City of Alexandria

ENVIRONMENTAL ACTION PLAN 2040
Energy

1.1 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
Transition all applicable Alexandria government facilities to 100 percent clean electricity use for all energy-use needs and offset this electrical energy use by 100 percent renewable energy.

Short Term Actions*

1.1.1 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.

1.1.2 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 quality and rigor of analysis.
1.1.3 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
1.1.4 By 2024, 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: $xx/year
Cost Breakdown: xxx

1.1.5 By 2028, 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: $xx/year
Cost Breakdown: xxx

Long-Term Actions
1.1.6 Implement electrification of all City non-electricity energy use (City facilities, operations, and vehicles).

Cost Estimate: $xx/year
1.1.7 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: $xx/year
Cost Breakdown: xxx

Legislative Priorities
Justification
To be written

Accountable Parties
General Services (primary); Transportation and Environmental Services
1.2 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% over FY2018.

Short Term Actions

1.2.1 Major City renovations that are more than 25 percent of the building space or 25 percent of the building value, 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.

1.2.2 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.
1.2.3 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 about $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.

1.2.4 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 Gadsbys make up 840 of ~10,000 lights and are custom poles and fixtures are planned to be completed in FY2027.

Mid-Term Actions

1.2.2 Implement energy efficiency strategies in City facilities and operations to reduce energy use by, at minimum, 25% over 2018 use.

Cost Estimate: $xx/year
Cost Breakdown: xxx

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

Cost Estimate: $xx/year
Cost Breakdown: xxx

1.2.4 By FY2028. implement electrification of, at minimum, 10% of DASH, Rapid Transit Route, and King Street Trolley busses. Provide necessary electric vehicle charging infrastructure at City facility locations.

Cost Estimate: $xx/year
Cost Breakdown: xxx

Long-Term Actions

1.2.5 Implement energy efficiency strategies in City facilities and operations to reduce energy use by, at minimum, 50% over 2018 use.

Cost Estimate: $xx/year
Cost Breakdown: xxx

1.2.6 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: $xx/year
Cost Breakdown: One-time expenditure of $50,000 for evaluation of solid waste vehicles. (does not include staff time). The funds will be used for consultant studies

Legislative Priorities

Justification

Accountable Parties

General Services (primary); Transportation and Environmental Services
1.3 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 2022 and 6 equivalent metric tons by 2040.

**Short Term Actions**

1.3.1 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 docket activities related to the composition of the utility generation supply mix, utility energy efficiency programs, or utility rates.

*Cost Estimate:* One full-time employee (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.

1.3.2 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.

1.3.3 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

1.3.4 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

Cost Estimate: $xx/year
Cost Breakdown: xxx

1.3.5 By FY2024, Implement Community Choice Aggregation or Community Solar Program contingent on legal authority.

Cost Estimate: $xx/year
Cost Breakdown: xxx

Long Term Actions

1.3.6 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: $xx/year
Cost Breakdown: xxx

1.3.7 Implement actions outlined in Electric Vehicle Charging Infrastructure strategy and support the implementation of a publicly-accessible electric vehicle charging infrastructure supported by renewable energy supply.

Cost Estimate: $xx/year
Cost Breakdown: xxx
Legislative Priorities
Pursuing legislative opportunities to provide decarbonize authority for community solar
EV legislative action to minimize barriers
Pursue building code authority for separate green building code

Justification

Accountable Parties
General Services (primary); Transportation and Environmental Services
2. 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% by 2030 and 80% by 2050 with significant contributions at the state and federal level with renewable mandates and other efficiency mandates.

**Short-Term Actions**

2.1.1 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 buildings; increasing of renewable energy production and availability for city residents; 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.

2.1.2 By FY2020, engage the community through a robust education and outreach campaign to inform Alexandria residents and businesses how to adopt emission reducing strategies and practices, solicit community recommendations, and provide opportunities to participate in the City’s commitment to reduce GHG emissions and address climate change.

*Cost Estimate: $20,000 per year*

*Cost Breakdown:* This includes outreach events and a sustained marketing push.

