

ECO-CITY ALEXANDRIA

2013 Eco-City Progress Report & Key Environmental Indicators



Early in 2007, under the direction of and with strong commitment from the Mayor and Members of City Council, the City of Alexandria, in partnership with its Environmental Policy Commission (EPC), Virginia Tech Alexandria Campus and the community, embarked on a new initiative – Eco-City Alexandria – which culminated in the Council’s adoption of the Eco-City Charter, the first of its kind in the Commonwealth, in 2008, as well as the Environmental Action Plan 2030 (EAP 2030) in 2009. Since then, the City and its residents have collectively completed numerous actions stipulated in this action plan aimed at fostering the goals of the Eco-City and leading Alexandria further towards environmental sustainability. This third annual report provides quantitative measures of the progress that the residents and the City government have made during 2013. These measures are in the form of 20 environmental indicators developed by the EPC in consultation with City staff.

Eco-Cities

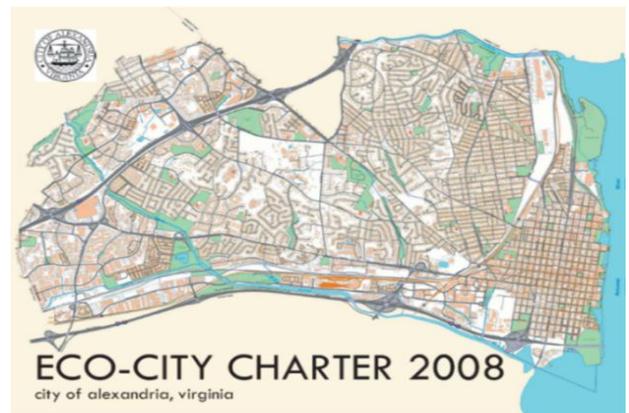
Eco-Cities are places where people can live healthier and economically productive lives while reducing their impact on the environment. They work to harmonize existing policies, regional realities, and economic and business markets with their natural resources and environmental assets. Eco-Cities strive to engage all citizens in a collaborative and transparent decision making process that is mindful of social equity concerns.

Sustainability is defined as meeting our community’s present needs while preserving our historic character and ensuring the ability of future generations to meet their own needs.

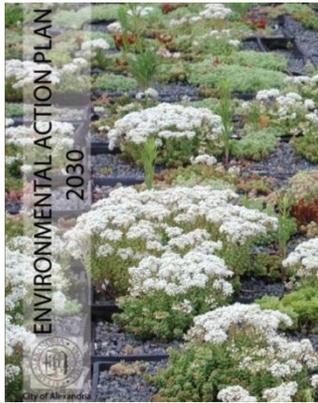
The Eco-City Charter was the first Environmental Charter adopted in Virginia. The *Eco-City Charter* serves as a document to holistically guide City leaders and residents towards a more sustainable and healthy environment. It defines Alexandria’s commitment to ecological, economic and social sustainability. The *Eco-City Charter* outlines essential environmental sustainability principles and core values, and is consistent with the City’s 2015 Strategic Plan.

Eco-City Charter’s Ten Guiding Principles

Land Use and Open Space	Building Green
Water Resources	Solid Waste
Air Quality	Environment & Health
Transportation	Emerging Threats
Energy	Implementation



The Environmental Action Plan 2030 follows the guiding principles outlined in the Eco-City Charter, and serves as a road map for City leaders and residents to implement the *Eco-City Charter*. Following an extensive community outreach program which included an interactive Eco-City Café, open houses and an Eco-City Summit, City Council adopted the Environmental Action Plan (EAP) 2030 in June 2009. The EAP 2030 consists of 48 goals, 50 targets and 353 actions for the next 20 years to lead the City towards environmental sustainability.



Environmental Indicators - The Environmental Policy Commission spearheaded the development of the environmental indicators that can be measured on a routine (preferably annual) basis to quantify the progress made on the Eco-City initiative. In consultation with City staff, the commission decided on the 20 indicators listed in Table I which are related to the goals and targets of the EAP 2030 and represent activities that cover key stakeholders of Alexandria such as its residents, City government, businesses, the Alexandria City Public Schools (ACPS), DASH, American Virginia Water, and Alexandria Renew Enterprises (formerly ASA). This is the third time these environmental indicators were reported. The base year for each indicator had been chosen so as to provide a meaningful measure of progress. The “% Change 2012 vs. 2011” and “% Change Current vs. Base” indicate the % changes between 2012 and 2011 and between 2012 and the base year, with a green value meaning a favorable change and a red value an unfavorable condition. The current reporting period is either calendar year 2012 or Fiscal Year (FY) 2012 since some data for 2013 or FY2013 have yet to become available at the time of this report.

