Arlington's Environmental Sustainability Profile

ARLINGTON COUNTY, VA

ARLINGTON
VIRGINIA

What is Environmental Sustainability?

County vision statement says Arlington is a "…caring, learning, participating, *sustainable* community…"

Sustainability includes:

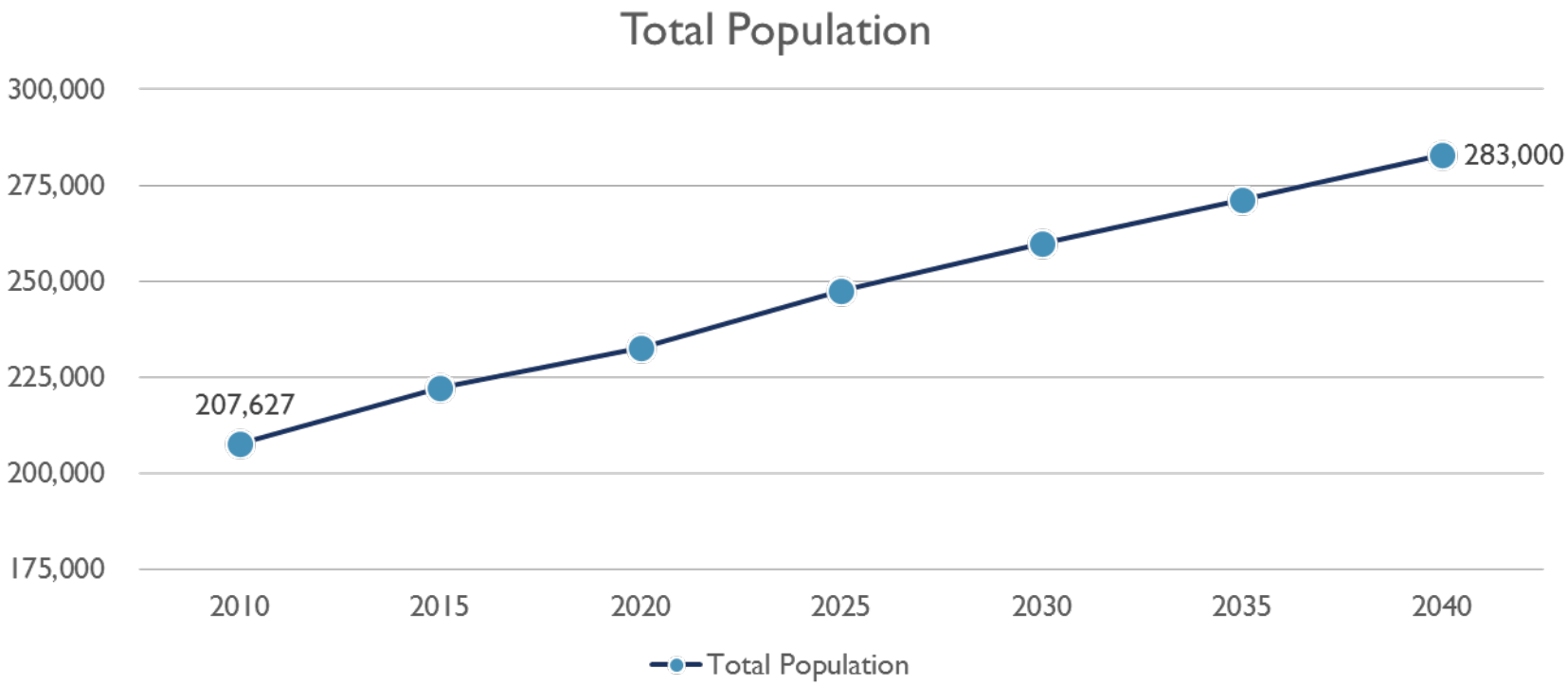
- Environmental stewardship
- Economic competitiveness
- Social responsibility

Resilience and reciprocity are also important aspects of sustainability

Panel will highlight County programs that address environmental aspects of sustainability

- Regulatory requirements
- Current initiatives
- Future challenges

Population Growth



Source: Arlington County, CPHD, Planning Division, Urban Design and Research Section, Round 8.4.

Water Resources

Drinking Water Overview

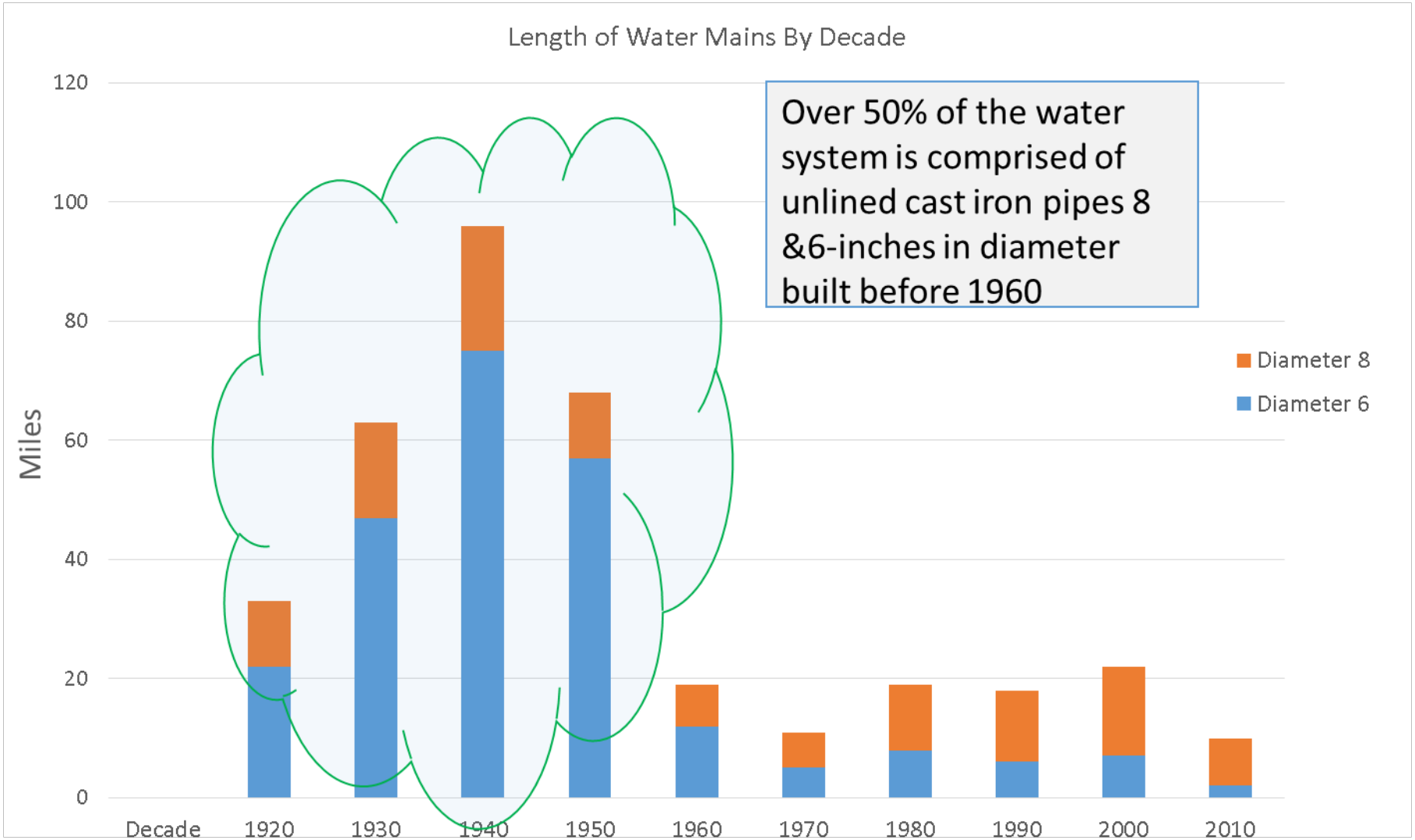
Source Water: Potomac River

Treatment Plant: Washington Aqueduct

Distribution System:

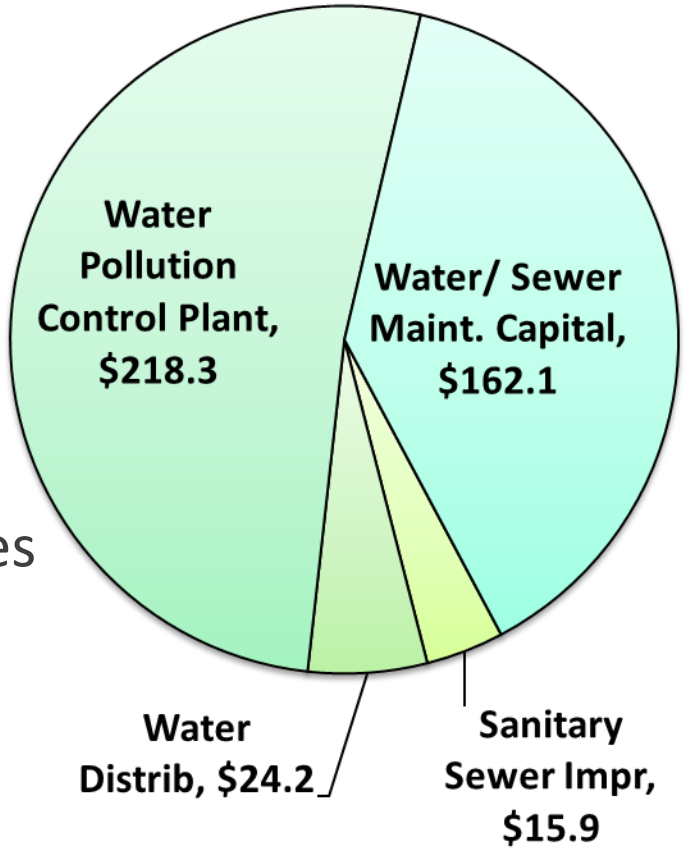
- 525 miles water mains
  - 4” to 48 inch
  - Ductile or Cast Iron, Steel, Concrete, Plastic
- 16,000 water valves
- 37,200 water services
- 3,700 fire hydrants
- 5 water pump stations
- 8 water storage tanks
  - 32 Million Gallons (MG)

Water Main Age



Water 10yr CIP

- Maintenance Capital for water – $99M
  - Water Main Replacement - $45M
  - Water Main Cleaning and Lining – $21M
  - Washington Aqueduct - $28M
  - Misc. system maintenance – $5M
- Water Distribution (transmission/large diameter)- $ 24M
- Some unknowns associated with upgrades at the Washington Aqueduct treatment facility

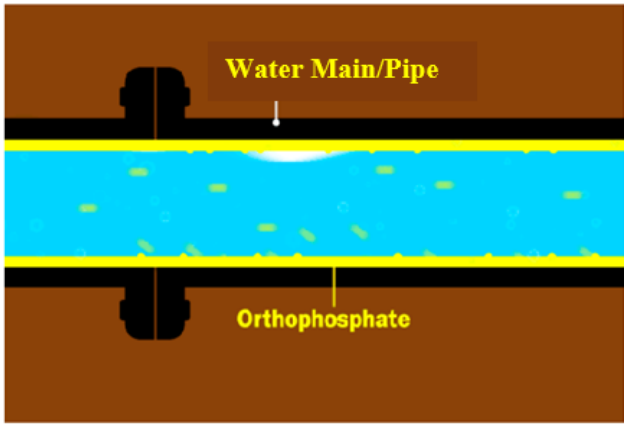


Drinking Water Quality

- Monitor drinking water at the entry point into the distribution system
- Monitoring/Testing the distribution system
  - Bacteriological: Total Coliforms Rule (TCR)
  - Disinfection By Products
  - Water Quality Parameters
  - Nitrification
- Meets/exceeds all regulations

Drinking Water Quality – Lead and Copper Rule (LCR)

- Due to consistent compliance and results below the Action Level, EPA requires Arlington to sample only once every three years.
- Next scheduled sampling will start June 2016
- Per LCR sampling is required for specific homes built between 1982-1986.
- Orthophosphate
  - Corrosion control added at the treatment Plant
  - Acts as a corrosion inhibitor by forming a protective film on the interior of the pipes. This film protects the pipe from the corrosive effects of water
- Arlington does not have lead pipes for water distribution



Drinking Water Quality Report

– Available Online at:

WWW. ARLINGTONVA.US
Search for “Water Quality Report”

2015 ANNUAL WATER QUALITY REPORT

Arlington’s High-Quality Water

This annual “Consumer Confidence Report,” required by the Safe Drinking Water Act, tells you where your water comes from, what our tests show about it and other things you should know about drinking water.

Arlington’s Department of Environmental Services (DES) provides residents with a safe and reliable supply of high-quality drinking water. DES tests County water using sophisticated equipment and advanced procedures. Our water meets all state and federal standards for quality. View this report online at *water.arlingtonva.us*; search “water quality report.”

Notice to building managers for office, commercial and multifamily residential buildings: Please share the information in the Water Quality Report with all occupants of your facility. Contact the Water Control Center at 703-228-6555 for additional information or copies of this report.

Aviso a los administradores de edificios de oficinas, propiedades comerciales y unidades residenciales: Por favor comparta la información de este Informe sobre la Calidad del Agua con los ocupantes de su establecimiento. Comuníquese con el Centro Para Control del Agua al 703-228-6555 para mayor información o para recibir copias de este Informe.

To provide a more resilient water flow for south Arlington, the County replaced a key 24-inch pressure-regulating valve last year.

The Lee elevated tank in north Arlington holds a half million gallons on water.

Where Arlington’s Water Comes From

Arlington County purchases water from the Washington Aqueduct Division of the Army Corps of Engineers. The Washington Aqueduct operates two water treatment plants in the District of Columbia. The plants treat water from a surface water source, the Potomac River.

Arlington’s water is treated at the Dalecarlia Treatment Plant located on MacArthur Boulevard in Northwest Washington. The Interstate Commission on the Potomac River Basin conducted the Source Water Assessment of the Potomac River watershed in April 2002. The assessment identified urban runoff, toxic spills, agriculture and inadequate wastewater treatment as potential contamination sources to the water supply. Contact the Interstate Commission on the Potomac River Basin at 301-984-1908 for more information.

Arlington County maintains water quality assurance through our regular water distribution and storage evaluation and routine water sampling analysis.

What’s in the Water?

The sources of drinking water – both tap water and bottled water – include rivers, lakes, streams, ponds, reservoirs, springs and wells. As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals and, in some cases, radioactive material. The water also can pick up substances resulting from animals or human activity.

Contaminants that may be present in water sources include:

- Microbial contaminants, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations and wildlife.
- Inorganic contaminants, such as salts and metals, which can be naturally occurring or result from urban stormwater runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming.
- Pesticides and herbicides, which may come from a variety of sources such as agriculture, urban stormwater runoff and residential uses.
- Organic chemical contaminants, including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production, and can also come from gas stations, urban stormwater runoff and septic systems.
- Radioactive containments, which can be naturally occurring or the result of oil and gas production and mining activities.

The water treatment process removes contaminants, making Arlington’s water safe to drink.

3

https://water.ar... | Water Quality Reports - Wa...

File Edit View Favorites Tools Help

Suggested Sites | Your Ben Meadows Order ... | LIS Administrative Code ... | Web Slice Gallery

arlingtonva.us

County Home • Jobs • Payments • Services A-Z • en Español

Water & Utilities

Search our websites

Customer Service | Water | Sewer | Environment | Projects & Plans | Building | en Español

Conserving Water | Stream Health | Preventing Pollution | Draining Pool Water | Stream Safety | Stormwater at Home

Water Quality Reports

We’re committed to providing residents with a safe and reliable supply of high-quality drinking water. We test water using sophisticated equipment and advanced procedures. The Water, Sewer, Streets Bureau meets state and federal standards for water quality. This annual “Consumer Confidence Report,” required by the Safe Drinking Water Act from the Environmental Protection Agency, tells you where your water comes from, what our tests show about it and other things you should know about drinking water.

Arlington’s water meets or surpasses all state and federal drinking water standards.

To obtain a printed report or for information about the next opportunity for public participation in decisions about your drinking water, call 703-228-6555 or email us.