2.1.3 By FY2022, determine appropriate policies and guidelines for estimating projected GHG impacts, this includes identifying the types of projects and programs likely to have a significant impact on community-wide GHG emissions and resolving how to consider GHG emissions impacts alongside other city priorities when evaluating options, then calculate costs of programs and projects marked for GHG emissions assessments.
Cost Estimate: N/A
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

2.1.4 By 2024, 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: $xx/year
Cost Breakdown: xxx

2.1.5 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 energy efficiency programs, electrification transition from fossil fuels to electricity of private buildings and developments, and potential renewable energy supply implementation.

Cost Estimate: $xx/year
Cost Breakdown: xxx

2.1.6 Update the City’s Emergency Management Plan (CEMP) and COOP plans 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: $xx/year
Cost Breakdown: xxx

2.1.7 Participate in 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.

Cost Estimate: $xx/year
Cost Breakdown: xxx
Long-term Action

2.1.8 Dedicate funding for energy and climate change action plan actions, and include climate action measures in City financial and service decision making.

*Cost Estimate:* $xx/year
*Cost Breakdown:* xxx

2.1.9 Divest city financial investments and pension contributions from fossil-fuel related companies.

*Cost Estimate:* $xx/year
*Cost Breakdown:* xxx

Legislative Priorities

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 Plan¹, align with the Paris Agreement², 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 2050. 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/
3. Green Building

3.1 The 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 will be 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:

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

3.1.3 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;

3.1.4 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;

3.1.5 Prioritizing specific green building elements;

3.1.6 Introducing mandatory and/or voluntary green building practices for existing buildings (including historic) and for small buildings not subject to site plan review;

3.1.7 Instituting a building performance monitoring program;

3.1.8 The City’s ability to be more ambitious than the private sector in meeting green building goals to serve as a sustainability leader, and

3.1.9 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.
3.1.10 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.

3.1.11 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

Long-term Action

Legislative Priorities

Justification

Accountable Parties

Planning and Zoning (primary); Code Administration; General Services; Transportation and Environmental Services
4. Land Use and Open Space

4.1 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).

**Short Term Actions**

*Tree Canopy*

4.1.1 Update and coordinate the Urban Forestry Master Plan, Environmental and Sustainability Management System (ESMS), and Landscape Guidelines 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 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:* N/A

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

**Mid Term Actions**

4.1.3 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:* $xx/year

*Cost Breakdown:* xxx

4.1.4 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:* $xx/year

*Cost Breakdown:* xxx
4.2 Open space

4.2.1 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 2020, City Council will reestablish 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: $1,200,000
Cost Breakdown: The action is 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: N/A
Cost Breakdown: 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: N/A
Cost Breakdown: Existing staff resources

Mid Term Actions

4.2.4 Identify tools and techniques to maintain and enhance the City’s stream valleys including public access points for ecological and recreational benefits.

Cost Estimate: $xx/year
Cost Breakdown: xxx

4.2.5 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 that would connect 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: $xx/year
Cost Breakdown: xxx

4.2.6 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.

Cost Estimate: $xx/year
Cost Breakdown: xxx

Long-term Action

Justification

Legislative Priorities

Accountable Parties

Planning and Zoning; Recreation, Parks and Cultural Activities
5. 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**

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 by FY2023.

**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:* One-time expenditure of $100,000 (does not include staff time)

*Cost Breakdown:* Maximum of $100,000. The funds will be used for consultant studies.
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:* One-time expenditure of $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:* Existing staff resources are accounted for in current budget.

*Cost Breakdown:*

**Mid-Term Actions**

5.1.6 Evaluate public space trash and recycling bins and make recommendations on optimizing routes and other operational changes.

*Cost Estimate:* One-time expenditure of $75,000 (does not include staff time. Estimates are from 2018).

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

5.1.7 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:* One-time expenditure of $14,400

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

5.1.8 Evaluate organics processing market readiness and feasibility of curbside organics collection.

*Cost Estimate:* One-time expenditure of $75,000 - $100,000 (does not include staff time. Estimates are from 2018).

*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:* One-time expenditure of $75,000 - $150,000 (does not include staff time. Estimates are from 2018).

