



## **2020 Alexandria's Environmental Accomplishments & Awards**

*The following is a list of environmental accomplishments that were submitted by City departments and City-based organizations. The Department of Transportation and Environmental Services, Office of Environmental Quality, compiled this list which includes initiatives aimed at progressing the City further toward environmental sustainability.*

### **ACHIEVEMENTS**

#### **Sustainability Metrics and Legislations**

##### **City-wide Greenhouse Gas (GHG) Emissions Inventory**

The Metropolitan Washington Council of Governments (MWCOG) just completed the 2018 GHG emissions inventory year showing that the City's overall GHG emissions decreased by 18% even with a 19% increase in population from the base year, 2005. At 9.5 MTCO<sub>2e</sub>, the City's per capita emissions already surpassed its Strategic Plan 2022 target of 10 MTCO<sub>2e</sub>, and are a 30% reduction from 2005. The Environmental Action Plan (EAP) 2040 adopted targets of 50% GHG emission reduction by 2030 and an 80%-100% reduction by 2050.

##### **Environmental Legislative Changes**

The City participated in more than 50 Virginia state environmental legislative changes in 2020 that allow Alexandria to implement more carbon reducing actions in addition to the more energy efficient building codes and utility renewable energy targets in the Virginia Clean Economy Act and Solar Freedom Act. Examples of changes include a bag tax authority, chemical contamination in drinking water, lead disclosure for residential property sales, electric vehicle rebate, green job creation tax credit, lead testing and mold mitigation in schools.

#### **Energy**

##### **City established Commercial Property Assessed Clean Energy (C-PACE) program**

On November 14, 2020, the City passed an ordinance authorizing the implementation of a Commercial Property Clean Energy (C-PACE) program **to advance commercial building energy efficiency upgrades**. The City C-PACE is an innovative program to facilitate commercial loans to property owners to make energy conservation, stormwater, and resiliency upgrades in existing and new commercial, multifamily, and non-profit establishments.

##### **Lighting and HVAC equipment upgrades in City facilities**

Lighting upgrades were completed to reduce energy usage and greenhouse gas (GHG) emissions at eight City-owned buildings including Police Department garage, fleet services facility, DASH Administration building and bus depot, impound lot, and police shooting range. The total annual energy reduction is estimated to be 1,380,000 kWh with an estimated cost savings of \$98,000 per year. Eight heating/cooling equipment upgrades/re-commissioning for City-owned facilities were

completed to reduce energy usage and reduce maintenance costs. Building automation systems were upgraded/installed at several facilities that allows real-time monitoring of performance.

### **SolarizeAlexandria 2020 campaign and SolSmart Gold designation and renewable offset purchases**

The 5<sup>th</sup> year of the SolarizeAlexandria program in partnership with the Local Energy Alliance Program (LEAP-VA) and Northern Virginia Regional Commission increased the amount of installed solar energy resources in Alexandria by about 138 kW. Thanks to this effort the City achieved the SolSmart Gold designation. Based on the performance of City solar PV systems and purchase of 2020 vintage renewable energy certificates (RECs), the City government offset over 98% of its FY2020 electricity use. RECs include from wind, solar, and other renewable energy resources from around the US.

### **Energy Masters to renovate low-income housing units to improve energy efficiency**

The Energy Masters program completed a fifth year serving Alexandria residents living in affordable housing communities with financial support from the Office of Housing. This year's program trained 27 participants to assist with hands-on modifications in 20 units at Parcview Apartments marking a milestone with the completion of their 1000th unit since the program's inception in 2011.

### **Energy Efficiency/Home Rehabilitation Loan Program**

The City's Energy Efficiency Loan Program associated with the umbrella Home Rehabilitation Program utilizes energy audits and provides funding to incorporate energy efficiency improvements. During 2020, three loans totaling \$63,107 were funded.

## **Transportation & Transit**

### **Vision Zero and Complete Streets Implementation**

the City continued implementation of the [Vision Zero Action Plan](#) and the [Complete Streets Design Guidelines](#) in pursuing the goal of prioritizing low carbon mobility options. The City completed major pedestrian and bicycle improvement projects on four streets since 2018: South Pickett Street, North Pegram Street, Seminary Road, and Royal Street. The Complete Streets Design Guidelines shaped repaving streets, curb ramps, sidewalks, crosswalks, and improvements to accessibility at bus stops where feasible. Traffic safety improvements for low carbon mobility options such as additional or upgraded crosswalks, pedestrian signals, signal changes, no turn on red restrictions, and more were implemented across the City. Improvements have focused on high crash corridors including Duke Street, Beauregard Street, Route 1, Glebe Road, Eisenhower Avenue, and high pedestrian activity near transit stations, schools, senior housing, parks, shopping centers.