Arlington County

- 2015
- 2014
- 2013
- 2012
- 2011
- 2010
- 2009
- 2008
- 2007

Willston Report

- 2015

Average Levels of Compounds in Arlington’s Drinking Water

Hardness: 7.5 grains/gal or 128 mg/L

pH: 7.7

Chloramine Residual: 2.8 ppm

Fluoride: 0.7 ppm

Sodium: 22 ppm

Nickel: 2.1 ppb

Calcium: 39 mg/L

Chloride: 32 mg/L

Magnesium: 7 mg/L

Sulfate: 47 mg/L

Contact Us

Water & Sewer Emergencies
703-228-6555 (24-hour hotline)

Report Stream Pollution, Spills or Illegal Dumping
703-558-2222

Washington Aqueduct

Jo-Ellen Darcy - Washington Aq...
Jo-Ellen Darcy
Assistant Secretary of the Army (Civil Works)

Find Water On the Go

TapIt
Refill Your Water Bottle

100%

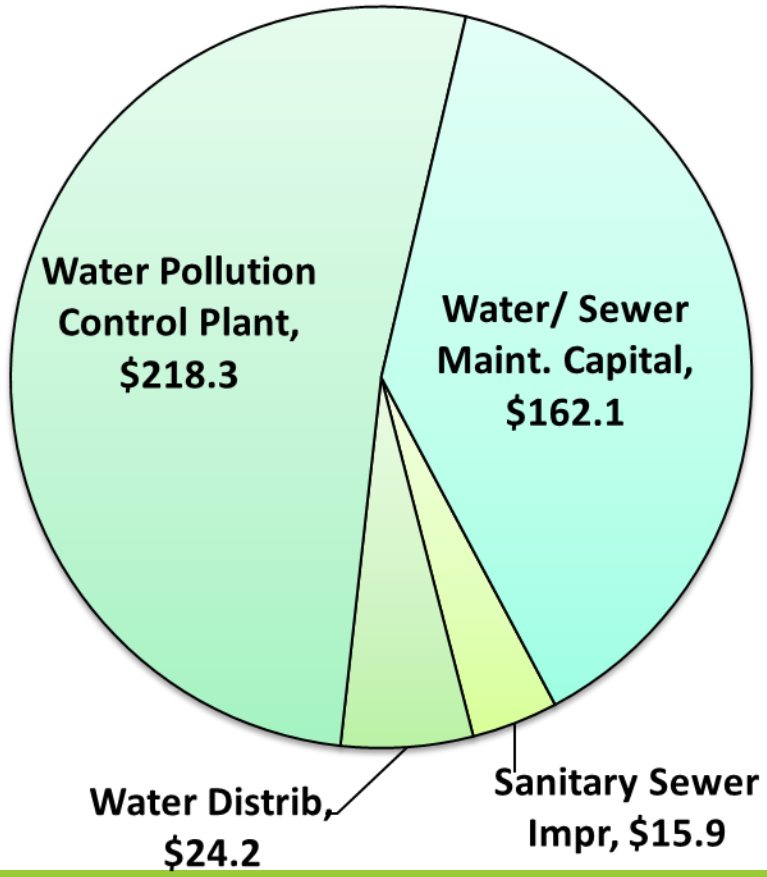
Sanitary Sewer Assets

- 465 miles of sanitary sewer
- 15,000 sanitary sewer manholes
- 13 List Stations

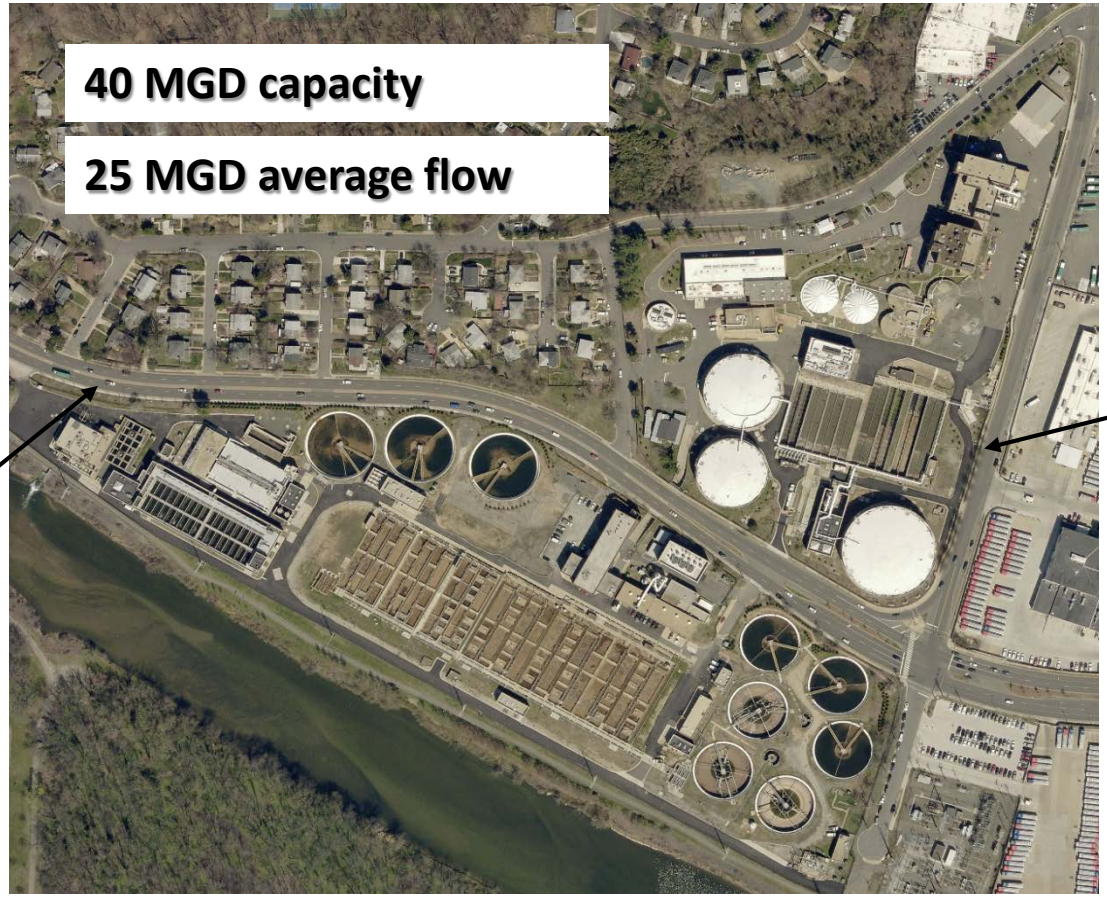
1972- Construction of the Potomac Interceptor Sewer in South Eads Street near the WPCP

Sanitary Sewer 10yr CIP

- Sanitary Sewer Improvements - $16M
- Sewer Maintenance Program - $54M
- Shared Water & Sewer budget - $9M



Water Pollution Control Plant



S. Glebe Rd

S. Eads St

Water Pollution Control Plant

Safely protects public health & environment

- Remove pollutants from liquid wastewater that are harmful to aquatic life
- Separate solids from liquids; dewater, add lime, and then land apply

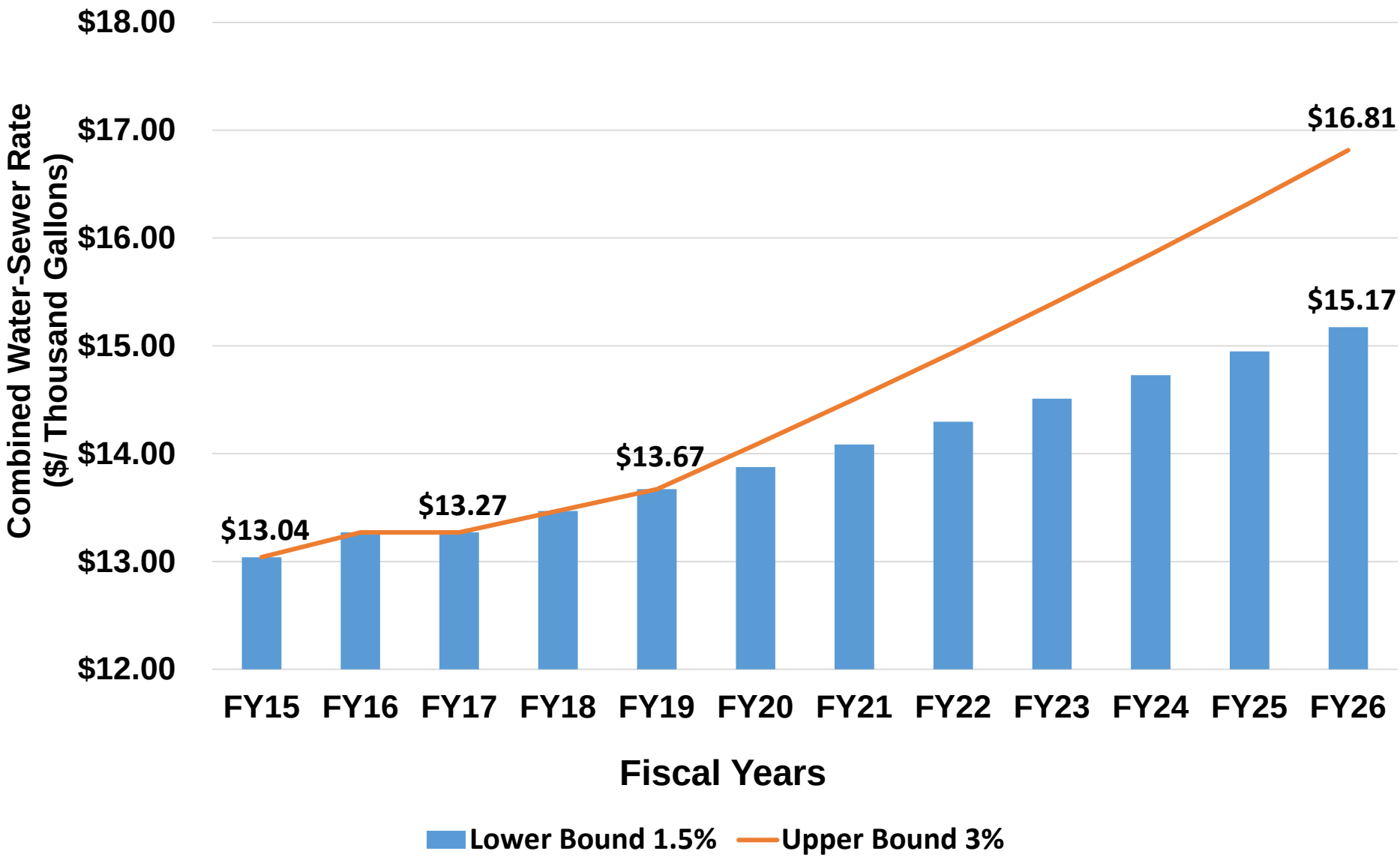
Required to meet permit issued by VA DEQ

