutions and recommend critical existing and needed infrastructure and community systems to respond to environmental emergencies resulting from climate change impacts.

Cost Estimate: $100,000

Cost Breakdown: Consultant engagement and strategy development are estimated to be about $75,000 - $100,000

1.1.4 By FY2026, update Energy and Climate Action Plan to evaluate the benefits, feasibility, optimal mix and timing of implementation of policies and programs to support community deep energy efficiency retrofit programs, electrification transition from fossil fuels to electricity of existing private buildings and developments, and potential renewable energy supply implementation locally and regionally to offset community electricity use.

Cost Estimate: $100,000

Cost Breakdown: Consultant engagement and strategy development are estimated to be about $75,000 - $100,000

1.1.5 By FY2028, update the City's Emergency Operations Plan (EOP) and Continuity of Operations Plan (COOP) to include infrastructure resiliency. Provide and/or identify infrastructure in the city for emergency response to environmental emergencies such as shelter planning, potable water, and local emergency power planning.

Cost Estimate: $100,000

Cost Breakdown: Consultant engagement and strategy development are estimated to be about $75,000 - $100,000

1.1.6 By FY2024, develop and implement a state-level legislative and regulatory engagement strategy to identify, create, or and support policy opportunities to reduce GHG emissions associated with community energy use, and climate adaptation and resiliency.

Cost Estimate: $100,000 strategy development + $25,000 /year

Cost Breakdown: Consultant engagement and strategy development are estimated to be about $75,000 - $100,000. Estimated $25,000 per year for external staffing or technical support to implement legislative and regulatory policy engagement.

Long-term Action

1.1.7 By FY2035, implement updated Energy and Climate Change Action Plan actions and include climate action measures in City financial and service decision making.

Cost Estimate: Total costs of updated Energy and Climate Change Action Plan actions will be developed as part of plan development process.

Cost Breakdown: Total costs of updated Energy and Climate Change Action Plan actions will be developed as part of plan development process.

1.1.8 By FY2029, evaluate sustainability for City financial investments and pension contributions from fossil-fuel related companies.

Cost Estimate: Unavailable.

Cost Breakdown:

Legislative Priorities

State-level policy and regulatory activities relevant to identifying and creating opportunities to reduce GHG emissions associated with community energy use, and climate adaptation and resiliency

Justification

The goal, target and actions are consistent with the City's commitments to addressing climate change as part of the Metropolitan Washington Council of Governments

(MWCOG) Regional Climate and Energy Action Plan[1], align with the Paris Agreement[2], our stated commitments, and live up to our identity as an environmental policy leader to achieve our target of 80 percent GHG emissions reduction by FY2050. Such GHG emissions reduction target is consistent with the Intergovernmental Panel on Climate Change Assessment Report of limiting a global warming to within 1.5-degrees C, and the United States National Climate Assessment response strategies. (add footnote) Engagement of the community is essential to reducing the 96 percent emissions generated by the community and the four percent by city operations.

Accountable Parties

General Services (primary); Transportation and Environmental Services (secondary); City Manager; Management and Budget; Planning and Zoning

[1] MWCOG, Regional Climate and Energy Action Plan, p.24. goo.gl/GmDkzh

[2] 382 US Climate Mayors commit to adopt, honor and uphold Paris Climate Agreement goals. http://climatemayors.org/actions/paris-climate-agreement/

2.Energy

2.1 Renewable Energy

Goal

Transition all applicable Alexandria government facilities to 100 percent clean electricity use for all energy-use needs to mitigate Alexandria's contribution to climate change.

Target

By FY2030, transition all applicable Alexandria government facilities to 100 percent electricity and offset this electrical energy use by 100 percent renewable energy.

Short Term Actions

2.1.1 By FY2020, increase Renewable Energy Certificate (REC) purchases to offset 100 percent of electrical energy use by City government facilities. This temporary measure is phased down as direct purchasing and onsite generation represent an increasing share of the City's electrical energy supply over time.

Cost Estimate: $100,000 per year

Cost Breakdown: Approximately $58,500 has been committed in FY2019 to achieve approximately 60 percent offset of electricity use. Costs will vary slightly year over year to accommodate net changes in electrical energy use from energy efficiency implementation, weather influences, and operational changes.

2.1.2 By FY2021, develop a renewable energy supply strategy to evaluate the risks, benefits, feasibility, optimal mix and timing of potential renewable energy supply implementation pathways considering the City's current and future energy use demands. Should beneficial direct purchase or other opportunities become available before the strategy is complete, the City should conduct appropriate due diligence to prudently evaluate and consider implementation.

Cost Estimate: $100,000

Cost Breakdown: $50,000 - $100,000, depending on the rigor of analysis.

2.1.3 By FY2023, ensure that direct purchasing of offsite renewable electrical energy accounts for at least 50 percent of electrical energy use at all City-operated facilities. REC purchases and onsite renewable electrical energy generation will make up the remainder, to achieve a 100 percent renewable energy supply.

Cost Estimate: $3,500,000

Cost Breakdown: Capital cost (consulting, contracting and procurement, acquisition, installation, etc.) is estimated to be approximately $3,500,000 for implementation of 50 percent electrical energy offset from a direct purchasing opportunity, 5 percent implementation of feasible on-site renewable energy installation opportunities, and the balance through RECs. Both direct purchasing opportunities and feasible on-site renewable energy installations have high potential to result in cost savings to the City, with the highest savings potential resulting from installation of on-site renewable energy followed by direct purchasing opportunities. An estimated 95 percent of the capital cost associated with this action is attributed to the installation of on-site renewable energy opportunities. Optimal mix, savings estimates, and purchasing strategies will be identified from Short Term Action Item 2.

Mid Term Actions

2.1.4 By FY2024, develop an electrification and renewable energy supply transition plan for City's non-electricity energy use to identify strategies for conversion of natural gas and other fossil fuel use in City facilities and operations supported by renewable energy supply.

Cost Estimate: $100,000 – $200,000

Cost Breakdown: $100,000 - $200,00, depending on rigor of analysis.

2.1.5By FY2028, ensure that direct purchasing of offsite renewable electrical energy accounts for at least 80 percent of electrical energy use at all City-operated facilities and is from a regional source which contributes to the growth of renewable energy capacity in the region. Onsite renewable electricity generation, and REC purchases, will make up the remainder, to achieve a 100 percent renewable electrical energy supply.

Cost Estimate: $100,000 - $150,000/year

Cost Breakdown: $100,000 - $150,000 per year is assumed for purchases of RECs where onsite or purchase from an offsite renewable source is not supported by the City's renewable energy supply strategy. Until further information is available on the long-term electrical energy needs of the

City, the total cost of RECs is unknown. However, best estimate is $100,000 - $150,000 should serve as a conservative estimate.

Long-Term Actions

2.1.6 By FY2040, implement electrification of all City non-electricity energy use (City facilities, operations, and vehicles).

Cost Estimate: Not available at this time.
Cost Breakdown: Cost estimates are not available as the cost and technology are rapidly changing. Further study is necessary to provide cost estimates.

