



# Converting the Landfill to an Environmental Resource

Recommendation

Eric Forbes, I-95 Landfill Complex Manager

10/3/2017

# Environmental Improvements

## Good Housekeeping

- Six Pump Stations Rehabilitated 2016-2017
- Landfill Gas Extraction System 2015-2016

## Sustainability Initiatives

- **Honeybee Initiative Pollinator Program**
- Mulch & Hay Program
- Glass Program Pilot
- Dredge Material Reuse
- Compost Pilot

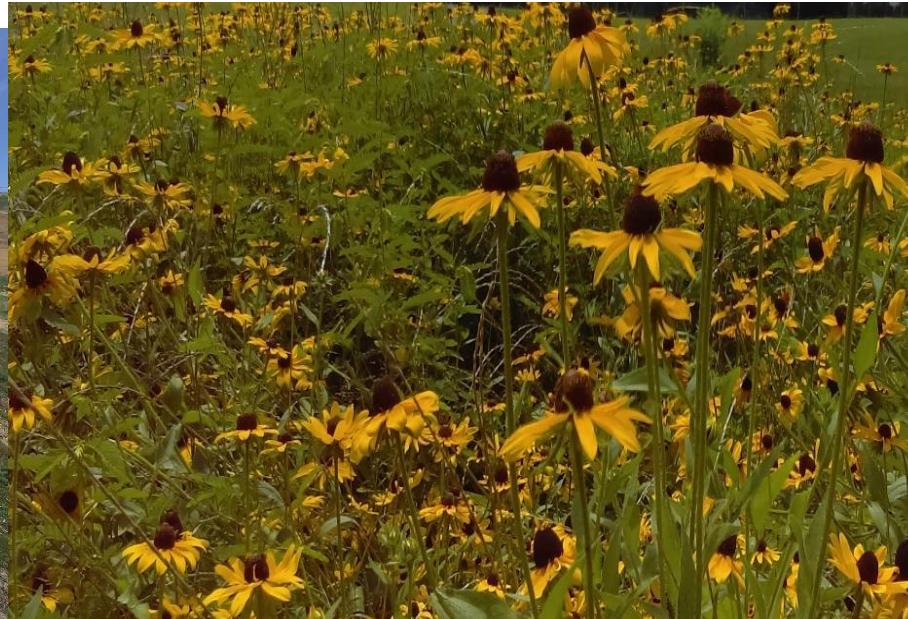
# Honeybee Initiative Pollinator Program

- The Honeybee Initiative Pollinator Program (HIPP) is a project to install hives of honeybees (*Apis mellifera*) and pollinator habitat.