- Recent upgrades allow full compliance with more stringent permit
- No bypasses in >5 years
- No further expansion anticipated until beyond 2040

Wastewater Solids Master Plan – Goals

- Old or failing equipment
- Some equipment is 50+
- Class B Land Application – changes to the regulations could occur
- Responsive to needs of community—hauling and odors among criteria for selection
- New technologies available (last master plan is 15 years old)
- Proposed CIP is $218M for 10 years for this and other replacement/rehabilitation projects
- Some construction to start in 2 years; most is at least 5 years out

Water/Sewer Rate Projections for 10-Year CIP



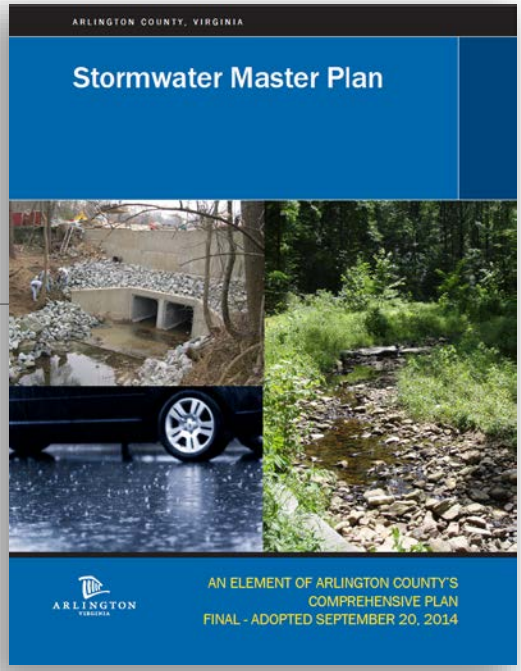
Stormwater Master Plan

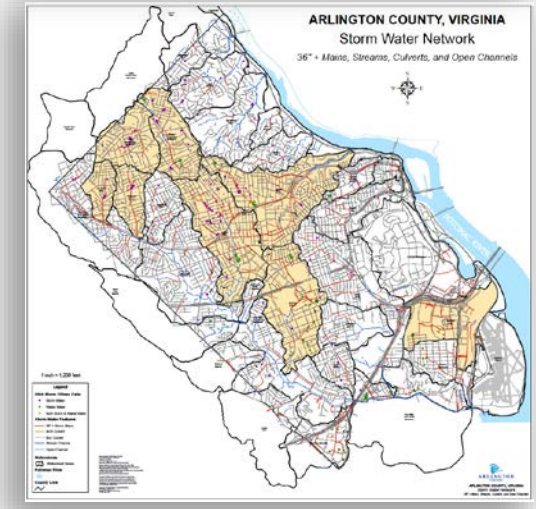
Adopted by County Board in September 2014

Reflects broad community engagement process that began in 2011

3 technical studies were basis for *Stormwater Master Plan* priorities that led to CIP project proposals:

- Stream inventory (Completed, 2011)
- Watershed retrofit plans (Completed, 2013)
- Storm sewer capacity analysis (Seven priority basins completed, based on 2006 flood event)





More Stringent Stormwater Regulations

- Chesapeake Bay TMDL (2010) requires specific pollutant reductions for each municipality (nitrogen, phosphorous, and sediment)
- New stronger MS4 stormwater permit - June 2013
- New Stormwater Management Ordinance effective July 1, 2014 (controlling stormwater from development)

Storm Sewer Capacity Study

24th and Rockingham,
project in design

John Marshall Drive,
constructed 2013

Stream Assessment and Restoration Projects

Before

After

Restored reach

Sediment from un-restored reach

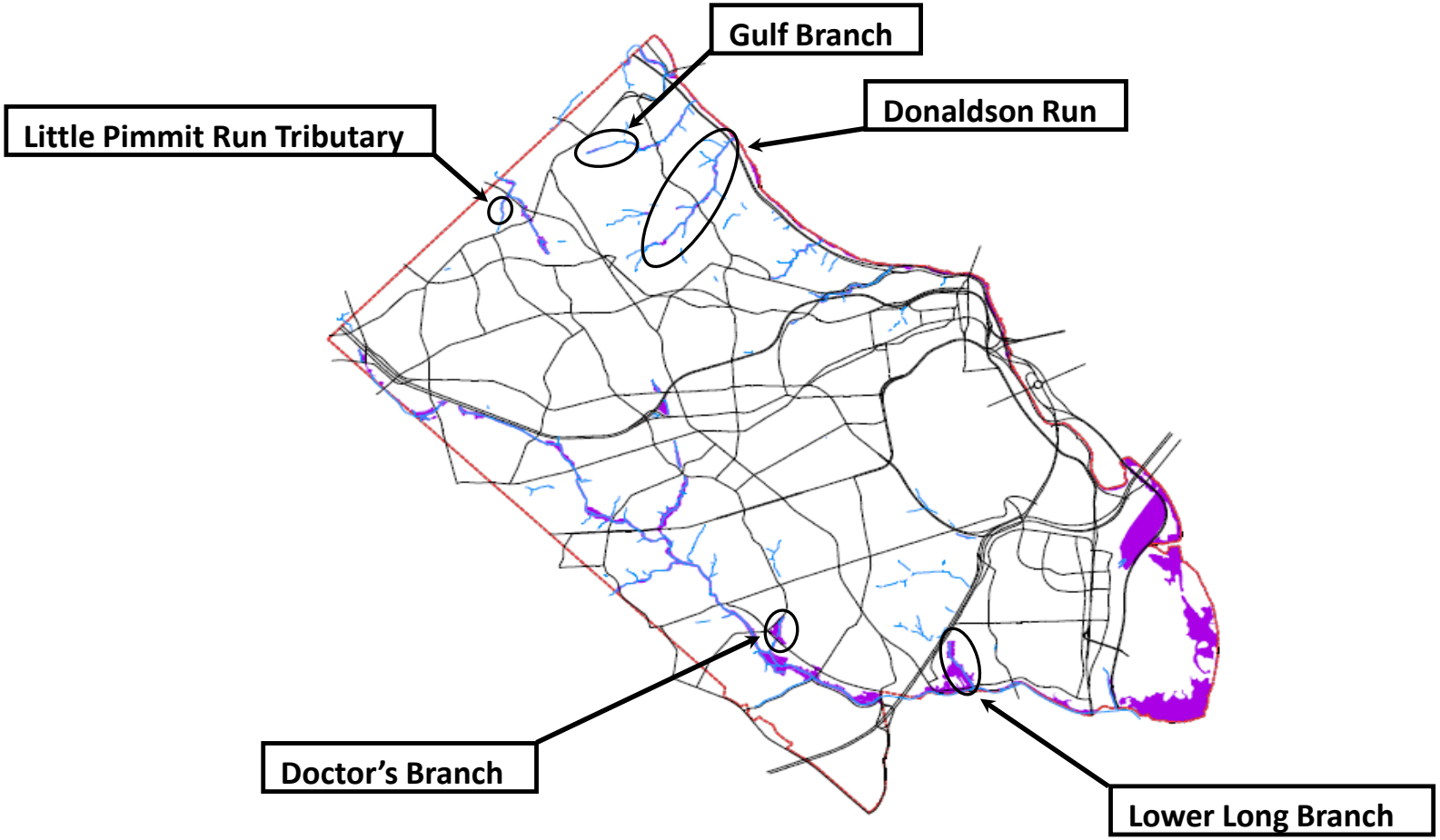
Watershed Retrofit Assessment

Patrick Henry Green Street

- soon after construction in 2011 (left)
- during dry weather in 2012 (right)

Rain garden at Albemarle St.