### **King St/Duke St Transit Signal Priority (TSP) project and real-time schedule displays**

This innovative and collaborative project for DASH and WMATA buses showcased improving the reliability and efficiency of mass transit making it an attractive alternative to the single occupant vehicle. The Alexandria TSP system allows "smart" public transit buses having on-board GPS equipment to communicate directly with the traffic signals along the route to shorten the red light or lengthen the green light to help the bus get back on schedule. Additionally, real-

time schedule displays that inform passengers when the next bus is coming are being installed and are solar powered where possible.

### **DASH Electric Bus Conversion**

In October, DASH debuted three of the six battery electric buses as part of its commitment to transition its fleet to zero emission and construction electric bus depot chargers in collaboration with the City. The six battery-electric buses will reduce DASH's carbon footprint by over 12,600,000 lbs. of pollutants over the lifespan of the buses. An additional eleven battery-electric buses are on order. Similarly, battery-electric vehicles (EVs) and charging stations are being added to the City fleet. ACPS was awarded a grant for five electric school buses from Dominion Power. In addition, the community has been buying more electric vehicles (6% new registrations in the City versus 2% nationally).

## **Green Building and Small Area Plans**

### **2019 Green Building Policy**

the City's 2019 Green Building Policy went into effect March 2020, setting new and more stringent standards for environmental sustainability in development projects. One hundred percent of all development applications subject to the 2019 Green Building Policy have been required to meet or exceed the requirements of the policy, including the City's first net-zero elementary school (MacArthur).

### **Green Building Training**

City and ACPS staff attended a five-month Green Building Policy training on the fundamentals of green building, focused deep-dive on net-zero energy development, sustainable materials, and enhanced indoor air and environmental quality.

### **North Potomac Yard Environmental Sustainability Master Plan**

Consistent with the Potomac Yard Small Area Plan to, "strive to achieve carbon neutrality by 2040 and to strive to achieve carbon neutral buildings by 2030" in North Potomac Yard, the developers of North Potomac Yard created an Environmental Sustainability Master Plan (ESMP). The ESMP, a first of its kind in the City, was endorsed by the Planning Commission and City Council and serves as a sustainability roadmap for future build out. The ESMP facilitates the three pillars of sustainability – environmental, social and economic with guidance for development within North Potomac Yard to achieve a high level of sustainability than the Green Building Policy alone.

### **Sustainable Affordable Housing**

The Alexandria Housing Development Corporation (AHDC) and Carpenters Shelter partnered to complete The Bloom, a mixed-use development featuring a 97-unit residential development and a new homeless shelter and is anticipated to earn EarthCraft Gold Certification.

## **Water Resources**

### **Ben Brenman Pond Retrofit**

Implementation of the City's Chesapeake Bay Total Maximum Daily Load (TMDL) Action Plan, as required under the MS4 General Permit, continued with substantial completion of the retrofit of

Ben Brenman Pond, which drains approximately 255 acres of urban land with an impervious percentage of 62%. The pond retrofit increases the pollutant removal efficiency as well as divert an additional 35 acres to the pond; along with enhancing habitat through native trees, shrubs, and wetland. The retrofitted pond is expected to reduce about 15% of the required total for the Chesapeake Bay TMDL.

### **Community Rating System**

The Federal Emergency Management Agency (FEMA) instituted more stringent requirements for all designations of the National Flood Insurance Program (NFIP) Community Rating System (CRS). The City were able to maintain a Class 6 rating, which concludes the CRS verification cycle started in 2018. With this rating, impacted homeowners obtain a 20% discount on their flood insurance premiums.

### **Resource Protection Area Encroachment Removal Restoration and Dedication**

The City successfully negotiated over 2 acres of impervious removal, replanting, and dedication of privately-owned RPA on Backlick Run to the City.