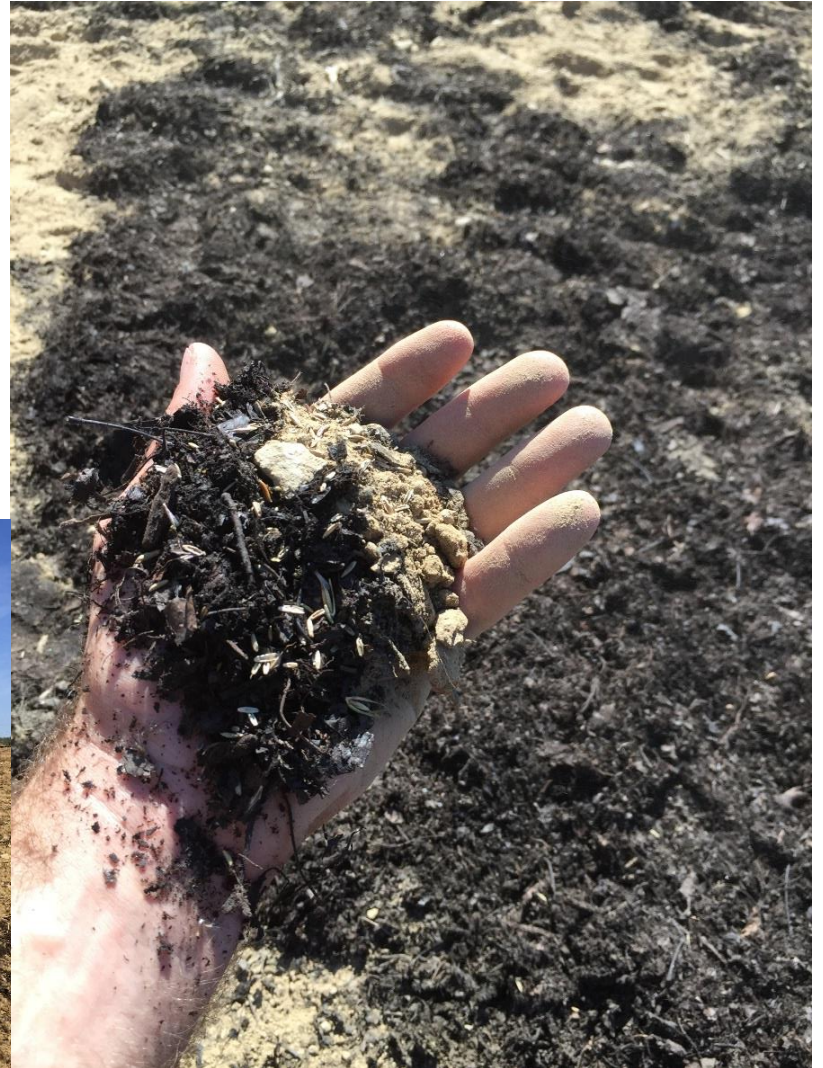
# Creation of Sustainable Habitat

- Habitat for pollinators
- Milkweed for butterflies
- Native flowers for bees
- Nesting/shelter for wildlife
- Ecosystem Services



# Turf to Meadow

- Site- selected due to a proximity to wooded area
- Seed bed prep using:
  - Dredge Material
  - Leaf Mulch (Organic matter)
- Seeds- native mix
- Stabilization- site generated hay mulch



# Staff Engagement



# Tailgate Talk

Fairfax County, I-95 Landfill Complex

## Don't Mow The Milkweeds!!



Milkweed grows throughout the landfill. It often grows in colonies and easily occupies new areas. We are interested in preserving the milkweed populations onsite to promote habitat for wildlife including pollinators such as bees and butterflies. We have a few different species of milkweed here onsite. Please do not mow!

## The Value of Milkweed to Monarchs

Milkweed plays a vital role in the monarch butterfly's life cycle. This native perennial is a primary food source for the Monarch butterfly providing large leaves for caterpillars and big pink globe-like flowers that provide nectar for the adult butterflies. The milkweed plant also provides food and shelter for a diversity of other insects. This includes nectar-seeking bees, butterflies, wasps, and flies, as well as specialist herbivores like seed bugs, longhorn beetles and leaf beetles. Caterpillars of monarch butterfly eat leaves of milkweed and collect toxins in the body. Milkweed is the only plant the Monarch butterfly will lay its eggs.

## Milkweed Facts:

- ◆ Milkweed blooms from June to August and produces large quantities of nectar
- ◆ Attracts butterflies, moths and bees, responsible for the pollination of this plant.
- ◆ Milkweed produces purple or pink fragrant flowers arranged in drooping clusters.
- ◆ Milkweed has large, broad, oval leaves with red veins.
- ◆ Common milkweed plants are 3 feet tall.
- ◆ Milkweed can survive from 2 to 25 years in the wild, depending on the species and environmental conditions. Some birds use Milkweed seed floss as a nesting material.



# Benefits

- Reduces maintenance costs associated with mowing
- Reduces stormwater runoff
- Ecosystem services
- Creates an aesthetic buffer around the site
- Provides staff with a greater connection to the environment



# Environmental Monitoring with GMU

## Pollinator Diversity

- Abundance and diversity of bees, butterflies and other pollinating insects

## Bee Populations

- Annual surveys to determine diversity and changes overtime

## Environment

- Spectrometry of bee products to detect heavy metals
- Hive mortality- bees can be analyzed to identify the problem (ie: pesticides)





# Update on Transformation

- 12 hives onsite/4 apiaries
  - 8 additional hives this spring
- 4 acres planted
  - 6 more this fall
- Public involvement on the horizon
  - Maintenance assistance
  - Education & tours





# Chesapeake Bay Ordinance Exceptions Review Committee

Recommendation

Eleanor Ku Coddling, Director  
Code Development and Compliance Division, Land Development Services

October 3, 2017

# Staff Seeking Recommendation

- 1) Maintain Exceptions Review Committee (ERC) “as is”
- 2) Maintain ERC approval and reduce the quorum
- 3) Abolish the ERC (Board would hear all cases)
- 4) Abolish the ERC and designate another existing board/commission