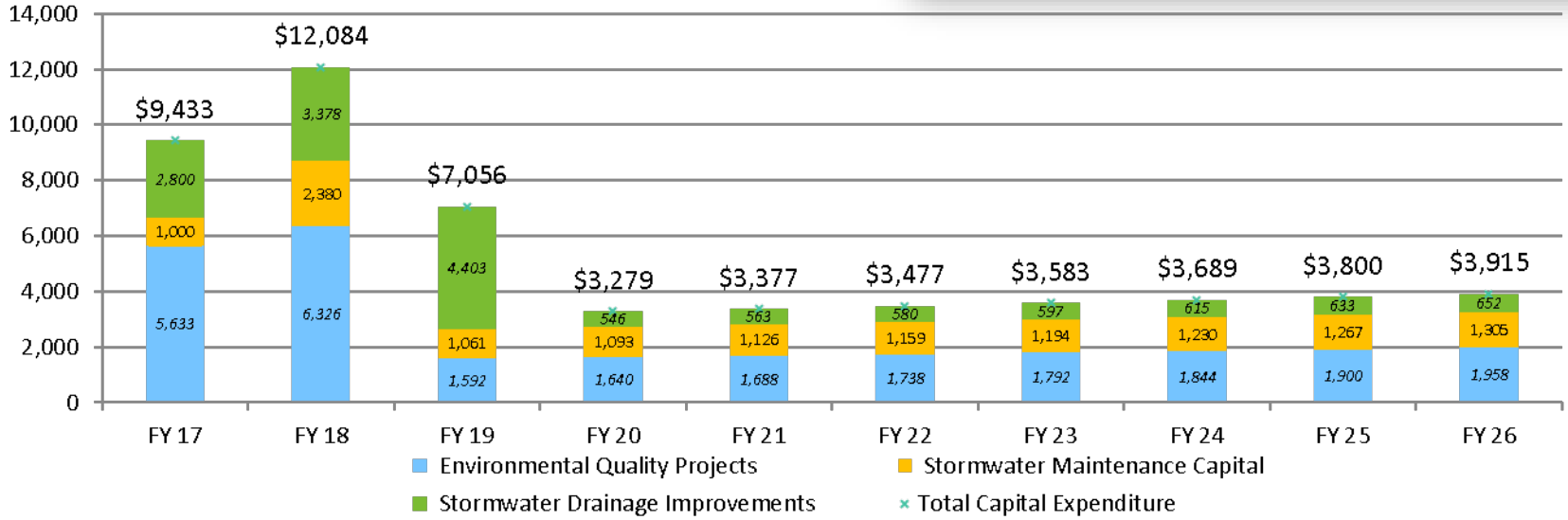
Flood Risk Reduction Studies



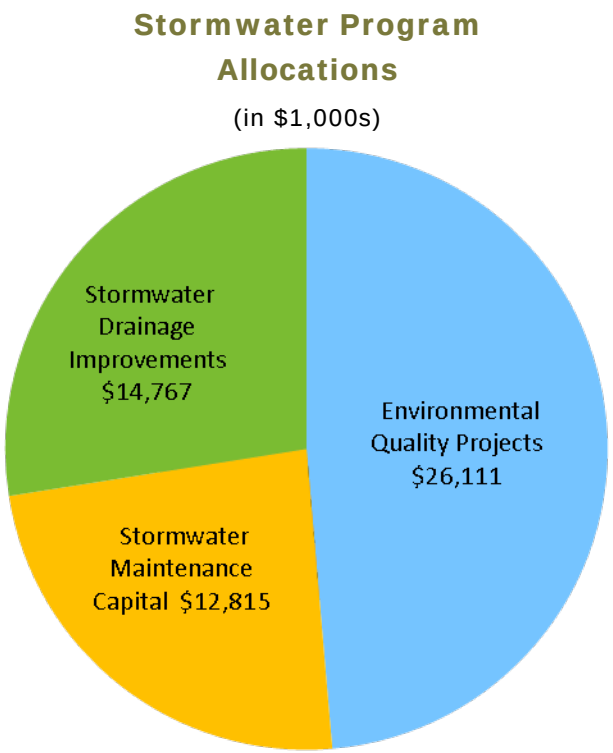
Proposed CIP Funding Overview

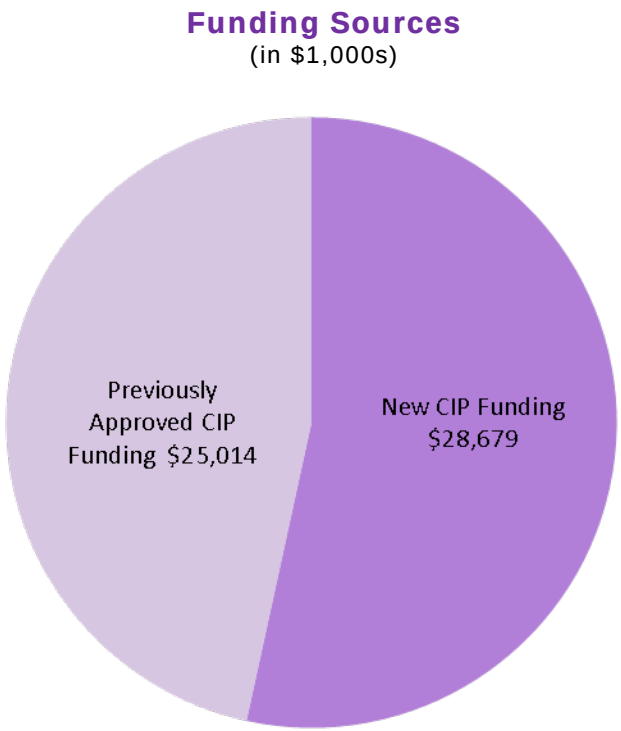
- Proposed Stormwater CIP totals $53.7M
- Stormwater program fully supported by dedicated Sanitary District tax adopted in 2008
  - Current rate = $0.013/$100 assessed property value

10 Year Summary (in $1,000s)



Proposed CIP Funding Resource Allocation





Upcoming projects

Four Mile Run Restoration Project

First phase of long term Four Mile Run Restoration Master Plan. Includes naturalization of stream bank and creation of living shorelines along lower Four Mile Run (south of Mt. Vernon Ave.)

West Little Pimmit Run Storm Sewer/Water Main/Green streets

1,500 feet of new, larger-size storm sewer pipe will be installed to address flooding issues. In conjunction, the gas line will be relocated, drinking water lines will be installed on both sides of John Marshall Drive between Williamsburg Blvd and Little Falls Road, and four green street bioretention facilities will be installed.

