

## EAP draft introduction

*Intro by Mayor, CMO, and recognizing historic element, acknowledgements of staff in departments, and project coordinator*

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## Executive Summary or introduction

### Optional opening

Take a walk in the City of Alexandria. Stroll along an historic or modern tree-lined street to one of the weekly farmers markets, small shops, parks, or along the improvements to the waterfront and feel the vibrancy and the quiet of the City of Alexandria while you see elements of sustainability all around you.

Insert picture of older treelined (King with trash cans and LED traffic light and even better with the trolley too) and structured tree well

The City takes pride in its historic charm and roots as a river town, but also its modern vitality, as characterized by its waterfront, unique neighborhoods and urban villages of small shops and restaurants. These characteristics have been enhanced by smart development, maintaining their charm awhile adding new environmental features, some hidden like insulation behind walls but others plainly visibly, like bike racks along streets.

Alexandria is a highly mobile, culturally diverse community of approximately 150,000 residents and seeks to create an environmentally, economically and socially healthy city where people can live, work and play far into a sustainable future.

Alexandria has long been a leader in sustainability, as far back as its 1998 Quality of Life Summit but more recently highlighted by Eco-City Alexandria initiatives that includes the Eco-City Charter adopted June 2008 and the Environmental Action Plan 2030 (EAP 2030) adopted June 2009, this updated Environmental Action Plan 2040.

The City fulfilled or exceeded a majority of the 363 actions from the 2009 EAP 2030 including hiring its first Sustainability Coordinator in August 2017, Ellen Eggerton. She has coordinated the Environmental Action Plan 2040 update, to acknowledge the accomplishments from the previous plan; consider the changed global, regional and state issues; identify the fiscal resources required; and create a responsive environmental road map for the future.

The City is part of significant planned changes to the region and the EAP 2040 will be updated every three to five years to adopt to the needs of the community, fiscal constraints, changing technologies and global, regional and state issues.

## Overview

The ten topic areas in this plan track with the Eco-City Charter's ten guiding principles:

- *Builds Wisely, Embraces Natural Beauty,*
- *Improves Water Quality,*
- *Cleans the Air, Moves Smartly,*
- *Conserves Energy and Resources,*
- *Minimizes Waste,*
- *Supports Healthy Living,*
- *Readies for Changes,*
- *Leads Intelligently & Holistically, and*
- *Shares Responsibility.*

These principles are woven into the City Strategic Plan and related tools such as Small Area Plans, many master plans and guidelines throughout City departments. The strategic tools are critical components of essential City programs, policies, and processes. The City Strategic Plan sets the general policy direction with the Environmental Action Plan as an integral component of the City Strategic Plan.

The Environmental Action Plan 2040 (EAP 2040) incorporates the EAP Phase One (approved in October 2018), which was only focused on the first five topic sections and limited to only short-term action. This report expands those five topics (1-5 below) with mid- and long-term actions, some revisions, and addresses the five remaining topics (6-10 below) with short-, mid-, and long-term actions.

1. Climate Change
2. Energy
3. Green Building
4. Land Use and Open Space
5. Solid Waste
6. Water Resources
7. Transportation
8. Environmental Health
9. Air Quality
10. Implementation, Education, and Outreach

The ten topics each have a section in the plan as they did in 2009 with an average of two goals and four - six actions in each goal. Implementation was retitled to include education and outreach. One consideration in the update process was to have fewer actions at a higher level to prioritize the City's resources on fewer actions, with higher level goals, targets with metrics, and using related more detailed plan and guidance documents to develop details and specifics based on additional detailed information and analysis.

Each topic section introduction provides an update of where the city is today and the related programs, policies, plans, guidelines, and resources that work with the EAP 2040 to successfully implement sustainability into the city and community functions along a path to reach an EAP target.

### **Synergies**

Actions in the EAP 2040 are interconnected and provide additive benefits across multiple sections.