# Update from 2014 and 2016

- 2013 Stormwater Ordinance process recommended ERC dissolution
- ERC supported continuation of the committee
- Planning Commission recommended a one year evaluation period
- BOS approved the SWMO with the Planning Commission recommendations for the ERC evaluation and reporting
- After 2016 update, BOS requested report back in 2017

# ERC History

- 2003 - ERC was established as part of Chesapeake Bay Ordinance amendments (Ch 118)
- Public hearing requirement was added for certain exceptions
  - Options considered included Planning Commission and existing committees/boards
  - ERC created as a new committee

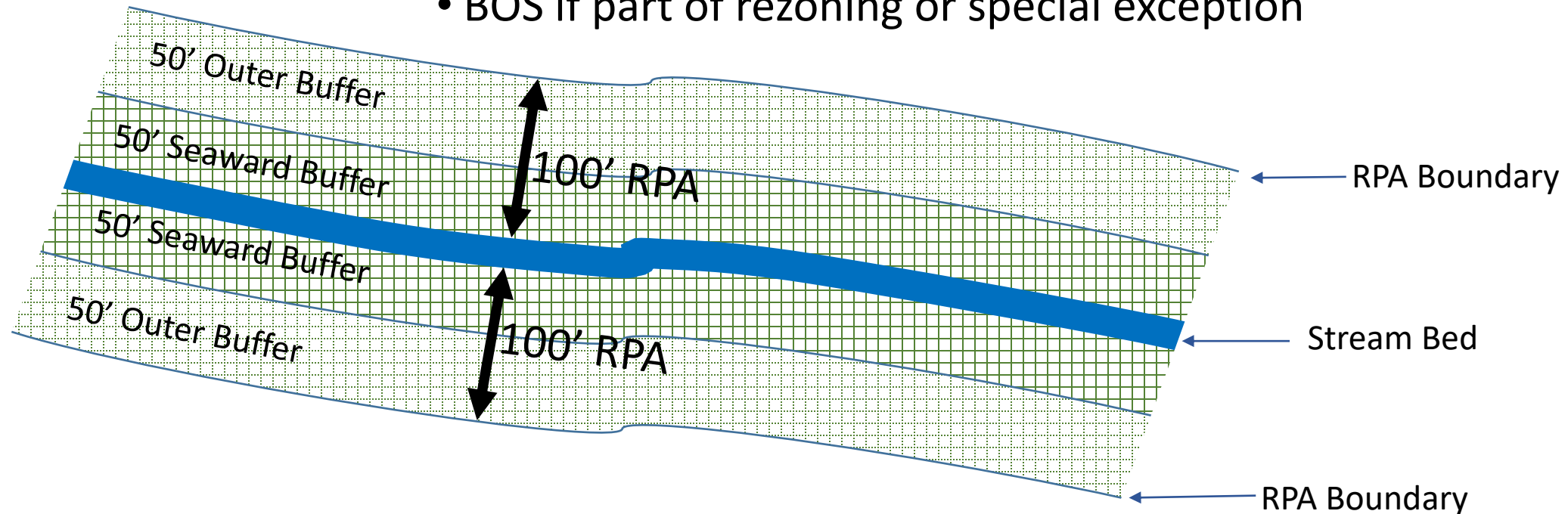
# Who Approves RPA Exception Requests

## 50' Outer Buffer

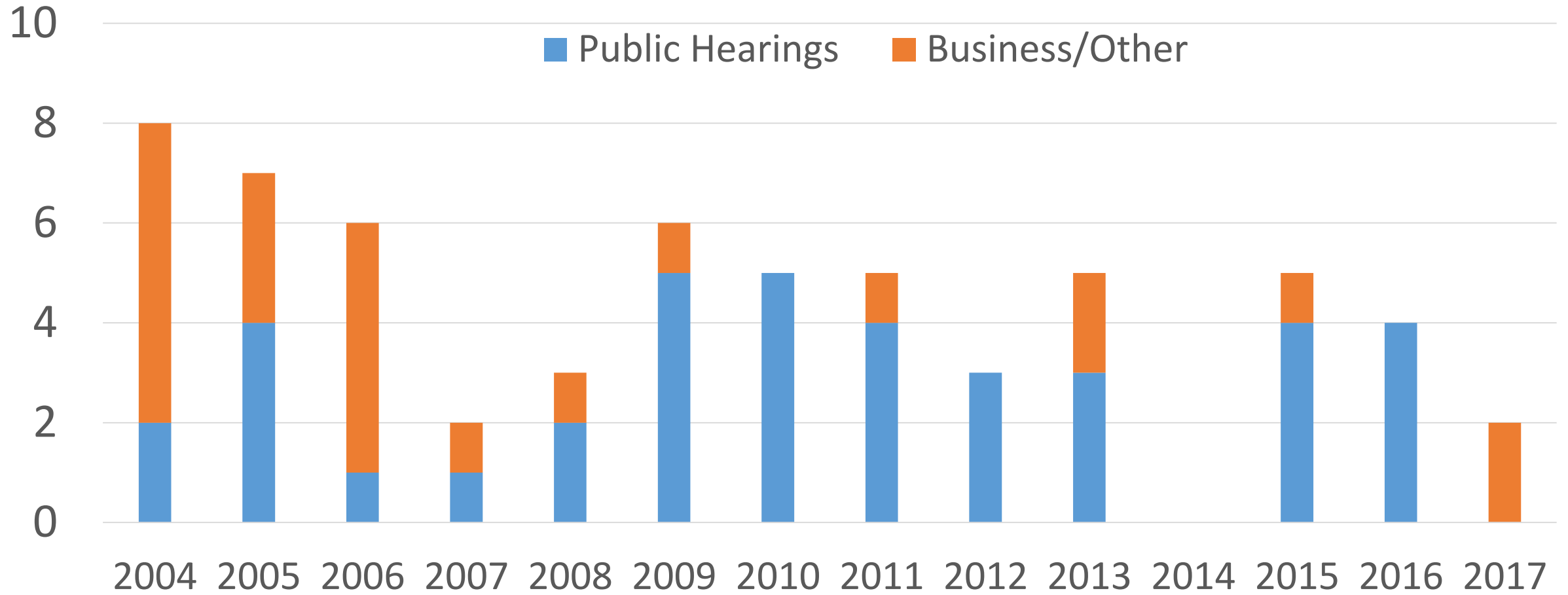
- LDS: Administrative only. Commonly, cannot encroach within the 50' seaward buffer and must be <math><5,000\text{ ft}^2</math> impervious & <math><10,000\text{ ft}^2</math> disturbed

## 50' Seaward Buffer

- Article 6 exceptions. Not done administratively and public hearing is required:
  - ERC or
  - BOS if part of rezoning or special exception



# ERC Meetings 2004-Present



# Factors

Meeting the public hearing requirement

- 9 VAC 25-830-150

- An exception may be considered and acted upon only by the local legislative body; the local planning commission; or a special committee, board or commission established or designated by the local government to implement the provisions of this Act and this chapter.



# Factors, continued

- Advantages of keeping ERC
  - Allows applicants to appeal to BOS on cases rejected by ERC
  - Achieving quorum has been easier since 2014