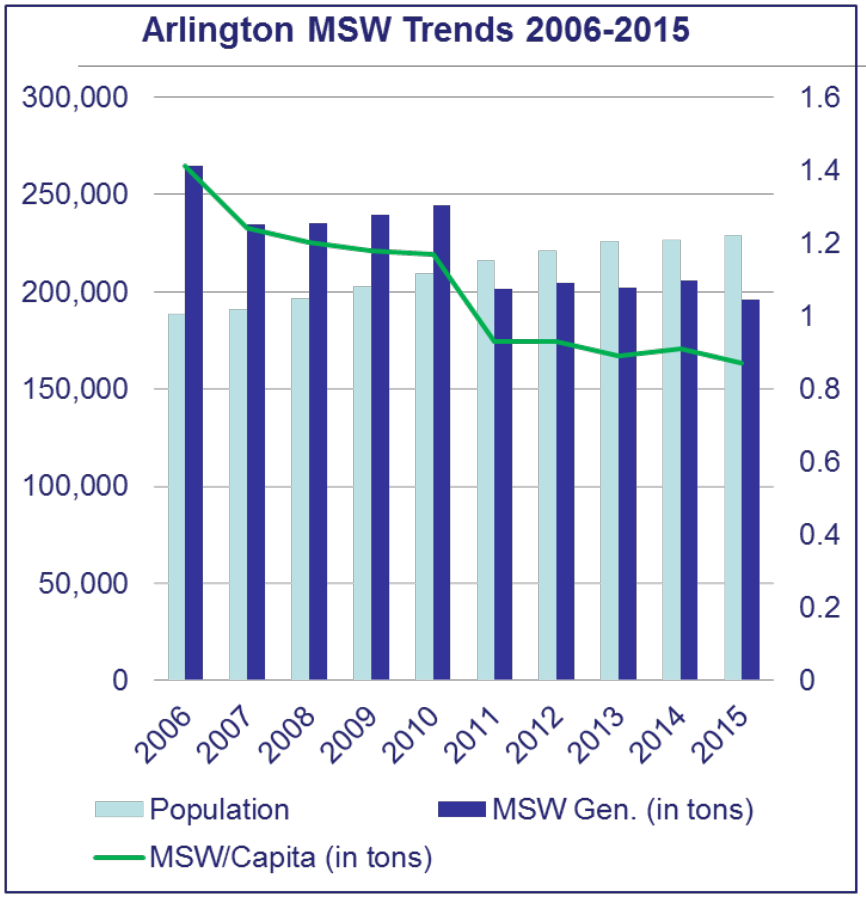
Solid Waste

2015 Recycling Rate

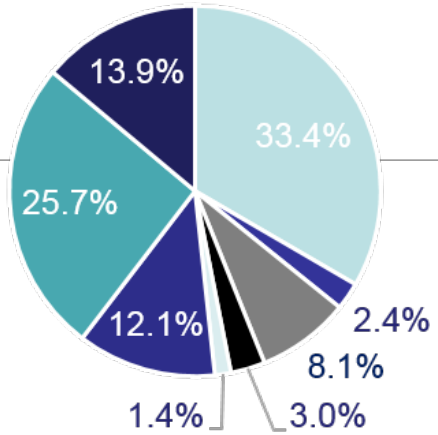
- Decreased from 2014 Rate of 47% (Base Recycling Rate= 42.2%)
- Packaging light-weighting
- Shifting material tons
- Overall MSW generation is trending down

Sector	Recyclables	Trash	Total MSW	Rate
Residential	31,274	33,960	65,234	47.9%
Business	45,755	81,416	127,171	36.0%
AC/APS	521	3,142	3,663	14.2%
Misc.	351	809	1,160	N/A
Total Arlington County	*77,901*	*119,328*	*197,229*	*39.5% (44.5% w/DEQ credits)*

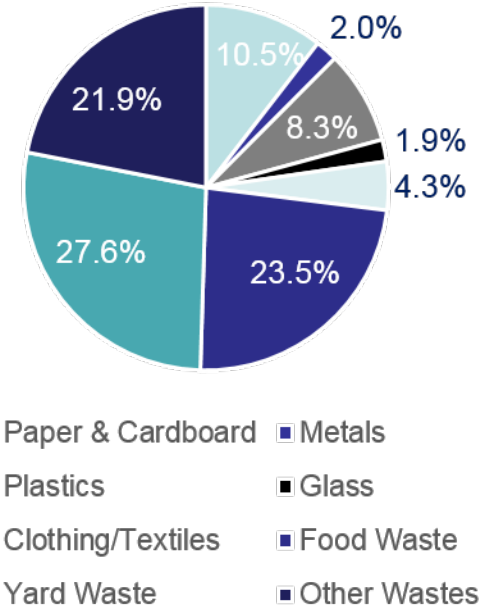
Arlington MSW Trends



2005

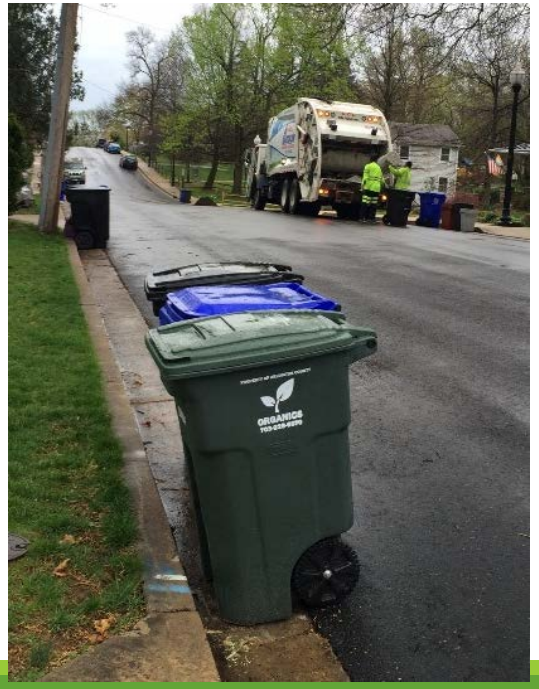


2015

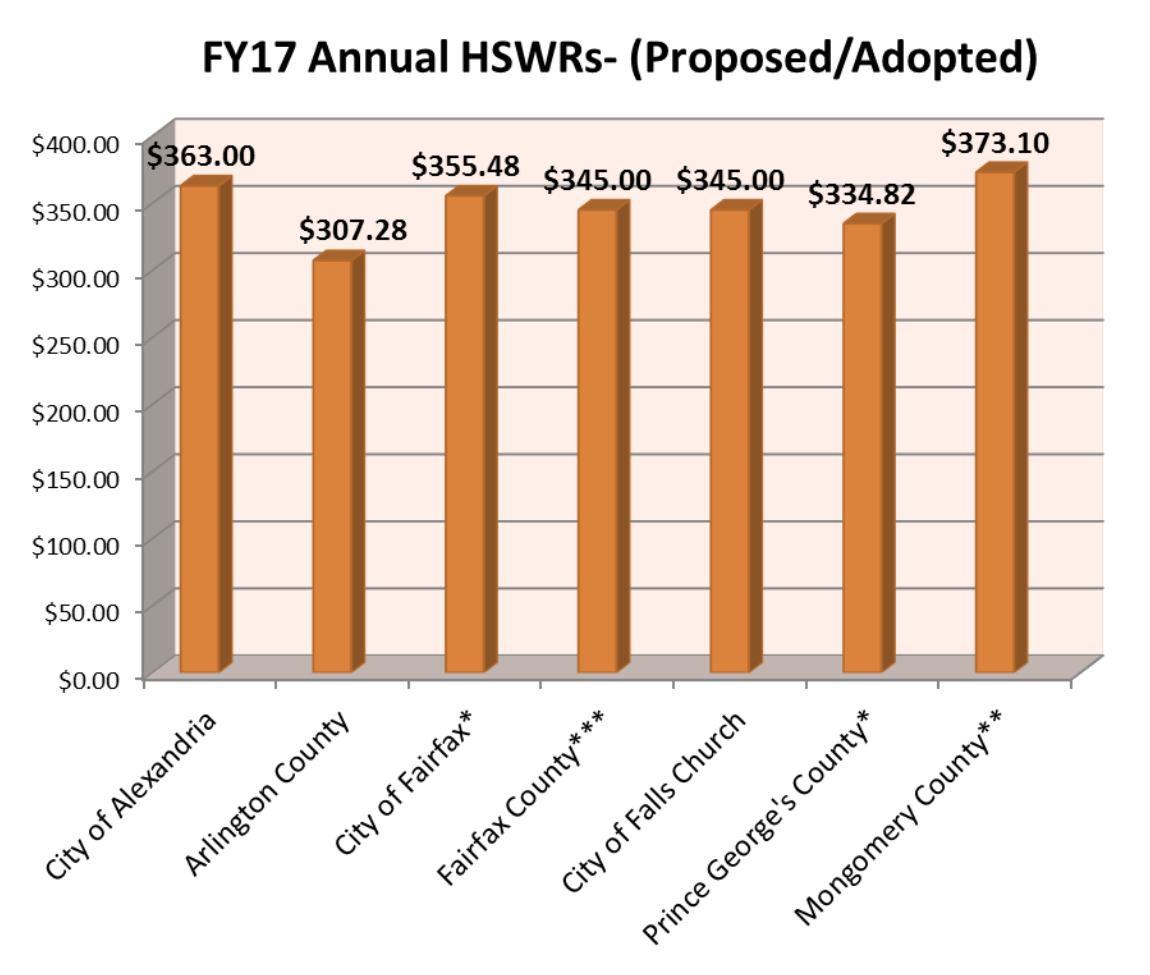


Year Round Yard Waste Program

- Tonnage increase over 6-week YW collection period (March-April)
  - 2015= 460 tons collected
  - 2016= 856 tons collected
- May 2016= 989 tons collected in YW carts