2.1.7 By FY2035, ensure that onsite renewable electricity energy generation and direct purchasing of offsite renewable electrical energy, that is both from a regional source and adds to the supply of renewable energy available, accounts for 100 percent of electrical energy use at all City-operated facilities.

Cost Estimate: $0/year
Cost Breakdown: A cost of $0 per year assumes previous investment in onsite renewable electrical energy generation that has not exceeded they systems' useful life, offsite renewable electrical energy from a regional source contract continues to be active, and any additional electrical energy supply requirements are met through available renewable energy programs that are at cost parity or the lower marginal cost as compared conventional generation sources of today.

Legislative Priorities

1. Make permanent an aggregate municipal net metering pilot program and include expanded renewable energy system capacity limits, increase cost offset to be equal to the value of solar resources, remove administrative costs, and provide applicability across a range of rate classes.

Consider electricity load aggregation opportunities to leverage statutory retail choice abilities.

Justification

Electrification and renewable energy supply transition of the City's non-electricity energy use (natural gas and other fossil fuel use) in City facilities and operations supported by renewable energy supply provides a pathway to offset the City's greenhouse gas emissions.

Accountable Parties

General Services (primary); Transportation and Environmental Services

2.2 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	Improve energy efficiency in City facilities and operations by 25 percent over FY2018.

Short Term Actions

2.2.1 By FY2023, major City renovations that are more than 50 percent of the building floor area, affect building components and equipment, and impact the energy performance of a building or building system should be replaced with better-than-code options where practicable. Update facility asset condition auditing process and Facility Condition Index (FCI) rating (or similar) methodology and process to reflect facility energy and sustainability performance. In addition, include energy audits, portfolio energy optimization, and similar evaluation processes into the facility asset condition auditing process. Develop and utilize a portfolio-wide energy model to identify and develop a portfolio-wide energy optimization investment plan as part of a broader energy supply transition planning effort, as recommended in the Renewable Energy section.

Cost Estimate: $200,000 per year
Cost Breakdown: Estimated $150,000 – $200,000 per year funding plus 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.

2.2.2 By FY2021, initiate electric passenger vehicle pilot programs for DASH, Alexandria City Public Schools, and the City vehicle fleet to evaluate costs, benefits, technical feasibility, and implementation opportunities to transition City fleet vehicles to electric vehicle technology, and install vehicle charging infrastructure at City facilities.[2]

Cost Estimate: $150,000 per year
Cost Breakdown: A small-scale pilot of City passenger vehicles may be accomplished with $100,000 – $150,000 for vehicle acquisition.

2.2.3 By FY2021, complete retrofits of 75 percent of all City facilities' practicable conventional lighting with light-emitting diode (LED) lighting and by FY2023 retrofit 95 percent of practicable streetlights and outdoor lighting to LED technology, subject to the availability of a suitable, safe LED solution and zoning constraints.

Cost Estimate: Total estimated cost to retrofit practicable lighting is $7,800,000 – $9,300,000.

Cost Breakdown Retrofit 75 percent of all remaining practicable City facilities' and operations (i.e. parks, area lighting, parking lots, etc.) conventional lighting roughly estimated to be an additional $4,000,000 – $5,500,000 over current funding. Retrofitting 100 percent of practicable streetlights is estimated to be about $3,800,000 ($1,800,000 for conventional basic roadway and traditional streetlighting, and about $2,000,000 for Gadsby streetlighting). Lighting retrofits for all City facilities will be dependent on future City Capital Improvement Project (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.

Retrofitting 75 percent of remaining practicable conventional lighting will result in operating budget savings to the City, as will retrofitting 95 percent of practicable streetlights. Retrofitting practicable conventional lighting at City facilities and operations is estimated to be a simple payback range of approximately 3 – 8 years. The estimated simple payback of retrofitting 100 percent of practicable streetlights is approximately 4 – 7 years. The Gadsby's make up 840 of ~10,000 lights and are custom poles and fixtures are planned to be completed in FY2027.

Mid-Term Actions

2.2.4 By FY2027, implement energy efficiency strategies in City facilities and operations to reduce energy use by, at minimum, 25 percent over FY2018 use.

Cost Estimate: $1,000,000 - $3,000,000/year

Cost Breakdown: Assumes investing in energy efficiency actions that reflect non-lighting systems, including HVAC, hot water, etc. and includes whole-system redesign and replacement. Accounts for highest cost actions that have current-dollar simple payback ranging from 7 – 14 years. Does not reflect costs of building electrification conversions.

2.2.5 By FY2024, implement electrification of, at minimum, 25 percent of applicable non-electric passenger City fleet vehicles consistent with Fleet Replacement Plan criteria and scheduled replacement timing.

Cost Estimate: $150,000/year
Cost Breakdown: $150,000 per year currently serves as a placeholder as analysis is currently underway to determine the short-term and long-term incremental costs of replacing convention passenger vehicles with electric. These costs only reflect the incremental vehicle costs and do not include costs of charging infrastructure.

2.2.6 By FY2028, implement electrification of, at minimum, 10 percent of DASH, rapid transit routes, and King Street Trolley busses. Provide necessary electric vehicle charging infrastructure at City facility locations.

Cost Estimate: Not available at this time.
Cost Breakdown: Feasibility study to be complete in June.

Long-Term Actions

2.2.7 By FY2035, implement energy efficiency strategies in City facilities and operations to reduce energy use by, at minimum, 50 percent over FY2018 use.

Cost Estimate: $2,000,000 - $4,000,000/year
Cost Breakdown: Assumes investing in energy efficiency actions that reflect non-lighting systems, including HVAC, hot water, etc. and includes whole-system redesign and replacement. Accounts for highest cost actions that have current-dollar simple payback ranging from 14 – 21 years. Does not reflect costs of building electrification conversions.

2.2.8 By FY2040, implement electrification of all non-electric City vehicle fleets and include ACPS, DASH, rapid transit routes, heavy duty equipment and vehicles. Provide necessary electric vehicle charging infrastructure at City facility locations. Hybrids will be used as an interim until electric vehicles can be substantially implemented.

Cost Estimate: Not available at this time.
Cost Breakdown: Cost estimates are not available as the cost and technology are rapidly changing. Further study is necessary to provide cost estimates. However, a one-time expenditure of $50,000 for evaluation of solid waste vehicles (does not include staff time) has been identified for a consultant study.

Legislative Priorities

1. Advocate local building code authority for local green building code implementation and enforcement.
2. Provide financial incentives to local governments, state agencies, and private owners of conventional roadway, street, and outdoor lighting to convert to dark-skies compliant LED technologies.
3. Commission a new energy efficiency potential study to assess the scale, availability, and cost of energy efficiency as an economic, resiliency, and generation resource in the Commonwealth of Virginia.
4. Support federal, state, and regional compacts and initiatives to reduce transportation-related greenhouse gas emissions, including support of the Transportation and Climate Initiative.
5. Direct the Virginia Department of Mines, Minerals, and Energy (DMME), State Corporation Commission (SCC), Virginia Department of Environmental Quality (DEQ), utility companies, and relevant stakeholders to pursue strategic partnerships with Virginia local governments to identify electric vehicle charging infrastructure needs, coordinate deployment of public electric vehicle charging infrastructure, and incentivize transition of personal-occupancy vehicles to electric vehicle technologies.
6. Additional actions may be proposed as a result of the Green Building Policy update in June 2019.