TABLE I – ENVIRONMENTAL INDICATORS

ENVIRONMENTAL INDICATOR (EI)	TARGET	BASE YEAR ¹		CURRENT PERIOD	LAST YEAR	% CHANGE	% CHANGE
		YEAR	VALUE	FY2012 or 2012	FY2011 or 2011	2012 vs. 2011	Current vs. Base
1. Air Quality Days - number of days with code red/ orange	NA	2003	13	7 ²	7	0	-46.1%
2. Per capita energy use, MWh per person per year	NA	2005	24.54	20.31 ³	21.49	-7.4%	-17.2%
3. City government operations energy use, MWh per year	NA	FY2006	151,964	116,608 ⁴	117,254	-0.6%	-23.3%
4. Greenhouse gas emissions by City government operations, metric tons of CO ₂ per year	NA	FY2006	79,820	53,777 ⁵	53,320	+0.9%	-32.6%
5. Greenhouse gas emissions by residents and businesses, metric tons of CO ₂ per year	NA	2005	2,092,991	1,755,395 ⁵	1,777,215	-1.2%	-16.1%
6. Per capita greenhouse gas emissions, metric tons of CO ₂ per year	NA	2005	15.8	12.3 ⁵	12.7	-3.1%	-22.1%
7. Percent of new developments committing to green building standard	100%	FY2010	94%	84%	96%	-12.5%	-10.6%
8. Percent tree canopy	40%	2007	30%	33% ⁶	N/A	N/A	+10%
9. Number of acres protected since approval of Open Space Master Plan in 2003	100	2003	0	100.5	88	+14.2%	N/A
10. Percent solid waste recycling rate	35%	2008	26.9	48.7	48.4	+0.6%	+81.0%

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		YEAR	VALUE	FY2012 or 2012	FY2011 or 2011	2012 vs. 2011	Current vs. Base
11. DASH Public transit ridership - number of mass transit commuters per year	N/A	FY2007	3,743,499	3,882,022	3,750,776	+3.5%	+3.7%
12. DASH Total passengers per mile / Total passenger per hour of service	NA	FY2007	2.9 / 34.0	2.6/24.6	2.7/24.8	-3.7/-0.8	-10.3/ -27.6
13. Per capita water use, gallons per person per year	NA	2005	38,249	36,718	36,724	-0.0%	-4.0%
14. Per capita waste water treated, gallons per person per year	NA	2009	36,016	44,202	39,986	+10.5%	+22.7%
15. Number of stormwater Best Management Practices (BMPs) in the City	NA	2005	292	376	349	+7.7%	+28.8%
16. Number of respiratory health complaints received by the Alexandria Health Department	NA	FY2010	82	76	59	+28.8%	-7.3%
17. Percent of full service restaurants that are totally non-smoking	100%	FY2010	96.7	97.0	96.9	+0.1%	+0.3%
18. Percent of population living in a walkable community	NA	FY2010	73	73	73	0.0%	0.0%
19. ACPS energy usage per square foot of building space, Btu/ft ² /year	NA	FY2010	61,717	49,351	47,767	+3.3%	-20.0%
20. ACPS waste composting rate, Pounds per year	NA	FY2008	77,900	222,477	170,182	+30.7%	+185.6%

¹ Base year for each indicator is chosen to provide a meaningful basis for comparison. Fiscal year starts July of the year before and ends at the end of June of the current year.

² All air quality days (two red and six orange) were due to ozone and for an 8-hour period.

³ Energy use comprises electricity use (per calendar year) provided by Dominion and natural gas use provided by Washington Gas; based on Alexandria population of 137,602 for 2005, 144,301 for 2011, and 146,294 for 2012 (US Census data).

⁴ City government operations include Alexandria City Public Schools (ACPS) and for calendar year 2012.

⁵ GHG emission factor of 1,041.7 lb. CO₂e/MWh was used for both 2011 and 2012 calculations. The inventory does not include emissions associated with air or vehicle travel outside City limits, or emissions embedded in food or other consumer goods from outside of the City.

⁶ The % tree canopy was measured in 2007 and 2010 using different techniques so these data may not be compared with certainty. RPCA Natural Resources Division and GIS Division are completing a three-year baseline canopy cover study which will provide an increased level of confidence in the determination of the City's percent canopy cover.