ARLINGTON
VIRGINIA



Jurisdiction	Year-Round Yard Waste Program
Virginia	
City of Alexandria	Yes
Arlington County	Yes
City of Fairfax	Yes
Fairfax County	Yes
City of Falls Church	Yes
Town of Leesburg	Yes
Maryland	
City of Bowie	No
City of College Park	Yes
City of Frederick	Yes
Frederick County	Yes
Montgomery County	Yes
Prince George's County	Yes

*FY13 Rates
**Subdistrict A- leaf vacuuming district
***Does not include leaf vacuuming (.015 per $100 of assessed value) ($75 for $500,000 home)

Zero Waste Planning Process

FY 2017

Sept-Dec 2016: Develop budget for Zero Waste planning process for FY 2018
Jan-June 2017: Develop RFP for consultant

FY 2018

July 2017: Release RFP for consultant

Dec. 2017: Hire consultant

Jan-June 2018: Begin public meetings and Plan development

FY 2019

July 2018-June 2019: Continue Plan development with SWC and other stakeholders

June 2019: Complete Draft Plan

FY 2020

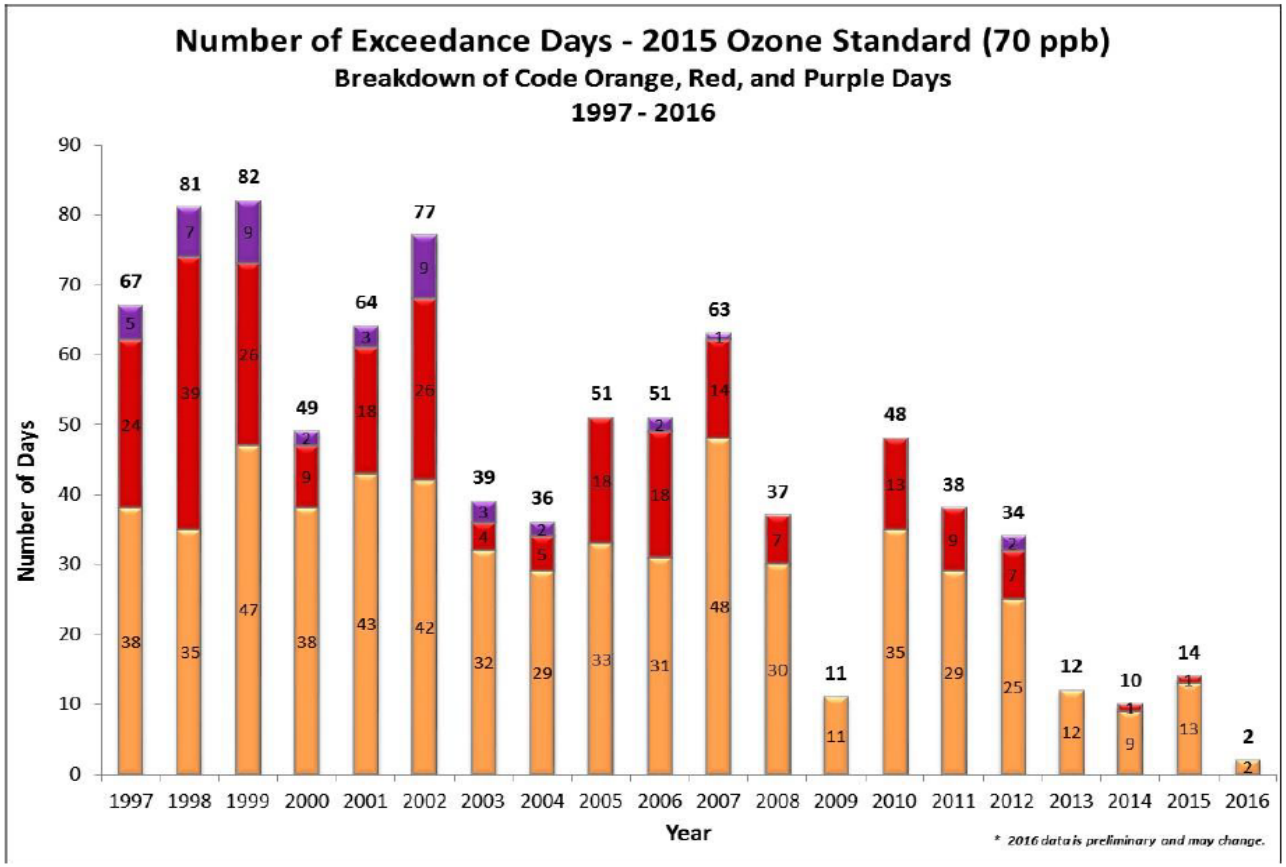
July –Dec. 2019: Present Plan to stakeholders and incorporate revisions
Dec. 2019: Finalize Zero Waste Plan
January 2020: Present Zero Waste Plan to County Board for adoption