*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% 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 are accounted for in current budget.
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: One-time expenditure of $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 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:
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:
Cost Breakdown:

5.2.6 Establish sustainable purchasing guidelines to include for recycled content.

Cost Estimate:
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 Achieve the nutrient and sediment pollution reductions using the strategies in the Chesapeake Bay Action Plan by FY2023.
   a. Exceed 35% reductions during the 2018 – 2023 MS4 permit to include design and construction of the Ben Brenman / Cameron Station Pond Retrofit and the Lucky Run Stream Restoration.
   
   Cost Estimate: $6.1M
   Cost Breakdown: $4.2M to fund the design and construction of the Ben Brenman Pond Retrofit. $1.9M to fund the design and construction of Lucky Run Stream Restoration. 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 Hire an environmental educator to create and implement educational water quality programs targeted to students and adults by FY2021.
   
   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.

6.1.3 Create a Green Infrastructure Policy Document that details implementation of the citywide approach as policy for implementation of green practices by FY 2020.
   
   Cost Estimate: $50,000
   Cost Breakdown: Cost includes contractor policy development. Staff time and effort is not included in this cost.
Mid Term Actions

6.1.4 Achieve the nutrient and sediment pollution reductions using the strategies in the Chesapeake Bay Action Plan by FY2025.
   
   **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. Does not include staff time and effort in developing the Phase 3 Bay TMDL Action Plan.

6.1.5 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 by FY2024.

   **Cost Estimate:** estimated $350,000
   
   **Cost Breakdown:** Estimated cost of identifying and prioritizing projects for further design and construction.

Long Term Actions

6.1.6 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 by FY2030.

   **Cost Estimate:** estimated $350,000
   
   **Cost Breakdown:** Estimated cost of identifying and prioritizing projects for further design and construction.

6.1.7 Identify 20% of existing proprietary stormwater management devices on City properties as candidates for green infrastructure retrofit opportunities beginning FY 2029.

   **Cost Estimate:** TBD
   
   **Cost Breakdown:** Cost will be substantiated following development of the plan.
**Legislative Priorities**

Expand the Virginia 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 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. Water Resources

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 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 by FY2022.

Cost Estimate: $300,000/year
Cost Breakdown: Cost includes estimate from Code for maintenance of BCEGS.

6.2.2 Develop the preliminary prioritization for nuisance drainage projects in FY2019 and develop the Drainage and Flooding Projects Prioritization Plan to manage major capital construction projects by FY2022.

Cost Estimate: $450,000
Cost Breakdown: Analysis, modeling and mapping, and project prioritization.

6.2.3 Educate businesses and homeowner in water conservation practices and consider an incentive program (i.e., rebates, fees or taxes), and provide outreach to the general public.

Cost Estimate: $25,000 - $40,000/year
Cost Breakdown: Annual cost of program

Mid Term Actions
6.2.4 Work with Alexandria Renew in implementation of the Long-Term Control Plan that addresses all four combined sewer outfalls and minimizes combined sewer overflows by 2025.

Cost Estimate: $370,000,000 - $550,000,000
Cost Breakdown: Planning, design, and construction funded through AlexRenew
6.2.5 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.

6.2.6 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: Regional planning

Long Term Actions

6.2.7 By FY2030, create a Stormwater Management Master Plan as the citywide, watershed-based comprehensive approach to addressing water quality and quantity issues as part of the City’s Master Plan. The City’s Stormwater Master Plan, as an update to the City’s Master 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.

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

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
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 2023, reduce total average vehicle miles traveled (VMT) per capita by at least 1% per year.

Short Term Actions

7.1.1 By 2023, 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 2023, 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:
Cost Breakdown:
7.1.4 By 2023, Adopt permanent regulations for shared mobility devices such as dockless bikes & electric scooters and other personal mobility devices.

7.1.5 By 2024, 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:

**Mid-term Actions**

7.1.6 By 2028 complete the bicycle and pedestrian projects prioritized in the pedestrian & bicycle Chapters of the Urban Mobility Plan (formerly known as Transportation Master Plan)

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

7.1.7 By 2025, implement the 2017 walk audit recommendations for ALL schools

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

**Long-Term Actions**

7.1.8 Update ped bike section of transportation master plan determine the feasibility of low-stress multi-model, connective network to increase bicycle mode share.