Main Findings from the Environmental Indicators

Several findings can be derived from Table I, even though the data reported in this table represents a snapshot of the progress made over a relatively short period of time. Compared to the last year's reporting period of 2011:

1. Solid waste recycling rate was the highest ever 48.7% for 2012.
2. Per-capita energy use was 7.4% lower. Similarly, per-capita greenhouse gas emissions reduced by 3.1%.
3. City achieved the Open Space Master Plan target of 100 acres of open space protected by the end of 2012.
4. Per-capita water usage stayed the same while the per-capita waste water treated by Alex Renew increased by 10.5%.
5. Number of respiratory health complaints received by the Health Department increased by 28.8%.
6. ACPS increased waste composting rate by 30.7%.
7. DASH transit public ridership increased by 3.5%.
8. Percent of new development committed to green building standards reduced by 12.5% because the Potomac Yard Townhouses represented 15.7% of the total square footage approved for FY2012 but were not required to get certification due to earlier Coordinated Development District conditions for Potomac Yard.

Alexandria's Top Ten Environmental Achievements for 2013

1. **Solid Waste Management** - For the second consecutive year, the City reported its highest ever recycling rate of 48.7% to the Virginia Department of Environmental Quality (VDEQ) for 2012. This small increase over last year's reported 48.4% affirms that the dramatic jump from 41% two years ago was in fact, sustainable. The City Council and Arlington County Board agreed in December to extend the Covanta Waste-to-Energy plant lease agreement through 2038 for the disposal of municipal trash. The Covanta waste-to-energy facility meets and exceeds all environmental requirements and also produces 21 megawatts of energy that powers approximately 20,000 homes. This new lease agreement results in estimated cost savings of \$26 million through 2038 and yields a significant reduction in greenhouse gas emissions compared to landfilling.



2. **City Completed Two Major Environmental Remediation Projects** - The City received the final certificate of closure in November from VDEQ for its remedial actions associated with the development of the Witter Recreational Facility. In addition, the City completed construction of a groundwater remediation system at the foot of Oronoco Street that will prevent migration of impacted groundwater from the former city-owned manufactured gas plant into the Potomac River. These completed projects demonstrated the City's strategic focus on making Alexandria a livable and green city.

3. **Chambliss Stream Restoration and Crossing** – The City completed a long awaited stream restoration project on Holmes Run near Chambliss Street that restored the banks and prevented tons of sediment from entering the stream system. To the greatest extent possible, natural stream design was employed to restore original stream flow patterns and create significant habitat for aquatic organisms. The crossing is of an all-weather design to provide pedestrian and bicycle access throughout the year. This crossing is the first major connector to the trail system in Fairfax County creating a beautiful pedestrian/bike path along Cameron Run and then northward along Homes Run, crossing the run at Chambliss and traveling northward 1.5 miles to Columbia Pike.



4. **City Obtained \$1.2 Million Grant to Enhance Pollutant Removal Capacity at Lake Cook** - Last December, the City was awarded a \$1.2 million Stormwater Local Assistance Fund (SLAF) grant from the State of Virginia to pursue retrofitting Lake Cook to provide additional pollutant removal capability. The project was chosen because it has the potential to cost-effectively treat up to 390 acres while improving the area surrounding the pond and enhancing fishing opportunities. The project will be a significant step towards meeting the new stringent stormwater pollutant reductions required as regulated through the City's Multiple Separate Storm Sewer System (MS4) permit.

5. **Local Motion Commuter Challenge** - In April, the City of Alexandria's Local Motion Program sponsored the third annual Commuter Challenge. Fourteen companies and 500 individuals from those companies were challenged in a friendly competition to change their commute modes from driving alone to transit, carpool, walk, bike, vanpool, etc. Participants used a "commute log" on the Commuter Connections' website to record their daily commutes and win prizes. This two-week challenge resulted in the following benefits: 1) reduced vehicle miles traveled by 64,743 miles; 2) saved 32 tons



of pollution from entering the atmosphere; 3) conserved 2,569 gallons of fuel; and 4) participants saved \$36,644 in commuting costs. The program received the Metropolitan Washington Council of Government's Employer Services Organization Achievement Award for this campaign. The 2014 event will be held March 31 through April 11.

6. **DASH Celebrated 30 Years of Dedicated Services to Alexandria Residents in March** - Alexandria Transit Company (ATC) operates quality award winning transit services in the City of Alexandria utilizing a fleet of 79 transit buses. Of these 79 buses, 25 are energy efficient and environmentally friendly hybrid electric buses, comprising 32% of its fleet. The new hybrid electric clean diesel buses have served to reduce ATC's overall carbon footprint by reducing fuel consumption and emission levels. ATC plans to expand these efforts by procuring 21 additional hybrid electric transit buses over the next year, bringing the total hybrid fleet to 46, or 58% of the fleet.