FY 2021

July 2020: Submit Zero Waste Plan to DEQ

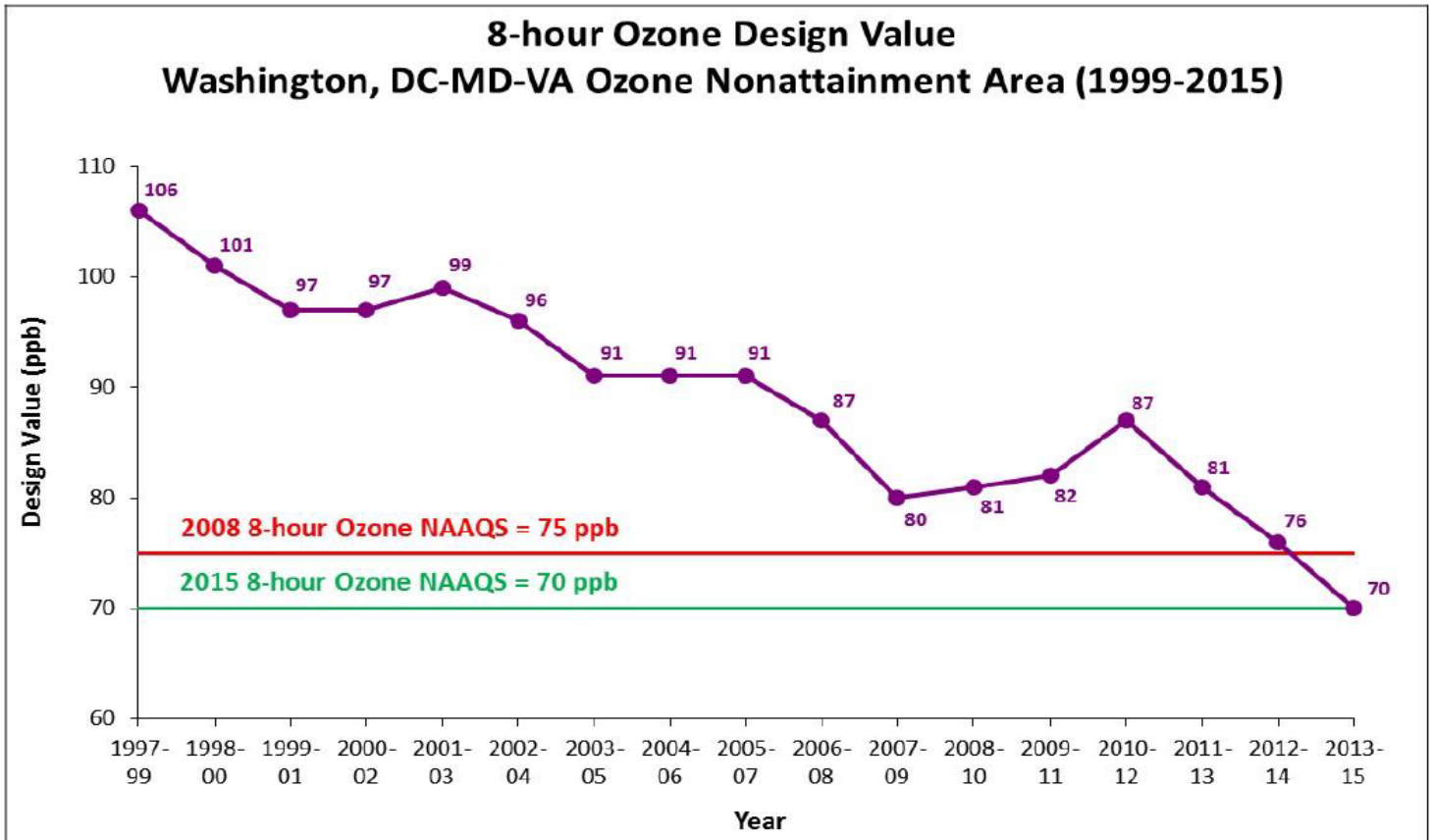
Air Quality

Ozone Exceedance Trend



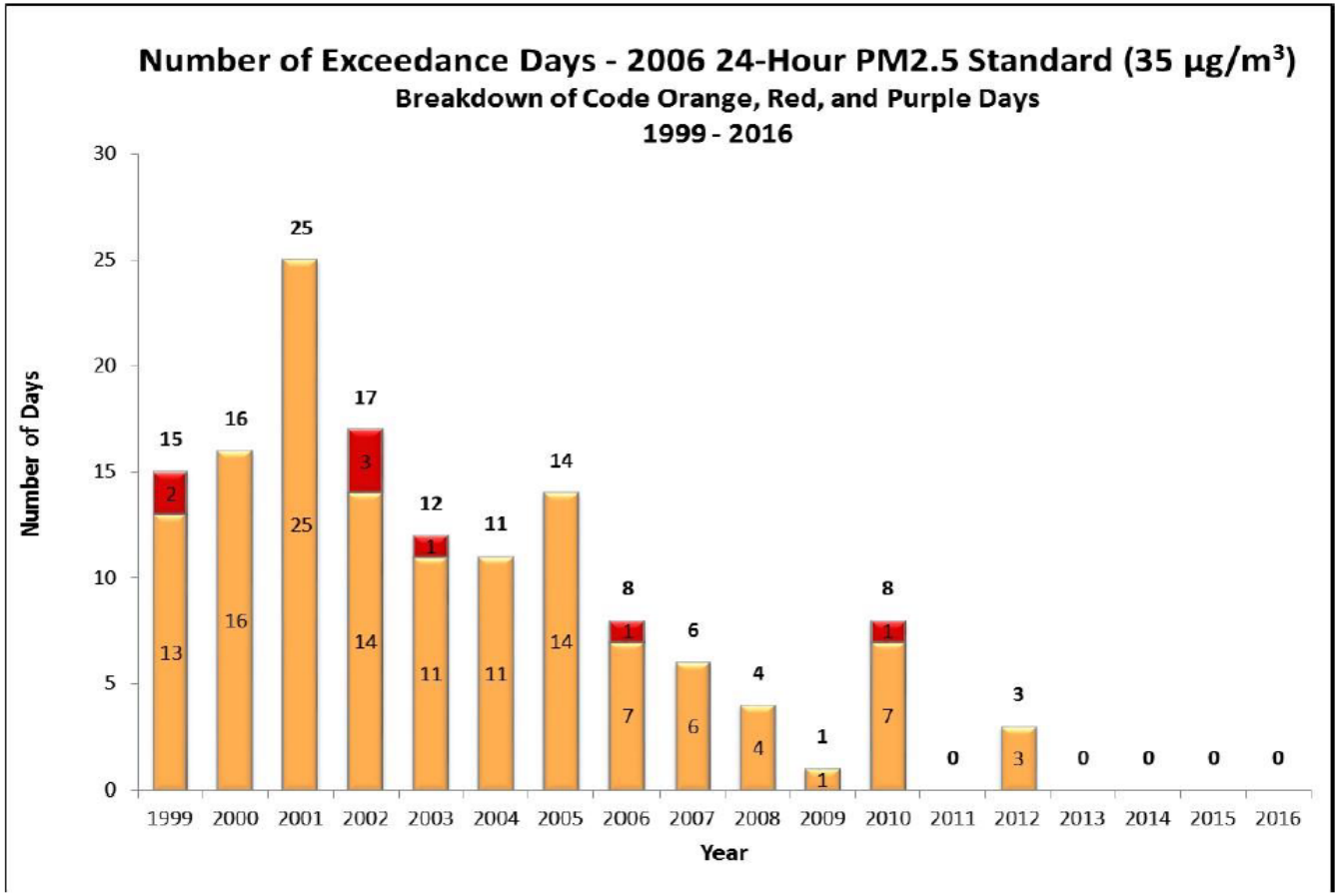
Analysis is based on draft data as of May 6, 2016. Data is subject to change.

Ozone Design Value Trend



** Design value = 3-year average of 4th highest daily maximum 8-hour average ozone concentrations.*
** 2015 design value is preliminary.*

PM2.5 Exceedance Trend



Analysis is based on draft data as of May 6, 2016. Data is subject to change.

Why Fewer Exceedance Days Now ?

Emission Control Programs

Federal	State	Local
Acid Rain Program (1996/2000)	Vehicle Inspection and Maintenance Programs	Renewable Energy Programs Regional Wind Power Purchase Program Clean Energy Rewards Program Renewable Portfolio Standards
Tier 2 (LD Vehicle) Rule (2004)	MD Healthy Air Act (2009/2012)	Energy Efficiency Programs LED Traffic Signal Retrofit Program Building Energy Efficiency Programs
HD Diesel Vehicle Rule (2004/2007)	VA CSAPR Rule	VRE Idling Reduction
NOx SIP Call (2004)		Low VOC Paint
Clean Air Interstate Rule/CSAPR (2009/2015)	Ozone Transport Commission Rules	Gas Can Replacement

Energy

Community Energy Plan

Reduce greenhouse emissions 75% by 2050

Decision-Making

- Economic competitiveness
- Energy security
- Environmental commitment

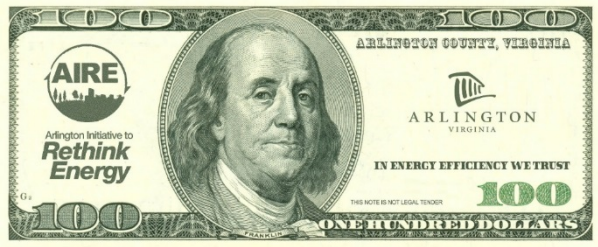
Goal Areas

- Buildings
- District energy
- Renewable energy
- Transportation
- County government operations
- Education & human behavior

Energy Efficient Buildings

Increase the energy and operational efficiency of all buildings

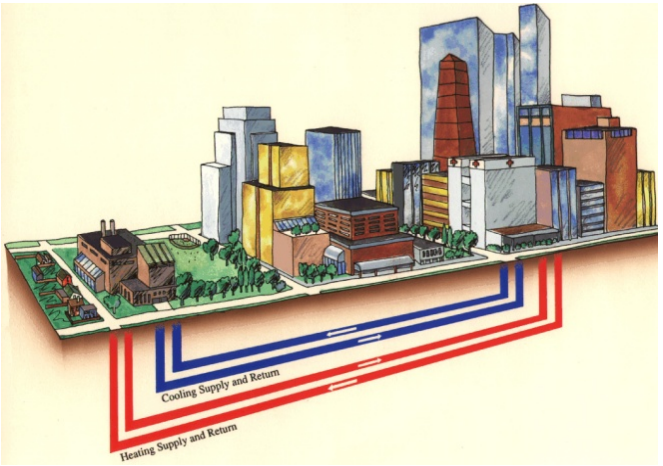
- Energy efficiency rebates
  - Up to $575/household
- Green Home Choice program
- Georgetown University Energy Prize
- Green Building Incentive program
- Property Assessed Clean Energy (PACE) financing program (Commercial)



District Energy

Increase local energy supply and distribution efficiency in Arlington using District Energy

- Finalized two Integrated Energy Master Plans (IEMPs)



Renewable Energy

Increase locally generated energy supply via renewable energy options

- Potomac Solar Co-op
  - Information session: June 8th, 7 pm, 2300 Wilson Blvd.
  - Significantly reduce cost of solar panel installation
- County facility installations
  - Central Library
  - Discovery Elementary

Transportation

Refine and expand transportation infrastructure and operations enhancements

- Finalizing electric vehicle policy
- Supporting Master Transportation Plan implementation

County Government Activities

Integrate CEP goals into all County Government activities

- County facility improvements
- Over $1 million per year in savings (avoided utility costs) from efficiency investments across County portfolio since 2007
- On track to meet 25% GHG emissions reduction target by 2020

Education & Human Behavior

Advocate and support personal action

- Community events
  - LED Light Bulb Swaps
- Rethink Energy Challenge
- Nation's first Energy Lending Library
  - Thermal Cameras
  - Kill-a-Watt Meters
  - Books/Videos

Discussion