  - ERC wishes to continue
  - BOS would need to hear cases or other public committee would need to be established
- Advantage of abolishing ERC
  - One less external board requiring member coordination
  - Avoids quorum issue
  - Low number of exceptions requests makes it hard for ERC to gain momentum

# Staff Seeks BOS Recommendation

- ★ 1) Maintain ERC approval “as is”
- 2) Maintain ERC approval and reduce the quorum
- 3) Abolish the ERC (Board would hear all cases)
- 4) Abolish the ERC and designate another existing board/commission

★ Staff Recommendation: Maintain ERC “as is.” If achieving quorum becomes an issue or if other complications arise, bring issue back before BOS.

# Questions?

Eleanor Ku Coddling

[eleanor.coddling@fairfaxcounty.gov](mailto:eleanor.coddling@fairfaxcounty.gov)

703-324-1695

Year	Total Mtgs	Public Hearings	Business/ Other Meetings	Comments
2004	8	2	6	
2005	6	4	3	2 hearings deferred to later in the same year. 1 meeting included 2 hearings.
2006	6	1	5	Deferred meeting from 2005.
2007	2	1	1	
2008	3	2	1	Same hearing deferred twice. 1 meeting discussion only, lack of quorum.
2009	5	5	1	2 hearing in one meeting one of them deferred to later same year.
2010	5	5	0	1 hearing deferred twice, one hearing deferred once both to same year.
2011	4	4	1	1 deferred hearing heard later same year, 2 hearings in one day.
2012	3	3	0	1 hearing deferred to later in the same year.
2013	5	3	2	1 meeting cancelled due to lack of quorum.
2014	0	0	0	No meetings or hearings.
2015	5	4	1	1 hearing deferred to later in the same year.
2016	4	4	0	Committee rulings 8-0, 8-0, 7-0, 7-0, 5-3.
2017	2		2	No quorum for June 7 meeting. Upcoming public hearing in Nov.