7. **Alexandria Renew Expansion and Carlyle Plaza Two Development** – The wastewater treatment authority, Alexandria Renew, began construction of the enhancement to their facility in 2013. These improvements will help Alexandria Renew meet stricter Federal and State environmental standards and improve the efficiency of the overall plant. In addition, the main structure/tank proposed with the expansion has been designed to accommodate a regulation size athletic field on top. This plan has been coordinated with the mixed used development north of the site, Carlyle Plaza Two, which will provide an additional 2 acres of public open space and pedestrian/bike trails. In 2013, the National Association of Clean Water Agencies (NACWA) recognized Alexandria Renew with the Platinum Peak Performance Award for 100% compliance with NPDES permits over a consecutive eight-year period.

8. **Alexandria City Public Schools (ACPS) Awarded Silver Certification from Virginia School Boards Association** - In November, ACPS received recognition as a Certified (Silver level) Green School Division, in the Virginia School Boards Association's Fifth Annual Green Schools Challenge. This is a friendly competition designed to encourage implementation of specific environmental policies and practical actions that reduce carbon emissions generated by both the local school division and the broader community. Since 2009, ACPS has operated an Environmental Steward Program, designating at least one staff member in each school building as an Environmental Steward. The program identified the following priorities for School Year 2013-14, with input from the community: 1) growing the school yard habitat ("learning garden"); and 2) increasing recycling.



9. **City Achieved Silver Level Bicycle Friendly Community Designation** - In October, the City was named a Silver level Bicycle Friendly Community by the League of American Bicyclists, recognizing Alexandria's commitment to improving conditions for bicycling through investment in education and safety programs, bicycling promotion, and infrastructure. Awarded the bronze level in 2008, this new achievement reflects the City's launch and future expansion of the Capital Bikeshare program, the significant growth of on-street bike facilities, with 13 lane miles added in 2013, and the completion of major components of the bicycle and pedestrian trail network such as the pedestrian and bicycle crossing at Chambliss Street and Phase I of the Potomac Yard trail between Glebe Road and Monroe Avenue.

10. City Received Highest Certification for Virginia Municipal League's Go Green Government Challenge for the Sixth Consecutive Year - In

October, the City was recognized by the Virginia Municipal League (VML) with platinum-level certification for being a green and sustainable government. The VML Go Green Government Challenge encourages local governments to implement specific environmental policies and practical actions that reduce carbon emissions generated by both the local government and the broader community. The City was given innovation points for its efforts in permanently closing the local coal-fired power plant, achieving the highest-ever solid waste recycling rate, establishing a Capital Bikeshare program in Alexandria, purchasing new hybrid DASH buses and trolleys, installing a 42-kilowatt solar photovoltaic system at Beatley Central Library, and retrofitting traffic lights with LED technology.



Alexandria Environmental Policies, Plans and Programs Web Links

T&ES Office of Environmental Quality Website

<http://alexandriava.gov/Environment>

Alexandria Environmental Policy Commission Website

<http://alexandriava.gov/EnvironmentalPolicyCommission>

Eco-City Alexandria Website

www.alexandriava.gov/Eco-City

Environmental Action Plan 2030

alexandriava.gov/uploadedFiles/tes/eco-city/EAP_FINAL_06_18_09.pdf

Eco-City Charter

alexandriava.gov/uploadedFiles/tes/oeg/EcoCityCharter2008.pdf

Eco-City Alexandria "A Green-Ventory of City Environmental Policies, Plans and Programs

alexandriava.gov/uploadedfiles/tes/info/GreenVentoryReport.pdf

Eco-City Challenge

<http://alexandriava.gov/EcoCityChallenge>

Open Space Plan

alexandriava.gov/uploadedfiles/recreation/info/OpenSpacePlan.pdf

Recreation, Parks & Cultural Activities Strategic Master Plan

alexandriava.gov/uploadedFiles/recreation/info/StrategicMasterPlan.pdf

Transportation Master Plan

alexandriava.gov/tes/info/default.aspx?id=3088

Water Quality Management Supplement

alexandriava.gov/tes/info/default.aspx?id=3844

Solid Waste Management Plan

alexandriava.gov/uploadedfiles/tes/info/solidwastemgmtplan.pdf

City of Alexandria Green Building Policy

alexandriava.gov/uploadedFiles/planning/info/GreenBuildingPolicyhandout.pdf

Green Building Resource Center

<https://www.Alexandriava.gov/gbrc>

For further information on this report or Eco-City Alexandria, please contact:

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