New green buildings goals, targets, and actions have climate change, energy, land use and open space, water resource, transportation, air quality, environmental health and implementation and educational opportunities for emission reduction and environmental impact through regulations, development planning, and City policies and programs. These efforts and changes are most effective when aligned together with economic, equitable, and coordinated strategic planning.

In a city, actions to work towards a significantly lower dependency to single use motor vehicles and using low carbon options such as transit, bikes, scooters and walking for transport are significant emission reduction options because of the close proximity of community amenities as well as providing infrastructure for the expansion of electric vehicles.

These synergies connect the impacts of the EAP 2040 across topic sections and the results are captured together in the monitoring and tracking of EAP 2040 progress. Every three years MWCOG calculates an emissions GHG inventory for the region and the city (based on ICLEI protocol) and uses direct utility data for buildings and a regional model for transportation.

### **Climate Change and Urgency**

Shortly after Council adopted the EAP Phase 1 update, the Intergovernmental Panel on Climate Change (IPCC) released a special report on the impacts of global warming of 1.5°C above pre-industrial levels. The IPCC report describes impacts and risks associated with global average temperature increases of 1.5°C and higher, and the deep emissions cuts needed to constrain warming at the 1.5°C limit.

All IPCC paths recommend reducing emissions by 50% by 2030, a mere 11 years from now. The city target is to reduce emissions by 50% by 2030 and to be net zero or carbon neutral 80-100% (min and aspirational) by 2050.

The future described by the IPCC report is an aggressive carbon diet with no homes, businesses or industry heated by fossil fuels, no vehicles running on fossil fuels, and all fossil fuel power plants closed. Increased natural carbon capture by increasing forests by almost 4 million square miles and direct air capture of carbon using chemical reactions. Local governments, especially urban ones, need to be supported by national

governments and for the City also by the state government to among other issues to significantly push the regional electric grid to be more renewable. There are not currently options to replace air travel and an array of other uses, so the emission reductions are dramatic and carbon capture is necessary.

### Financing

As a policy plan, the EAP 2040 does not commit or appropriate funds. But provides strategic guidance for the City Council and City Manager through the regular fiscal planning and budgeting process. The EAP 2040 includes legislative priorities in each principle for recommendations that need additional legal authority to implement. Supporting justifications provide additional reasons for including the actions. Collaborating departments are indicated for each group of actions along with a proposed lead department. Order of magnitude cost estimates are provided. More specific costs will be developed after the relevant analysis, evaluation, and specific pricing is done as an action is funded.

Incentives, solar bulk pricing, Commercial Property Assessed Clean Energy (CPACE), grants, local partnerships, state funding, and national funding are part of the mix of opportunities.

### Impactfulness

These topic areas cross pollinate each other, facilitate, leverage, and contribute to the beneficial environmental, health, social, and economic outcomes for the people, businesses, visitors, and City government operations, facilities, and valuable historic features.

**Green Buildings** can have an impact in reducing CO2 emissions, lowering energy consumption, reducing water usage, mitigating flood risks, reducing stormwater pollution, enhancing mobility options, providing public and/or private open space, improving health for the building users, providing economic viability and community vitality and in some cases adding affordable housing. The revised parking requirements have an impact on the carbon footprint of a building operations in addition to the impact of the building itself. Actions and impacts do not happen in a vacuum but interact with each other and have cumulative effects.

Green Building Policies is an effective tool to negotiate low-carbon buildings to reduce emissions for the life of a building. The built environment in an older city is predominately existing and voluntary programs

A relative value of impactfulness has been given to each action. This is not an absolute value or a measured metric. Staff has made an estimated value of high, medium or low impact to the City.

## **Achievements**

A significant majority of the 363 actions across ten focus areas in the 2009 EAP 2030 were successfully implemented. Especially noteworthy was the accelerated closing of the coal-fired power plant leading to significant improvements in air quality in the City and the region, reducing greenhouse gas emissions by 12.5% as of 2015, 95% compliance with the 2009 Green Building Policy, reducing stormwater pollution by 40% as of FY2018, achieving a 50% recycling rate in 2018, and reducing vehicles miles traveled by 12.5% from 2010 to 2016. The 2009 EAP 2030 achievements have been significant despite years of fiscally constrained budgets, national recession, and a population increase of 12% since xxxx.