Meeting Date	Meeting Purpose	Meeting Outcome
2/6/13	General Business Meeting	Adjourned due to lack of quorum present
4/3/13	6451 7th Street: Tax Map # 0723 11 0138	Approved 6-1
6/12/13	1166 Orlo Drive: Tax Map # 0203 21 0067	Approved with conditions 7-3
11/6/13	Discussed proposed amendments to Ch.118	Recommend no adoption Ch.118, Article 6, 7 & 8 revisions. Approved 7-0
12/4/13	5016 Ridgewood Road: Tax Map # 0714 08 0061A	Approved with conditions 5-1
2014	No Meetings	N/A
2/4/15	Presentation: Permit Process for Additions in the RPA	N/A
5/6/15	1090 Cedrus Lane: 0192 09 C4 (Peacock Station)	Deferral of the application 6-0
6/3/15	1090 Cedrus Lane	Approved 8-0
6/3/15	706 Potomac Knolls Drive: Tax Map # 0202 11 0009	Approved 8-0
10/7/15	1055 Dead Run Drive: Tax Map # 0214 13 0010	Approved 7-0
12/2/15	6364 Lakeview Drive: Tax Map # 0613 14 0125	Approved 7-0
4/6/16	2007 Cherri Drive	Denied 8-0
4/6/16	1743 Bethune Street; Pimmit Hills, Section 3, Lot 85	Approved 8-0
7/6/16	1551 Forest Villa Lane	Approved 7-0
7/6/16	6312 Lake View Drive	Approved 7-0
9/7/16	Committee decision regarding 2007 Cherri Drive	Question to re-hear the case - no quorum
10/5/16	6803 Dillon Drive	Approved 5-3
11/1/17	7780 Kelly Ann Court	TBD



# DEQ Inspection of the County's MS4 Program

Update

Kate Bennett, MS4 Program Coordinator  
Stormwater Planning Division, DPWES

October 3, 2017

# Glossary of Acronyms

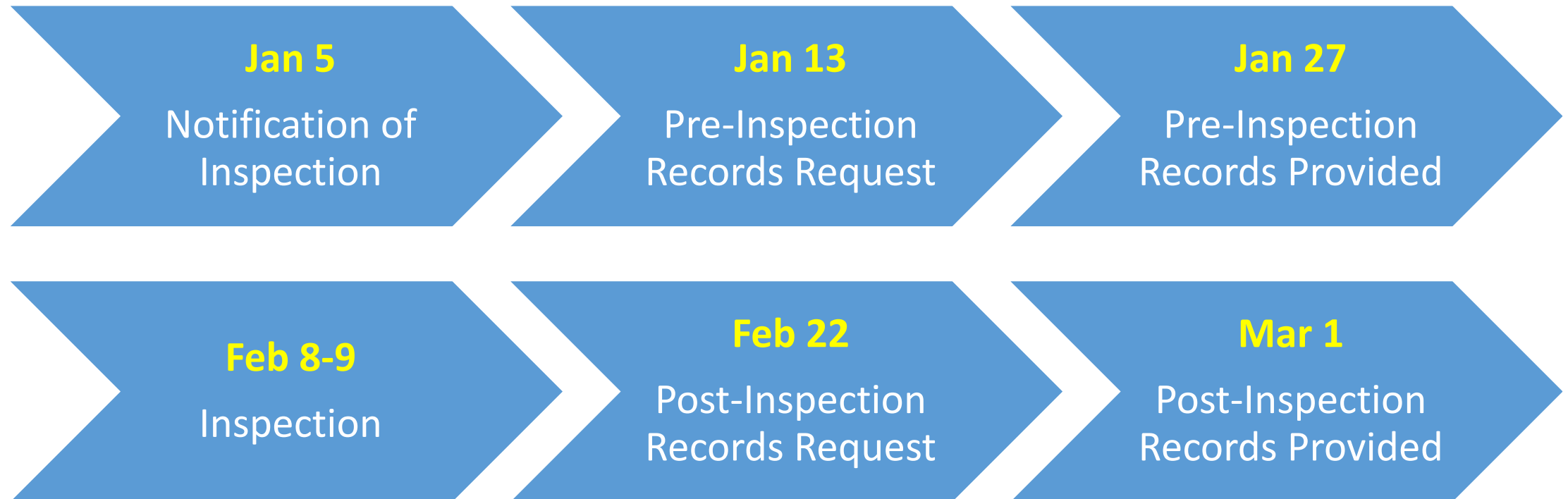
- DEQ – Department of Environmental Quality
- IDID – Illicit Discharges and Improper Disposal
- IHRR – Industrial & High Risk Runoff
- MS4 – Municipal Separate Storm Sewer System
- SWPPP – Stormwater Pollution Prevention Plan