Justification

Energy efficiency and energy conservation implementation serves as a foundational practice for the City to offset greenhouse gas emissions. In addition, energy efficiency provides a reduction in energy use at a lower cost and higher return on investment than many alternatives and serves as a lower-cost pathway to offset the City's greenhouse gas emission from by a renewable energy supply. Similarly, the electrification of the City's public and fleet transportation increases the energy efficiency of the fleet operations, and with support by renewable energy supply provides a pathway to offset the City's greenhouse gas emissions from transportation.

Accountable Parties

General Services (primary); Transportation and Environmental Services

2.3 Community Energy Use

Goal — Reduce greenhouse gas (GHG) emissions associated with community energy consumption in support of the City's global GHG emissions reduction goals.

Target — Reduce greenhouse gas (GHG) emissions to 10 equivalent metric tons per capita by FY2022 and 6 equivalent metric tons by FY2040.

Short Term Actions

2.3.1 By FY2019, expand participation in state-level policy and regulatory activities relevant to identifying and creating opportunities to reduce GHG 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 GHG 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.

Cost Estimate: One full-time equivalent (FTE) at $200,000 per year
Cost Breakdown: Depending on the necessary expertise and level of involvement, efforts may require external support including specialized legal counsel or technical experts. Based on past intervention efforts, these costs may range from an estimated $50,000 - $500,000 per year.

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

Cost Estimate: $450,000
Cost Breakdown: Assumes operation by external administrator. Estimate 75 percent for program implementation and 25 percent ongoing program operation. One full-time equivalent (FTE) at $200,000 per year. The one FTE net time could be allocated accordingly to other programs. Additional one-time start-up costs estimated to be about $100,000 - 200,000 for legal counsel, engagement, systems implementation, etc. Recurring operation costs would largely be borne by the administrator and fees charged to participants but estimate contingency of $25,000 - $50,000 for any

necessary legal counsel or administrative consulting expenditures, etc., which could be included in remittances by external administrator. Do not include costs of recordation or similar costs as the lending volume would not require significant impacts to existing recordation staffing.

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

Cost Estimate: $100,000

Cost Breakdown: Consultant engagement and strategy development are estimated to be about $75,000 - $100,000.

Mid Term Actions

2.3.4 By FY2024, develop a community energy model to track energy use and greenhouse gas reductions by various energy efficiency and renewable energy programs offered by the City and other partner organizations to evaluable cost effectiveness and provide supporting information to optimize community energy use. The community energy model should reflect electrification transition from fossil fuels to electricity of private buildings and developments, changes and electrification in community vehicle use and mobility alternatives, and renewable energy supply implementation. The model should forecast energy use until at least 2040 and provide commensurate greenhouse gas emissions under various scenarios.

Cost Estimate: $100,000 initial + $10,000 - $20,000 /year to update

Cost Breakdown: Consultant engagement and community energy model development are estimated to be about $100,000. Annual updates are estimated to be about $10,000 - $20,000 per year.

2.3.5 By FY2024, contingent on legal authority, implement a community solar, or community choice aggregation-like, program to provide subscription access to shared renewable energy facilities to Alexandria community members and businesses to offset individual or business greenhouse gas emissions from electricity use. Credit from the generation of electricity from a shared renewable energy facility shall be provided to community member and business participants.

Cost Estimate: $450,000

Cost Breakdown: Assumes program operation by external administrator with implementation and coordination of ongoing program operation by City staff. Estimate 75 percent for program implementation and 25 percent ongoing program operation. One full-time equivalent (FTE) at $200,000 per year. The one FTE net time could be allocated accordingly to other

programs, including C-PACE or other community energy and climate programs. Additional one-time start-up costs estimated to be about $100,000 - $200,000 for legal counsel, engagement, systems implementation, procurement, etc. Recurring operation costs would largely be borne by the administrator and fees charged to participants but estimate contingency of $25,000 - $50,000 for any necessary legal counsel or administrative consulting expenditures, etc., which could be included in remittances by external administrator or by participants.

Long Term Actions

2.3.6 By FY2040, implement policies and programs to support a full suite of community energy efficiency programs, building electrification, transition from fossil fuels, and community renewable energy supply.

Cost Estimate: $100,000 - $10 million+/year

Cost Breakdown: Depends on the scope of the full suite of community energy efficiency programs. On the low end, $100,000 for program administration costs, and $10 million+ if financial incentives or related invests were to be offered.

2.3.7 By FY2035, implement actions outlined in the electric vehicle charging infrastructure strategy and support the implementation of a publicly-accessible electric vehicle charging infrastructure supported by renewable energy supply.

Cost Estimate: Costs will be developed upon completion of electric vehicle charging infrastructure strategy.

Cost Breakdown: Where applicable, electric vehicle charging infrastructure provided by non-City entities will be prioritized.

Legislative Priorities

1. Pursuing legislative opportunities to provide decarbonization authority for community solar.
2. Electric vehicle legislative action to minimize barriers to adoption.
3. Pursue building code authority for local green building code.

Justification

The goal, target and actions are consistent with the City's commitments to addressing climate change resulting from community energy consumption in support of City's global GHG emissions reduction goals. Consistent with the Metropolitan Washington Council of Governments (MWCOG) Regional Climate and Energy Action Plan,

engagement and programming to support the reduction of community energy use is essential to reducing the 96 percent emissions generated by the community.

Accountable Parties

General Services (primary); Transportation and Environmental Services

3. Green Building

Goal

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

Target

By FY2019, the Green Building Policy will set expectations for how both new and existing buildings should contribute toward achieving the goals for GHG emissions, water use, and stormwater runoff reduction established in the EAP, and by FY2020 will set forth a path for new city-owned buildings to meet a net zero energy standard.

3.1 Green Building Policy

Update will be considered by the Planning Commission and City Council in June 2019. Mid- and long-term actions for the Phase II Update of the Environmental Action Plan is being developed concurrently with the outcome of this update.

Short Term Actions

3.1.1 Review the effectiveness of the current Green Building Policy and update the Policy in FY2019 with a focus on sustainable strategies that have the greatest impact toward achieving targets across EAP principle areas. The Task Force deliberations will inform the medium and long-term EAP actions for Green Buildings. Through this process, with support of third-party consultant analysis, the update will consider topics such as:

- Increasing LEED or equivalent third-party green building certification standards for private development;

- Establishing a separate green building standard, which includes evaluating the feasibility of a net zero standard where applicable, for new public development, including schools in collaboration with ACPS;
- Establishing incentives for private development participation in green building certifications, to achieve the quantifiable goals for GHG emissions and water use and stormwater runoff reduction established in the EAP;
- Prioritizing specific green building elements;
- Introducing mandatory and/or voluntary green building practices for existing buildings (including historic) and for small buildings not subject to site plan review;
- Instituting a building performance monitoring program;
- The City's ability to be more ambitious than the private sector in meeting green building goals to serve as a sustainability leader, and
- Establishing a Green Zone in the City per the legislative authority of 58.1-3854, Creation of local green development zones for tax incentives, permit fees, special zoning, and exemption from ordinances.