**Insert some pictures** of achievements

The EAP 2040 builds on the previous work and accomplishments of the 2009 EAP 2030. These existing programs and policies have been added to the GreenVentory on top of what was included in the original 2007 GreenVentory.

The EAP 2040 updates the 2009 EAP 2030 by advancing further the City targets and actions that add to mitigation efforts to reduce greenhouse gas (GHG) emissions with more renewable energy, increased focus on energy efficiency, enhancing and protecting our local water resources through reductions in stormwater pollution, employing significant controls for sanitary sewer impacts to waterways, strategically locating bike racks and bike share and other mobility options, having a free Trolley, improving recycling with a focus on reducing solid wastes, year-round weekly Farmer's market with organic composting, and increasing education and outreach using social media and new tools. Outreach is essential to engage the community in a call to action and receiving feedback on sustainability, while getting information on the effectiveness of implementation via measurable metrics and growing a sustainable culture throughout the City.

**Insert an active pic of a child at a playground or in a park**

## **Community Engagement**

The process was a collaboration coordinated by Ellen Eggerton, the Sustainability Coordinator, with the Environmental Policy Commission, City staff, elected officials, with input from the public and businesses in the City.

Public engagement over the past 18 months included EPC retreats, a public launch, an open house, an Eco-City Café, Eco-City Summit, Earth Day, online feedback, monthly discussions at Environmental Policy Commission meetings, Planning Commission

meetings, Transportation Commission, Parks and Recreation Commission. Council sessions, and adoption of EAP Phase One in October 2018.

As part of the Eco-City Summit, many attendees signed an Eco-City pledge to make sustainability commitments as part of their life. Green certifications, recognition, and award programs can all help in advancing adoption and participation by residents and businesses.

EAP 2040 includes specific action for achieving goals and targets and robust education and outreach to the community and businesses including an Eco-City Academy opportunity that incorporates all topics. Community groups and others are encouraged to contact Ellen Eggerton, the Sustainability Coordinator for the City, for more information and to schedule educational events and workshops.

During these events and through other avenues, there were repeated requests for enhanced education and outreach related to the City's efforts and for guidance on sustainable practices. People generally want to know what individuals, businesses, and the City can do now and, in the future, to reduce environmental impacts. Residents are curious to know how the City is progressing in each of the topic areas. In response, EAP 2040 includes increased implementation and reporting metrics.

## Metrics

While great strides were made by achieving many of the goals of the 2009 EAP 2030, the objective and scientific information in the environmental community reinforces that there is more to be done by the City government and the community. Updating the key indicators for tracking and measuring, to reflect the new goals, targets, and actions will provide performance monitoring of the EAP 2040 actions and overall accomplishments. Currently City facilities and operations account for only **four percent of the emissions** and residential, commercial and transportation account for **96 percent**, therefore the whole community must act to achieve these goals.

Insert pie chart showing 4% and 96%.

The City has seen a 21% drop in GHG emission per capita from 2005 to 2015. The trend has been from 14 equivalent metric tons of CO<sub>2</sub> to 11 equivalent metric tons per capita towards the target of 10 equivalent metric tons in 2022. In addition, the City has seen an overall reduction of 13% in GHG emissions has been supported changes to the efficiency of the electrical grid profile in addition to specific actions in the City.

The EAP includes many specific targets that will contribute to overall goals. Particularly, a reduction in greenhouse gas emissions from a 2005 baseline to reduce greenhouse gas emissions 80% by 2050 with an interim goal of 50% reduction of GHG by 2030. There are significant challenges to meet the GHG goals and targets.

The emission profile is comprised of (use a graphic of distribution of GHG by contribution)

Improvements to reduce emission cannot always included measures to track actual emission reductions as the values are part of bigger aggregate data. The GHG inventory is done every three years with a base year of 2005. The inventory uses the ICLIE (International Council for Local Environmental Initiatives now Local Governments for Sustainability) methodology as a regional standardization. Some emission values are based on an allocation by population and not directly measured values. The 2015 GHG calculation provided are in the appendix.