# DEQ Inspections of MS4 Programs

- DEQ Ramping Up MS4 Program Oversight
  - Goal of Inspecting Each MS4 At Least Once During Five Year Permit Cycle
    - 11 Phase I MS4s
    - 104 Phase II MS4s
  - Completed 33 Inspections as of September 1, 2017
    - Federal Fiscal Year (FFY) – October 1 through September 30
    - Exceeded target of 29
  - Compliance Issues Being Found
    - DEQ will likely take enforcement action against some MS4s
- No EPA Inspections of MS4 Programs in VA in FFY 2017



# Inspection Timeline



# Inspection Process

- Prepared staff from multiple agencies and partners
- Attorneys present for every step
- Department of Environmental Quality (DEQ) and consultant on-site for two days
  - Two inspection teams
  - Reviewed all program elements
- Outstanding County team effort

# Inspection Agenda – February 8, 2017

Time	Team 1	Team 2
8:00 – 9:00 am	<u>Office Discussions</u> <ul style="list-style-type: none"> <li>• Opening Discussions and General Program Management</li> <li>• Stormwater Infrastructure Management (infrastructure and mapping only)</li> <li>• Public Education/Participation</li> </ul>	
9:00 – 10:30 am	<u>Office Discussions</u> <ul style="list-style-type: none"> <li>• Training</li> <li>• Construction Site Runoff and Post Construction Runoff from Areas of New Development and Development on Prior Developed Lands</li> </ul>	<u>Office Discussions</u> <ul style="list-style-type: none"> <li>• Illicit Discharges and Improper Disposal</li> <li>• Spill Prevention and Response</li> <li>• Industrial &amp; High Risk Runoff</li> <li>• Water Quality Screening Programs</li> </ul>
10:30 am – 12:30 pm	Construction Sites (Field)	Illicit Discharges and Improper Disposal: Water Quality Screening (Field)
12:30 – 1:30 pm	Lunch Break	
1:30 – 4:00 pm	Construction Sites (Field)	Industrial & High Risk Runoff (Field)
4:00 – 4:30 pm	Recap and Logistics Planning for Thursday	

# Inspection Agenda – February 9, 2017

Time	Team 1	Team 2
8:00 – 10:00 am	<u>Office Discussions</u> <ul style="list-style-type: none"> <li>• Infrastructure Coordination</li> <li>• Stormwater Infrastructure Management (stormwater management facilities only)</li> <li>• Structural and Source Controls Compliance Monitoring and Tracking</li> <li>• Watershed Management Plans</li> <li>• Retrofitting on Prior Developed Lands</li> </ul>	<u>Office Discussions</u> <ul style="list-style-type: none"> <li>• Biological Stream Monitoring</li> <li>• In-stream Monitoring</li> <li>• Floatables Monitoring</li> <li>• Roadways</li> <li>• Pesticides, Herbicides, and Fertilizer Application</li> <li>• County Facilities</li> </ul>
10:00 am – 12:00 pm	Post-Construction Sites (Field)	County Facilities (Field)
12:00 – 1:00 pm	Lunch Break	
1:00 – 3:00 pm	Post-Construction Sites (Field)	County Facilities (Field)
3:00 – 3:30 pm	DEQ Internal Discussion	
3:30 – 4:00 pm	Closing Discussions	