As part of this process, a Green Building Policy Update Task Force will be established by City Council. The Task Force, with critical input from the EPC and the development community, will determine the actual topics to be analyzed by the consultant.

Cost Estimate: $75,000

Cost Breakdown: The funds will be used for consultant studies on policy analysis on a cost analysis. Does not include staff time.

3.1.2. By FY2020, evaluate additional sustainable features to incorporate into the "Building Section" of the standard development conditions for the Development Site Plans (DSP) and Development Special Use Permits (DSUP) that will contribute toward achieving targets across EAP principle areas.

Cost Estimate: N/A

Cost Breakdown: Existing staff resources

Mid Term Actions

Actions may be proposed as a result of the Green Building Policy update in June 2019.

Long-term Action

Actions may be proposed as a result of the Green Building Policy update in June 2019.

Legislative Priorities

Actions may be proposed as a result of the Green Building Policy update in June 2019.

Justification

Actions may be proposed as a result of the Green Building Policy update in June 2019.

Accountable Parties

Planning and Zoning (primary); Code Administration; General Services; Transportation and Environmental Services

4. Land Use and Open Space

4.1 Tree Canopy

Goal: Preserve and expand a healthy urban tree canopy.

Target: By FY2035, average overall tree canopy is a minimum of 40 percent.

Short Term Actions

4.1.1 By FY2023, update and coordinate the Urban Forestry Master Plan, Environmental and Sustainability Management System (ESMS), and Landscape Guidelines (updated in FY2019) to support increased tree preservation, expansion, maintenance, native species, and a revised tree canopy coverage goal.

Cost Estimate: $40,000 per year

Cost Breakdown: $30,000 - $40,000 per year. $30,000 for the yearly tree inventory study plus $10,000 for the tree canopy survey scheduled for every three years. Existing staff resources are accounted for in current budget.

4.1.2 By FY2023, enlist City partnerships (community groups) to provide education and outreach that support technical assistance and opportunities to increase native tree canopy coverage on private property.

Cost Estimate: Existing staff resources

Cost Breakdown: Existing staff resources are accounted for in current budget.

4.1.3 By FY2028, develop an urban forest health index rating system to determine the current and ongoing health and health needs of the urban forest in Alexandria.

Cost Estimate: $100,000

Cost Breakdown: one-time cost

4.1.4 By FY2028, develop a tree planting program that supports the planting of trees on private property. Commit funding to establish the program and support ongoing implementation.

Cost Estimate: $25,000/year

Cost Breakdown: n/a

Long Term Actions

Update the Urban Forestry Master Plan ten (10) years after approval in 2019.

4.1.5 By FY2029, update the Urban Forestry Master Plan to support increased tree preservation, expansion, maintenance, native species, and a revised tree canopy coverage goal.

Cost Estimate: $30,000
Cost Breakdown: one-time cost

4.2 Open space

Mid- and long-term EAP Open Space actions that expand upon the EAP Phase I Open Space short-term action #3 will be developed concurrently with a Planning and Zoning department study on open space as it relates to new private development projects (topics include visibility/accessibility of open space in private development; the provision of rooftop open space, impervious cover; and differentiators that create successful open space).

Goal	Increase open space quantity and improve the environmental quality, management, and social benefits of open space.
Target	Maintain the ratio of 7.3 acres of publicly accessible open space per 1,000 residents.

Short Term Actions

4.2.1 By FY2023, protect and add open space through acquisition, preservation, and conservation as prescribed in the Open Space Master Plan (updated 2017) and by FY2023, evaluate increasing the target to 7.5 acres per 1,000 residents. This includes, by FY2020, City Council will re-establish the open space steering committee to re-assess the methodology, evaluate, and prioritize potential open space sites. 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.

Cost Estimate: The proposed FY20-29 CIP provides $13,175,000 for Open Space acquisition and development. Any proposed changes to this funding

will be evaluated through the Open Space Steering Committee's action findings.
Cost Breakdown: The action is also dependent on the development envisioned in small area plans, including city investments, developer contributions, and private philanthropic contributions.

4.2.2 By FY2023, increase the percentage of acres of public natural lands that are actively managed, including restoration and invasive species removal, by 50 percent (450 acres).
Cost Estimate: Existing staff resources

4.2.3 By FY2020, evaluate and update, using a public process, the requirements of open space on residential, commercial and mixed-use private development. Issues to be addressed include how to achieve meaningful and publicly accessible open space, particularly at the ground level, how to value developer contributions to off-site open space, how to minimize impervious surfaces, how to align vegetation requirements with canopy and native species goals described in Chapter 4.A.1. above; and, how to ensure consistency of open space requirements across similar zones.
Cost Estimate: Existing staff resources

Mid Term Actions

4.2.4 By FY2028, identify tools and techniques through stream valley plans to maintain and enhance all of the City's stream valleys including public access points for ecological and recreational benefits The plans will be updated every 10 years.
Cost Estimate: $250,000/10 years
Cost Breakdown: Based on previous similar plans. Note, however, that this does not include plan implementation which will be determined based on findings of the plan.

4.2.5 By FY2028, seek publicly accessible open space opportunities in unconventional spaces:
a. Further evaluate the City's network of public alleys and define those most appropriate for informal recreational use and/or green infrastructure improvements.

b. Work with Northern Virginia Conservation Trust to identify potential locations for conservations easements, particularly those that would connect or are adjacent to existing open spaces
c. Identify and map opportunities to re-purpose public rights-of-way and parking lots for other public-serving uses, including interim and/or permanent recreational use and open space, affordable housing, schools, or other public facilities.
d. Protect and preserve institutional open space by:
    i. Pursing easements for trails and/or ecosystem corridors through institutional space to connect with public open space
    ii. Develop mechanisms, possibly including incentives and processes for public/private partnerships to maintain and enhance natural areas on institutional land

Cost Estimate: $60,000/year

Cost Breakdown: The City currently holds a contract with Northern Virginia Conservation Trust to advise on open space concerns and these action items can be added to our joint work plan.

Mid Term Actions

Findings of the Open Space and Private Development Study, an EAP short-term action scheduled for completion in June 2019, will inform EAP mid-term actions. The study includes an investigation into issues of visibility/accessibility of open space in private development, the provision of rooftop open space, impervious cover, and characteristics of successful open space.

Long-term Action

Actions may be proposed as a result of the Open Space and Private Development Study in June 2019

Justification

Legislative Priorities

Actions may be proposed as a result of the Open Space and Private Development Study in June 2019

Accountable Parties

Planning and Zoning; Recreation, Parks and Cultural Activities; Transportation and Environmental Services

Solid Waste

5.1 Recycle

Goal — Recover resources and reduce GHG emissions and other forms of pollution by optimizing and safely handling the collection and processing of solid waste.

Target — By FY2023, establish a GHG emissions baseline for the collection and processing of solid waste in FY2019, measure emissions at least annually, and reduce the emissions rate by at least 12 percent.