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

*Cost Breakdown*

**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 2023 increase the share of ALL trips taken by public transit, walking and biking by at least 15% based taking the 2018 Mobility Survey as a baseline.

Short Term Actions
7.2.1 By 2023, develop a stand-alone Transportation Demand Management (TDM) Chapter in the Alexandria Urban Mobility Plan (formerly the Transportation Master Plan) to promote low-carbon modes.

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

Medium Term Actions
7.2.2 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% of combustion-related GHG comes from the transportation sector. In the region this share can reach 40%. 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 2030, double the miles of dedicated bus infrastructure to at least 1.5 miles.

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**Short Term Actions**

7.3.1 By 2023, 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 2023, finalize construction of the Potomac Yard Metrorail station.

*Cost Estimate: $370 million (2018)*

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**Mid Term Actions**

7.3.3 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*

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**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

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.

Accountable Departments
All City Departments lead by 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, complete the Environmental Health Assessment and create a comprehensive action plan to address the greatest issues of concerns for the City of Alexandria based on community input.

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: Unknown

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 benchmark 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.

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.

Accountable Departments
Department of Housing, Code Administration and Health Department (Primary).
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: $XX/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: $XX/year*  
*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.
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 NAAQS for Criteria Pollutants.

Target: Achieve compliance with 2015 ozone NAAQS of 70 ppb and other pollutants for the MWCOG region including Alexandria by 2023.

Short-term Actions:

9.1.1 Review and update standard conditions for development targeted at reducing air pollution by 2020.
   Cost Estimate: $XX/year
   Cost Breakdown:

9.1.2 Develop strategies to reduce air pollution from non-point sources by 2021.
   Cost Estimate: $XX/year
   Cost Breakdown:

9.1.3 Develop methodology to quantify air pollution impacts and benefits of major transportation projects by 2022.
   Cost Estimate: $XX/year
   Cost Breakdown:

9.1.4 Enhance/ expand the City’s Air Quality Action Day and conduct outreach to residents, businesses and City staff by 2020.
   Cost Estimate: $XX/year
   Cost Breakdown:

9.1.5 Promote the use of battery-powered leaf blowers and lawn mowers and investigate incentive mechanisms by 2022.
   Cost Estimate: $XX/year
   Cost Breakdown:

Mid-term Actions:

9.1.6 Prepare a “State of the Air” report by 2024.
   Cost Estimate:
   Cost Breakdown
10. Implementation, Education, and Outreach

10.1 Education and Outreach

Goal
Increase public awareness of sustainability challenges and opportunities for impact among residents and businesses.

Target
By 2023, establish ongoing educational opportunities to increase awareness of environmental challenges and provide recommendations for adoptable daily sustainable practices for residents and businesses.

Accountable Departments
Transportation and Environmental Services

Short-Term Actions

10.1.1 By FY2020, Design and implement robust outreach campaigns to engage and educate residents about sustainability 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.

Cost Estimate: $20,000/year
Cost Breakdown: Quality info-graphics, handouts, sustainability giveaways, (e.g. LEDs, outlet seals, water bottle slings, reusable bags) vibrant and current web presence with instructional videos, sustainable signage, and workshops included in the annual cost. 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.

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.

Cost Estimate: $20,000/year
Cost Breakdown: 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 website to facilitate consumer selection based on sustainability.

Cost Estimate: $10,000/year + cost of program (if applicable)
Cost Breakdown: 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.

Cost Estimate: $20,000/year
Cost Breakdown: Promotional materials and awards event.

Justification

Legislative Priorities
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.

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

**Short-Term Actions**

10.2.1 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. Collaboratively identify new and revised roles and responsibilities of City boards, City commissions, staff departments, regional partners, and volunteers to implement, monitor, and report sustainability efforts.

**Mid-Term Actions**

10.2.2 Publish annual EAP Progress report (PDF and digital).

*Cost Estimate:* $10,000 plus staff time.
*Cost Breakdown:* Graphic and web design.

10.2.3 Participate in regional and state efforts to increase the sustainability and enforcement of construction practices, regulations, and codes (Energy Conservation Code, recycling, stormwater management)

*Cost Estimate:* $2,000/year
*Cost Breakdown:* travel and registration fees.
Legislative Priorities

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