# Inspection Report

- Received April 28, 2017, thirty days to respond
- Describes existing Municipal Separate Storm Sewer System (MS4) program and implementation
- Identifies observed compliance issues
- Two categories of findings:
  - Recommendations
  - Corrective Actions

# Recommendations

- Industrial and High Risk Runoff (IHRR)
  - Ensure control measures are implemented to prevent pollution from:
    - Oil staining on the ground
    - Overflowing dumpsters
    - Sand piles and debris storage
    - External car washing
  - Periodically evaluate IHRR list
- Stormwater Infrastructure Management
  - Ensure stormwater management facility inspections refer to most up-to-date as-built drawings

# Recommendations (Continued)

- Public Education/Participation
  - Develop additional public outreach materials/activities that address both private and public swimming pool discharges
- Illicit Discharge and Improper Disposal (IDID)
  - Develop inventory of county-owned swimming pools that contains:
    - Facility name and address
    - Discharge to MS4
    - Indoor and/or outdoor pool (including water parks)
    - If filtration system, location of discharge
    - If discharge to MS4 or surface waters, is discharge dechlorinated?
    - Any non-filtration discharge to MS4 or surface waters that are not dechlorinated?

# Corrective Actions

- Industrial and High Risk Runoff (IHRR)
  - Update IHRR list to include facility ID VPD11320041
    - Rainwater Landfill (VAR051081), 9917 Richmond Hwy, Lorton
- Stormwater Infrastructure Management
  - Add latitude and longitude in decimal degrees for each MS4 outfall
  - Conduct maintenance for deficiencies observed during inspection
    - One privately-maintained, two county-maintained dry ponds
- Construction Sites
  - Ensure that deficiencies observed during inspection are corrected
    - One county site, three private sites



# Corrective Actions (Continued)

- County Facilities

- Revise list of high priority facilities to include any county facility that meets definition in Part I.F.5:

- “High Priority Municipal Facility” means any facility owned and operated by the permittee or regulated under this state permit that includes:

- composting facilities
- equipment storage and maintenance facilities
- materials storage yards
- pesticide storage facilities
- public works yards
- recycling facilities
- salt storage facilities
- solid waste handling and transfer facilities
- vehicle storage and maintenance yards

- Revise list of high priority facilities that have a high potential for discharging pollutants

# Corrective Actions (Continued)

- County Facilities (Continued)
  - Include the following facilities on the list of high priority facilities requiring a Stormwater Pollution Prevention Plan (SWPPP):
    - Central Maintenance Facility
    - Maintenance and Stormwater Management Division
  - “Administrative or engineering measures may be used to manage the risk of exposure but do not preclude a site from being included on the list of facilities requiring a SWPPP”

# Corrective Actions (Continued)

- County Facilities (Continued)
  - Ensure that county-owned facilities practice good housekeeping
  - Ensure that control measures are implemented to prevent pollution at the four sites visited during the inspection:
    - Maintenance and Stormwater Management Division (10635 West Drive, Fairfax)
    - Central Maintenance Facility (5414 Ladue Lane, Fairfax)
    - Flat Lick Maintenance Facility (4501 Brookfield Corporate Drive, Chantilly)
    - Oak Marr RECenter (3200 Jermantown Road, Oakton)

# Next Steps

- Response to inspection report submitted to DEQ on May 26, 2017
  - Described how Corrective Actions are being addressed
  - Corrected inaccuracies in report
- DEQ will determine whether formal enforcement is warranted
  - Timeframe unknown
- Significant effort required to:
  - Revise list of high priority County facilities with high potential for discharging pollutants
  - Develop and implement any additional SWPPPs



# Questions?



# LED STREETLIGHTS, the ENVIRONMENT, and DOMINION ENERGY

Update

Wayne A. Kotter, P.E., CCM

Director, Utilities Design and Construction Division, DPWES

October 3, 2017

# Non-LED Streetlighting

- Fairfax County used 39.8 Million kWh of electricity in FY 17 for 58,400 non-LED streetlights
  - Equivalent to 6,600 avg homes\*
  - 30,850 Metric tons of GHG (68 million pounds) per year\*
  - 1,160 lbs of CHG per fixture per year

\* Derived from a recent Arlington County study

# LED Streetlighting

- 68% Reduction in power consumption for equivalent lighting\* (LED vs Non-LED)
  - Equivalent reduction of:
    - 4,488 avg homes
    - 21,000 Metric tons reduction in GHG (46.2 million pounds) per year
    - 790 lbs reduction in GHG per fixture per year
- Smart City technology adaptations