Short-Term Actions

5.1.1 In FY2020, install special containers for only glass at all recycling drop-off centers to improve the recyclability of glass. In FY2021, if no environmentally and economically justifiable alternative has been identified for recycling glass placed in the single stream, begin to phase out glass from single stream recycling and temporarily reset the City's recycling goal accordingly.

Cost Estimate: $70,000 per year for glass drop-off centers.

Cost Breakdown: Estimate includes containers, plus labor for collection, processing, and administrative fees.

5.1.2 In 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 GHG emissions.

Cost Estimate: $80,000 per year

Cost Breakdown: Will be built on the existing recycling campaign. Annual fee will be for program administration.

5.1.3 By FY2020, conduct a Route Optimization Study to perform a review of the current truck routing, mileage, staffing levels, homes served per route and tonnages of trash collected. Ensure that routes are performed in the most efficient, economical manner, and maximize the reduction in GHG emissions.

Cost Estimate: $100,000

Cost Breakdown: Maximum of $100,000. The funds will be used for consultant studies. Does not include staff time.

5.1.4 By FY2021, review and update the City's recycling ordinance to reflect changes in the global recycling market and to prioritize recycling practices that maximize the reduction in GHG emissions.

Cost Estimate: $14,400

Cost Breakdown: Includes staff time (320 hours over a two-month period)

5.1.5 By FY2020, the City's food waste composting program result in a net reduction in GHG emissions.

Cost Estimate: Total costs of proposed actions will be developed as part of plan development process

Cost Breakdown:

Mid-Term Actions

5.1.6 By FY2028, evaluate public space trash and recycling bins and make recommendations on optimizing routes and other operational changes.

Cost Estimate: $75,000

Cost Breakdown: The funds will be used for consultant studies.

5.1.7 By FY2028, review commercial recycling requirements to improve resource recovery in the commercial sector. Evaluate for recycling capacity, convenience, sign, number and type of recyclables required to be recycled, education & outreach, and Recycling Implementation Plan form.

Cost Estimate: $14,400

Cost Breakdown: Includes staff time (320 hours over a two-month period)

5.1.8 By FY2028, evaluate organics processing market readiness and feasibility of curbside organics collection.

Cost Estimate: $75,000 - $100,000

Cost Breakdown: The funds will be used for consultant studies.

Long-Term Actions

5.1.9 Complete a regional comprehensive alternative disposal study. Evaluate long-term end disposal options, knowing that significant time will be needed for any potential planning and implementation.

Cost Estimate: $75,000 - $150,000

Cost Breakdown: The funds will be used for consultant studies.

Legislative Priorities

N/A.

Justification

In January 2019, City Council unanimously adopted the WasteSmart Strategic Plan to sustainably recover resources. This plan was adopted utilizing the values of the triple bottom line of economics, community values, and environment. The WasteSmart Plan and the EAP aims to reduce greenhouse gas emissions and improve the quality of collected recyclables in response to a more restrictive global recycling market. Action items identified in this section were selected from the WasteSmart Plan that supported this goal. Furthermore, as over 70 percent of the City's waste stream is from the commercial and multi-family sector, an action item addressing commercial recycling requirement was added to the EAP.

Accountable Parties

Transportation and Environmental Services (primary)

5.2 Reduce

Goal	Reduce total solid waste collected City-served residential customers.
Target	By FY2023, reduce the total solid waste per household collected city-served residential customers by five percent as compared with a baseline of FY2018.

Short Term Actions

5.2.1 In FY2019, develop a reuse (consign), donate, repair online directory including the District of Columbia, Maryland, and Virginia to encourage residents and businesses to prevent waste and reuse existing materials.

Cost Estimate: Existing staff resources

Cost Breakdown: Includes 20 hours staff time in development and 10 hours staff time for integrating the directory online.

5.2.2 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.

Cost Estimate: $100,000 (does not include staff time).

Cost Breakdown: The funds will be used for consultant studies.

5.2.3 By FY2020, pilot a Share-A-Bag program to encourage residents to use reusable bags over disposable plastic bags.

Cost Estimate: $3,000 per year
Cost Breakdown: 20 hours in staff time in program development, materials, and community outreach.

Mid-Term Actions

5.2.4 By FY2028, support building material reduce, reuse and recovery through working with regional partners to keep the Builders Recycling Guide up-to-date and share resources to commercial developers.

Cost Estimate: Existing staff resources are accounted for in current budget.
Cost Breakdown:

Long-Term Actions

5.2.5 Work with surrounding jurisdictions to develop and implement a regional approach to reducing plastic waste.

Cost Estimate: Total costs of proposed actions will be developed as part of plan development process.
Cost Breakdown:

5.2.6 Establish sustainable purchasing guidelines to include for recycled content.

Cost Estimate: Existing staff resources
Cost Breakdown: Purchasing guidelines would be coordinated with all city departments.

Legislative Priorities

Support the development of 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”).

Justification

Reducing waste and reusing is the most effective way to save natural resources, protect the environment, and reduce costs. Reducing waste also supports the goal of reducing greenhouse gas emissions as it reduces the amount of waste that needs to be sent to disposal facilities as well as preventing the need to harvest new raw resources. These actions provide opportunities for reuse prior to entering the waste stream and leverage regional resources and expand relationships with regional partners, agencies, and improve outreach to residents and local businesses.

Accountable Parties

Transportation and Environmental Services (primary); Parks, Recreation, and Cultural Activities; Purchasing

6. Water Resources

6.1 Enhancement and Restoration

Goal: Alexandria's waterbodies are fishable and swimmable

Target: Stormwater is managed within the City to enhance the quality of local waterways to include ecological, public health, social, and economic benefits.

Short Term Actions

6.1.1 By FY2023, achieve the state and federal mandates nutrient and sediment pollution reductions using the strategies in the Chesapeake Bay Total Maximum Daily Load (TMDL) Action Plan by FY2023. Exceed the cumulative 40 percent reductions in the 2018 – 2023 MS4 permit to include design and construction of the Ben Brenman / Cameron Station Pond Retrofit and the Lucky Run Stream Restoration. (leaf 3)

Cost Estimate: $6.1M

Cost Breakdown: $4.2M to fund the design and construction of the Ben Brenman Pond Retrofit and $1.9M to fund the design and construction of Lucky Run Stream Restoration identified in the 10-year CIP. Staff time and effort is not included in this cost. Does not include staff time and effort in developing the Phase 2 Bay TMDL Action Plan.

6.1.2 By FY2021, hire an environmental educator to create and implement educational water resources programs targeted to students and adults. (leaf 2)

Cost Estimate: $145,000/year

Cost Breakdown: $120,000/year for FTE initially and increasing annually; $25,000/initial year startup; with $10,000/year thereafter for educational supplies, pending available operating funds.

6.1.3 By FY2020, create a green infrastructure policy document that details implementation of the citywide approach as policy for implementation of green practices to reduce pollution in urban stormwater while delivering other environmental, social, economic and public health co-benefits, such as habitat

creation, reduce heat island effect, and creation of green spaces to enhance the quality of life. (leaf 3)

Cost Estimate: $50,000

Cost Breakdown: Cost includes contractor policy development identified in the current 10-year CIP. Staff time and effort is not included in this cost.