### **24/7 Protection of Alexandria's Waterways and the Chesapeake Bay**

The City's wastewater utility, AlexRenew has a vital mission is to clean the community's wastewater and improve the health of Virginia's waterways. In 2020, AlexRenew outperformed its permit requirements for nitrogen and phosphorus by removing 94 and 98 percent of these pollutants from the plant discharge, respectively. AlexRenew removed an additional 200,000 pounds of nitrogen and phosphorus this year over and above its requirements, further helping to protect the Chesapeake Bay. When discharged to our waterways, these pollutants can cause algae blooms, which reduce the available oxygen in water and sunlight necessary for aquatic life.

### **Reducing AlexRenew's Carbon Footprint While Upgrading Processes and Equipment**

AlexRenew installed a new aeration system to support its biological wastewater treatment process. This system brings bubbles of air into the wastewater stream to ensure bacteria are able to thrive and break down nitrogen in the wastewater. The new aeration system extended the life of an existing asset, lowered energy usage for the system by 30 percent, and improved wastewater treatment operability. Additionally, AlexRenew recycled 21 tons of steel from landfills during this work and earned national recognition for energy efficiency as part of the Department of Energy's Better Plants Challenge Program.

## **Resource Recovery**

### **Reducing Waste and Glass Recycling**

the City launched an online Reuse Map & Directory to reduce waste and save carbon emissions by reusing existing items. This directory allows the user to find locations to donate, repair, and consign materials through local vendors and businesses. This online directory waste reduction tool was a short-term action for the City's WasteSmart Strategic Plan and the Environmental Action Plan 2040. The Reuse Map and Directory has more than 18,500 views since launching in March.

The City has recycled a total of 1,291 tons of glass (May 2019 through October 2020) in collaboration with Fairfax County and their glass crushing machine. The City removed glass from

the mixed recycling and saved significant dumping costs per ton. The program expanded by adding a fifth glass-only purple bin drop-off location in partnership with MOM's Organic Market at 3831 Mt Vernon Ave. Glass is being recycled into new bottles, gravel for construction projects and sand for sandblasting and sandbags. The City used 47.4 tons for sandbags during storm flooding events this summer.

## **Recreational, Educational and Library Facilities**

### **Alexandria Library Becomes a Climate Resilience Hub**

Alexandria Library was one of 25 libraries out of 70 who applied to win a Resilient Communities: Libraries Respond to Climate Change grant from the American Library Association. Under this program, Alexandria Library collaborating with the City staff, is hosting ongoing public education events focused on climate change, ethical sustainability and resiliency at both the local and global levels. This program engages patrons in discussions about how individuals as an inclusive community can respond to our changing environment and provide community resources and suggestions for adapting to climate change. Events are being added and can be found on Alexandria Library's event calendar by searching "Upgraded and Grounded" for future events.

Alexandria Library System initiated the development of a series of videos addressing sustainability issues. One such video titled "Eliminate your use of single-use plastic produce bags!" and shows the audience how to quickly make a reusable shopping bag out of an old t-shirt that can replace wasteful single-use plastic bags.

## **Other**

### **APEX Permitting System**

The City developed and implemented a new electronic permitting system called APEX aimed at saving staff review time and significantly cutting down on paper usage. The system allows for 1) remote plan review across departments and efficient resubmissions by designers; and 2) easier inspections with online access to the approved plans. This paperless system has proven to be essential in facilitating City staff review of development plans for 13,571 building and trade permits in 2019. The APEX paperless process saved an estimated 1000-plus trees and 1,872,000 pounds of carbon dioxide emissions as well as removing 864,000 pounds of paper that would have been hauled by City recycling trucks.

## **AWARDS**

### **Water Environmental Federation (WEF) Award**

The City of Alexandria's Phase II Municipal Separate Storm Sewer System (MS4) General Permit Program was recognized by the Water Environment Federation's (WEF) National Municipal Stormwater and Green Infrastructure Awards Program. Phase II Program Management Winner; Silver recognition for Innovation; and Gold recognition for Program Management.

### **Kettle Park wins the Best New Environmental Sustainability Award**

The City was awarded Best New Environmental Award for Kettle Park by the Virginia Recreation & Park Society for environmental landscaping and repurposing passive open grass area into a

vibrantly landscaped park area with habitat for native pollinators. Wide natural lawn paths allow areas of unstructured play, and grouped boulders provide seating along with large beds of native meadow plantings, perennial grasses, wildflowers, and trees. The planting slows rainwater runoff to nearby storm inlets.