## Performance scorecard

The EAP 2040 has

scorecard			
<b>Metric</b>	<b>short-term</b>	<b>mid-term</b>	<b>long-term</b>
<b>Climate Change</b>			
Total GHG emission reduction over 2005 baseline			50% by FY2030 and 80% by FY2050
<b>Energy</b>			
Government facilities to 100 percent electricity offset	100% by 2020		
Improve energy efficiency by 25 percent over FY2018 for City-owned facilities and affiliated transportation			reduce by 25% by FY2030
reduce GHG emissions carbon dioxide equivalent metric tons per capita	10 CO2 equivalent metric tons per capita by FY2022		6 metric tons by FY2040.
<b>Land Use and Open Space</b>			
Tree Canopy			40% by FY2035
Open Space Acres per 1,000 residents	7.3	7.3	7.3
<b>Solid Waste</b>			
Reduce GHG emissions by optimizing the collection and processing of solid waste over a 2019 baseline.	12%		
<b>Transportation</b>			
reduce vehicle miles traveled	By FY2023 reduce 1% per year		
increase transit, walking, and biking	By FY2023 Increase by 15% over 2018		

dedicated bus lanes			By FY2030, double the dedicated bus lanes to 1.5 miles
<b>Air Quality</b>			
reduce ozone		By FY2023, reduce to 70 ppb or lower	

## Challenges

Opportunities in urban environments are different from rural environments. Transportation low-carbon mobility opportunities are available in urban environments while space for solar farms is available in rural. An existing built environment is more challenging to implement emission reductions but there are opportunities to do so in building, equipment, and operational improvements.

Advancing our sustainability goals in a highly urban and densely populated city presents challenges and opportunities. The City of Alexandria within the Commonwealth of Virginia is constrained by the Dillon Rule. The Dillon Rule restricts the authority of the City. In the EAP 2040, issues regarding legal authority are shown as legislative priorities and not action items because the ability to take action is outside the authority of the City.

Achieving the goals will take a collective action by the City government and the community in all focus areas, along with collaboration with our regional partners, and state and federal government - specifically with respect to renewable energy, complementary regulations, and improved federal efficiency standards. Enhanced education and outreach will a focus on the next generation to adopt a culture of sustainability as a new norm.

For instance, the electric grid provided by Dominion Energy is currently about 5 percent renewable (need reference). To achieve emission reduction target, a significant increase in the renewable energy portion of the electrical distribution is needed. According to the IPCC the share of electricity supplied by renewable needs to increase by 36 to 97 percent overall. The US Energy Information Administration says that overall the grid in the US was about 17 percent renewable in 2018.

([https://www.eia.gov/energyexplained/index.php?page=electricity\\_in\\_the\\_united\\_states](https://www.eia.gov/energyexplained/index.php?page=electricity_in_the_united_states)).

The regional methodology used calculates transportation emissions that includes contributions of through traffic, metro subway, rail, and airport allocation that comprise 36% of the City's GHG inventory. While Alexandria was the most successful in reducing vehicles miles traveled in the region there are significant portions of the 36%

transportation sector emissions that are outside the control of the City government and community.

The EAP 2040 works towards aspirational goals and targets with potentially achievable actions in the short-term and more aspirations in the mid- and long-term. As outside factors change, the EAP 2040 targets may be accelerated. It is difficult to know how it will be in five, ten or twenty years so periodic updates to the EAP 2040 will be needed. The challenges of climate change impacts will affect not only the waterfront of the City but all aspects of work, play, and infrastructure in the region.

## **End of introduction**

## **EAP 2040 structure**

Put on SharePoint for Karen

The appendix includes:

Achievement highlights 2009 -2017

GHG inventory as of 2015

Eco-City Pledge

Definitions

ICLIE (International Council for Local Environmental Initiatives) now Local Governments for Sustainability