Mid Term Actions

6.1.4 By FY2025, achieve 100 percent of the state and federal nutrient and sediment pollution reductions using the strategies in the Chesapeake Bay TMDL Action Plan. (leaf 3)

Cost Estimate: $6.1M

Cost Breakdown: Approximately $1.6M planned for Strawberry Run Stream Restoration design and construction and approximately $4.5M for Taylor Run Stream Restoration design and construction identified in the FY2020-FY2029 CIP. Does not include staff time and effort in developing the Phase 3 Bay TMDL Action Plan.

6.1.5 By FY2024, develop the Green Infrastructure Program Plan to prioritize projects, increase green infrastructure projects on public and private property, and promote green infrastructure as the leading approach for stormwater management in the City. (leaf 3)

Cost Estimate: estimated $350,000

Cost Breakdown: Estimated cost of identifying and prioritizing projects for further design and construction identified in the 10-year CIP.

Long Term Actions

6.1.6 By FY2030, develop a Phase IV Stream Assessment to prioritize improvement of local waterways beyond those previously identified, for stabilization and restoration of existing natural streams, along with a consideration of daylighting streams where feasible, with focus on increased access and recreational opportunities. (leaf 3)

Cost Estimate: estimated $350,000

Cost Breakdown: Estimated cost of identifying and prioritizing projects for further design and construction pending CIP funding.

6.1.7 By FY2029, identify 20 percent of existing proprietary stormwater management devices on City properties as candidates for green infrastructure retrofit opportunities. (leaf 2)

Cost Estimate: Cost will be substantiated following development of the plan.

Cost Breakdown: Cost will be substantiated following development of the plan, with funding not yet identified.

Legislative Priorities

Expand the Virginia Stormwater Best Management Practice (BMP) Clearinghouse list of accepted stormwater quality Best Management Practices to provide localities greater flexibility for development and redevelopment projects, and overall to meet the Chesapeake Bay Total Maximum Daily Load (TMDL) cleanup mandates.

Establish a grant program funded by the City to provide reimbursement to property owners for the installation of BMPs on private property.

Justification

Protecting natural systems through investigation, prioritization and enhancement of the built environment protects natural resources, mitigates adverse impacts, and improves quality of life.

Accountable Parties

Transportation and Environmental Services, Department of Project Implementation, Recreation, Parks, and Cultural Activities

6.2 One Water Infrastructure

Goal

Ensure safe and adequate infrastructure for drinking water supply, stormwater management, and wastewater treatment.

Target

Meeting current and future, regulatory and infrastructure demands through planning, coordination, and implementation resulting in a safe and adequate drinking water supply, reduced risk of flooding, and improved water quality.

Short Term Actions

6.2.1 By FY2022, prepare a plan to improve our National Flood Insurance Program Community Rating System from 6 to 5 to reduce flood insurance rates as first '5 community' in the region to reduce flood insurance rates for property owners. (leaf 2)

Cost Estimate: $350,000/year

Cost Breakdown: Cost includes estimate from Code Administration for maintenance of the Building Code Effectiveness Grading Schedule (BCEGS) and participation in updates to the Northern Virginia Regional Commission (NVRC) Hazard Mitigation Plan and process with funding not yet identified.

6.2.2 By FY2022, develop the preliminary prioritization for nuisance drainage projects and by FY2023 develop the Drainage and Flooding Projects Prioritization Plan to manage major capital construction projects. (leaf 2)

Cost Estimate: $450,000

Cost Breakdown: Analysis, modeling and mapping, and project prioritization identified in the proposed FY2020-FY2029 CIP.

6.2.3 By FY2023, educate businesses and homeowner in water conservation practices and consider an incentive program (i.e., rebates, fees reductions or tax breaks, etc.), and provide outreach to the general public.

Cost Estimate: $25,000 - $40,000/year

Cost Breakdown: Annual cost of program. *Funding not in City's operating or CIP budget.*

Mid Term Actions

6.2.4 By FY2025, work with Alexandria Renew in implementation of the Long-Term Control Plan through the RiverRenew initiative that addresses all four combined sewer outfalls and minimizes combined sewer overflows (CSOs).

Cost Estimate: $370,000,000 - $550,000,000
Cost Breakdown: Planning, design, and construction funded through AlexRenew. *Funding in ARenew CIP*

6.2.5 By FY2028, explore a reclaimed water reuse partnership between the City and Alexandria Renew, including updating the technical and economic feasibility study for using reclaimed wastewater from Alexandria's sewage treatment plant's treated discharge for irrigation of some of the larger open spaces in the city.

Cost Estimate: $100,000
Cost Breakdown: Updating the previous study and coordinate with AlexRenew. *Funding not in City's Operating or CIP budget*

6.2.6 By FY2028, collaborate with Virginia American Water and regional partners to monitor, evaluate and insure safe and adequate water supply for the City now, and in the future.

Cost Estimate: $10,000 - $25,000
Cost Breakdown: Does not include staff time and has not been identified.
Required costs will be absorbed within City's operating budget

Long Term Actions

6.2.7 By FY2030, create a stormwater management master plan as an update to the Water Quality Management Supplement to the City's Master Plan, as a comprehensive approach to addressing water quality and quantity issues. As an update to the Alexandria Master Plan, this plan will act as the guide for future stormwater management within the City with a prioritization of efforts to increase the ecological, public health, social, and economic benefits of local waterways while mitigating the impacts of flooding and drainage issues. The successful implementation of this plan will integrate stormwater management into the City's overall planning efforts to preserve and enhance the character of the City. (leaf 3)

Cost Estimate: $350,000
Cost Breakdown: Plan will incorporate work done in other efforts as chapters to this section of the Alexandria Master Plan, such as the updates to the Storm Sewer Capacity, the Drainage and Flooding Prioritization Plan,

and the Green Infrastructure Program Plan that will be funding through no change to the FY2020-FY2029 CIP.

Legislative Priorities

Seek State and Federal grant funding to offset the cost of implementation of Combined Sewer System Long Term Control Plan and burden on City rate payers.

Justification

Comprehensive water resource infrastructure education, planning and project implementation ensures the City can meet the communities current and future needs for water, wastewater and stormwater management.

Accountable Parties

Transportation and Environmental Services and Alexandria Renew Enterprises, Code Administration

7. Transportation

7.1 Prioritizing Low-carbon Mobility Options

Goal

Aggressively promote vibrant, human-scale city streets that prioritize people's access and mobility so that all Alexandria residents and visitors have access to the commercial and cultural resources of the city using low-carbon modes of transportation, consistent with the following level of precedence: pedestrians, bicyclists, public transportation, shared motor vehicles, freight vehicles and private motor vehicles.

Target

By FY2023, reduce total average vehicle miles traveled (VMT) per capita by at least 1 percent per year.

Short Term Actions

7.1.1 By FY2023, complete all engineering and education actions outlined in the 2017 Vision Zero Action Plan. These actions contribute to increase in safety and thus have an important potential to increase the number of pedestrian bicyclist and user of public transit using Alexandria's streets.

Cost Estimate: $1,000,000-$5,000,000

Cost Breakdown:

7.1.2 By FY2023, add 2 miles of bicycle facilities per year. These facilities, which can include shared, separated, protected lanes, and trails, will prioritize connectivity with existing bike infrastructure and development of a city-wide network of bike-safe routes.

Cost Estimate: $500,000 - $1,000,000

Cost Breakdown:

7.1.3 By FY2023, develop a checklist for transportation staff working with development review to be used in both the residential and commercial review process to incentivize less carbon intensive modes of transportation and mobility options.

Cost Estimate: Existing staff resources

Cost Breakdown:

7.1.4 By FY2023, adopt permanent regulations for shared mobility devices such as dockless bikes & electric scooters and other personal mobility devices.

Cost Estimate:

Cost Breakdown:

7.1.5 By FY2023 determine the feasibility of a low-stress multi-modal, connective bicycle network to increase bicycle mode share.

Cost Estimate: $200,000 - $400,000

Cost Breakdown

Mid- Term Actions

7.1.6 By FY2024, develop a plan to acquire zero emissions buses on rapid transit routes and conversion of DASH fleet to zero emissions.

Cost Estimate: $100,000-$300,000

Cost Breakdown:

7.1.7 By FY2028, complete the bicycle and pedestrian projects prioritized in the pedestrian & bicycle Chapters of the Alexandria Mobility Plan (formerly known as Transportation Master Plan)

Cost Estimate: $5,000,000 - $10,000,000

7.1.8 By FY2025, implement the 2017 walk audit recommendations for all schools

Cost Estimate: $2,000,000 – $5,000,000

Long-Term Actions

Legislative Priorities

Encourage statewide legislative efforts to implement stricter traffic safety laws as mandated by the 2017 Vision Zero Action Plan. Alexandria should continue to lobby the state to allocate road funding to local jurisdictions based not on car driving lanes but inclusively to adequately fund infrastructure for bicycles, pedestrians, and other low-carbon mobility options.

Justification

By incentivizing and regulating mobility options, short automobile trips can be replaced with other less carbon-intensive modes of transportation while maintaining safety and providing mobility and access. Furthermore, by increasing safety, on City streets, the share of walking and bicycling trips can increase moderately.

Accountable Parties

Transportation and Environmental Services

7.2 Reduce Automobile Dependency

Goal	Reduce automobile dependency and inform individuals and employers on mobility options other than single-occupancy driving.
Target	By FY2023, increase the share of all trips taken by public transit, walking and biking by at least 15 percent based taking the 2018 Mobility Survey as a baseline.

Short Term Actions

7.2.1 By FY2023, develop a stand-alone Transportation Demand Management (TDM) Chapter in the Alexandria Mobility Plan (formerly the Transportation Master Plan) to promote low-carbon modes.

Cost Estimate: $50,000-$100,000

Medium Term Actions

7.2.2 By FY2028, encourage people who work in Alexandria to use sustainable mobility options by developing policies that discourage employee parking (e.g., eliminating monthly parking subsidies, prohibiting retail employees to park long term at parking meters and provide cash incentives in lieu of providing employees free parking).

Cost Estimate: $1 – 5 million

Legislative Priorities

Lobby the state to both raise the gasoline tax and to allow local jurisdictions more flexibility in raising gasoline taxes and car property taxes to be assessed with an efficiency bonus/penalty and not just on the value of the vehicle.

Justification

At the National level, approximately 25 percent of combustion-related GHG comes from the transportation sector. In the region this share can reach 40 percent. It is important to reduce automobile dependency in order to reduce GHGs that contribute to global warming and criteria pollutants that have been linked to negative health outcomes.

Accountable Parties

Transportation and Environmental Services

7.3 Improve, Expand and Integrate Public Transit Systems

Goal	Improve and expand Alexandria's public transit system so that passenger rail and bus systems are safe, reliable, accessible, convenient, attractive, efficient, and equitable.
Target	By FY2030, double the miles of dedicated bus infrastructure to at least 1.5 miles.

Short Term Actions

7.3.1 By FY2023, Continue the development and deployment of transit information technologies in coordination with other regional service providers.

Cost Estimate: $1,000,000 - $5,000,000

7.3.2 By FY2023, finalize construction of the Potomac Yard Metrorail station.

Cost Estimate: $370 million (2018)

Mid Term Actions

7.3.3 By FY2028, expand Bus Rapid Transit by starting Phase 1 construction on the West End Transitway, finish environmental work and secure funding for the Duke Street Transitway.

Cost Estimate: $75,000,000 - $150,000,000

Long Term Actions

7.3.4 By 2040, put into operation the three (3) rapid transit routes as expressed by the 2008 Transportation Master Plan. Work with regional providers to ensure these routes are physically and fare integrated with all modes of transportation.

Cost Estimate: More than $100,000,000 - $300,000,000

8. Environmental Health

8.1 Community Health Priorities

Goal	Explore the broad physical and social environments that are impacting Alexandria's health and safety and to develop an action plan using the Protocol for Assessing Community Excellence in Environmental Health.
Target	By FY2023, to create an updated Community Environmental Health Assessment with an accurate and verifiable status of the Community's Environmental Health.

Short-Term Actions

8.1.1 By FY2021, create a cross-agency implementation team for creating a new Environmental Health Assessment of the City based on principles containing within National Association of County and City Health Officer's (NACCHO) Protocol for Assessing Community Excellence in Environmental Health methodology.

Cost Estimate: $100,000/year

Cost Breakdown: Approximately $100,000 for a consultant to start the planning process and develop a Community Based Assessment team to complete the next stage of the Assessment.

Mid-Term Actions

8.1.2 By FY2024, create a comprehensive action plan to address the greatest issues of concerns for Alexandria based on community input through the Environmental Health Assessment.

Cost Estimate: $100,000/year

Cost Breakdown Approximately $100,000 for a consultant to start the planning process and develop a Community Based Assessment team to complete the next stage of the Assessment.

8.1.3 By FY2025, create a list of actionable goals to address the issues of highest concern as identified by the Community of Alexandria.

Cost Estimate: This will depend on the issues identified and potential actions required. Additionally, it will require a consultant to oversee the implementation of the action plan and to report progress on achieving these goals.

Cost Breakdown:

Long Term Actions

8.1.4 By FY2030, conduct an annual review of progress made towards achieving these goals and be working towards a repeated assessment to determine community benefit and reset goals for the next EAP period.

Cost Estimate:

Cost Breakdown

Justification

The last Environmental Health Assessment was started in 2002 and published in 2007. Since then limited work has been conducted to ensure that the issues highlighted are still relevant to the Alexandria Community. This assessment will create a new bench mark that addresses the needs of today's community in light of changing Public Health climate based on new science and technologies.

There is a real lack of data on what Environmental Health issues are really impacting the lives of the Alexandria community. By completing the assessment, we will be able to target limited resources at environmental health issues that are a genuine concern to the community and that are supported by scientific data as having a real health impact.

Accountable Departments Department of Housing, Code Administration and Health Department (Primary).

8.2 Indoor Air Quality

Goal Create a City-wide team to investigate mold complaints in residential properties and to provide advice and assistance to residents on remediation strategies.

Target By FY2021, create a Task Force dedicated to providing support and assistance to the residents of Alexandria that are experiencing mold within their homes.

Short-Term Actions

8.2.1 By FY2021, create a task force to investigate the best way to manage mold complaints by residents of the City.

Cost Estimate: $200,000/year

Cost Breakdown:

Mid-Term Actions

8.2.2 By FY2025, expand the scope of the task force to address other indoor air pollutants of concern to City residents.

Cost Estimate: This will depend on the issues identified and potential actions required.

Cost Breakdown:

Justification

There are a significant number of mold complaints made each year by the residents of Alexandria. Currently the only resource available to assist residents takes the form of directing them to literature available through Department of Housing and Urban Development. The City has no legislative powers to assist in facilitating repairs in rental properties, or any staff training in mold remediation.

Accountable Departments

All City Departments lead by Environmental Health.

9. Air Quality

Goal — Reduce air pollution from all types of sources and take necessary actions to assist the Northern Virginia Region in complying with all National Ambient Air Quality Standards (NAAQS) for criteria pollutants.

Target — By FY2023, achieve compliance with 2015 ozone NAAQS of 70 ppb and other pollutants for the Metropolitan Washington Council of Governments (MWCOG) region including Alexandria.

Short-term Actions

9.1.1 By FY2020, evaluate potential methods for reducing air pollution to incorporate into the standard development conditions.

Cost Estimate: Using existing resources

Cost Breakdown:

9.1.2 By FY2020, enhance/ expand the City's Air Quality Action Day and conduct outreach to residents, businesses and City staff.

Cost Estimate: Using existing resources

Cost Breakdown:

9.1.3 By FY2021, develop strategies to reduce air pollution from non-point sources.

Cost Estimate: Using existing resources

Cost Breakdown:

9.1.4 By FY2021, promote the use of battery-powered leaf blowers and lawn mowers and investigate incentive mechanisms.

Cost Estimate: Using existing resources

Cost Breakdown:

9.1.5 By FY2022, develop methodology to quantify air pollution impacts and benefits of major transportation projects.

Cost Estimate: Using existing resources

Cost Breakdown:

Mid-term Actions

9.1.6 By FY2024, prepare a "State of the Air" report which includes recommendations for pursuing further air quality improvement opportunities.

Cost Estimate: $50,000-100,000 plus existing resources
Cost Breakdown: 100% Consultant's charge

Long-term Actions

9.1.7 By FY2029, complete all recommended measures identified in the "State of the Air" report.

Cost Estimate: Will be based on identified measures.
Cost Breakdown:

10. Implementation, Education, and Outreach

10.1 Education and Outreach

Goal	Increase public awareness of sustainability challenges and opportunities for residents, businesses, and City staff to make an impact.
Target	By FY2023, establish ongoing educational opportunities to increase awareness of environmental challenges and provide recommendations for adoptable daily sustainable practices for residents, businesses, and City staff.

Short-Term Actions

10.1.1 By FY2020, design and implement robust outreach campaigns to engage and educate residents, businesses, and City staff how to adopt emission reducing strategies and environmental efforts related to the EAP and opportunities for involvement. Tactics may include outreach events, graphical educational tools, handouts at City public facilities, social media and website content, live-streamed events, workshops, and hands-on learning experiences. Additional outreach and education will be leveraged with Eco-City Ambassadors who go through an Eco-City Academy to assist in spreading sustainability throughout the community and participate in the City's commitment to reduce GHG emissions and address climate change. (leaf 2)

Cost Estimate: $20,000/year

Cost Breakdown: New costs for info-graphics, handouts, sustainability giveaways, and to create a vibrant and current web presence with instructional videos, sustainable signage, and workshops. Staff time and effort is not included in this cost.

10.1.2 By FY2020, Update Eco-City web-based information and coordinate with related sustainability information on other city web sites. (leaf 1)

Cost Estimate: No direct cost, staff time only,

10.1.3 By FY2020, initiate a collaborative effort to update environmental education in Alexandria City Public School curriculum, focusing on city specific sustainability issues such as energy, recycling, water resources, air quality, and transportation. This work may include creating resources to facilitate student education, outreach, and implementation on EAP sustainability topics, goals, and actions. (leaf 2)

Cost Estimate: $30,000/year

Cost Breakdown: New costs for curriculum and materials design and printing.

10.1.4 By FY2021, select and launch a green business recognition or certification program, in collaboration with the local business community and using a third-party rating system. Link local recognition opportunities via the city web site to facilitate consumer selection based on sustainability. (leaf 1)

Cost Estimate: $10,000/year

Cost Breakdown: New costs for program (if applicable), implementation, and promotional materials.

10.1.5 By FY2021, establish a voluntary program for residents, schools, and businesses to report their efforts in reducing their environmental impact and create an awards program to incentivize participation (leaf 1)

Cost Estimate: $30,000/year

Cost Breakdown: New costs for program development, promotional materials, and awards event.

Justification

Multifaceted outreach and education are vital to grow a sustainable culture with the youth of the City and for the adoption by the overall community. Coordination with the schools will facilitate the effectiveness of the messaging. Using Eco-City Ambassadors will leverage City staff resources and utilize engaged community resources within the City.

Legislative Priorities

Accountable Departments Transportation and Environmental Services

10.2 Implementation and Monitoring

Goal Enhance implementing, monitoring, measuring, and reporting Environmental Action Plan efforts by the city, community and regional partners.

Target Annual updating of EAP progress and sustainability metrics.

Short-Term Actions

10.2.1 By FY2020, update measurement methods, monitored actions, and key indicators to capture and report new, changed, and trending sustainability goals, regional efforts, and accomplishments in online dashboards and with online trending information. (leaf 1)

Cost Estimate: Existing staff resources

Cost Breakdown:

10.2.2 By FY2020, Participate in regional and state efforts to increase the sustainability and enforcement of construction practices, regulations, and codes (International and Virginia Energy Conservation Code, recycling, stormwater management, and others). Partner with regional municipalities and organizations to provide shared professional training to contractors, design professionals, and individuals in sustainable building and operating methods to achieve more sustainable infrastructure. (leaf 1)

Cost Estimate: $10,000/year

Cost Breakdown: New costs for travel, and registration fees, certifications, and resource materials

Mid-Term Actions

10.2.3 By FY2024, publish annual EAP Progress report (PDF and digital). (leaf 1)

Cost Estimate: $10,000

Cost Breakdown: New costs for graphic and web design.

Justification

Implementation and Monitoring provides vital feedback to the community. Regional coordination and participation in development of state and national regulations and policies provides coordination and understanding for enforcement and monitoring methods for municipalities.

Legislative Priorities

Seek legislative authority to enforce more sustainable measures in the city than required by regulation and/or code.

Accountable Departments

Transportation and Environmental Services-Office of Environmental Quality, General Services, Transportation, and Resource Recovery

Reminder

Short-term fiscal years 2019 through 2023
Mid-term fiscal years 2024 through 2028
Long-term fiscal years 2029 and beyond