\* Derived from a recent Arlington County study



# Light Quality - HPSV vs. LED



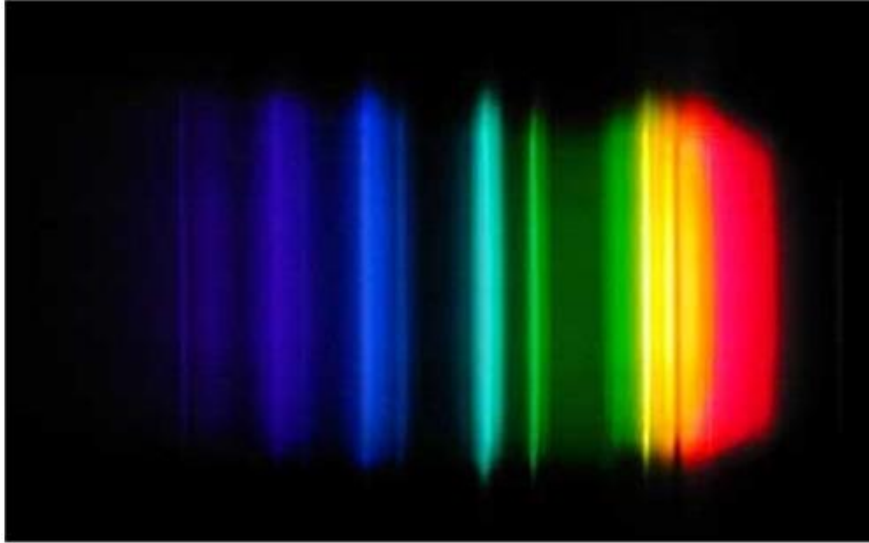
# Light Quality - HPSV vs. LED



# Light Quality - HPSV vs. LED

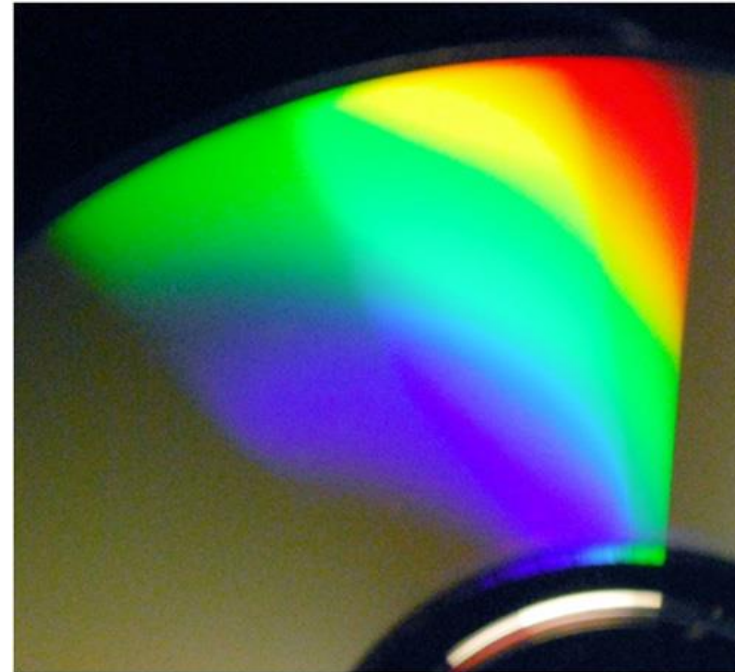


# Light Quality - HPSV vs. LED



High Pressure  
Sodium Vapor

Light Emitting  
Diode



# Changes are Happening Now

- National and local municipalities are converting
  - New York City, Los Angeles, Washington D.C., Virginia Beach, Arlington County
- Virginia
  - 2014 - Gov. McAuliffe Executive Order #31 directed all executive branch agencies, authorities, departments, and all institutions of higher education to “Conserve Energy and Reduce Consumption in the Commonwealth of Virginia”
  - 2017 - VA General Assembly Budget Amendment Item 80 #1(c) directed VDOT to maximize use of LED technology on all new and replacement projects

# Current Dominion Energy Options

Non-LED



Expressway



Traditional  
Colonial



Enclosed  
Drop Lens



Enclosed  
Flat Lens



Carlyle  
Acorn

LED

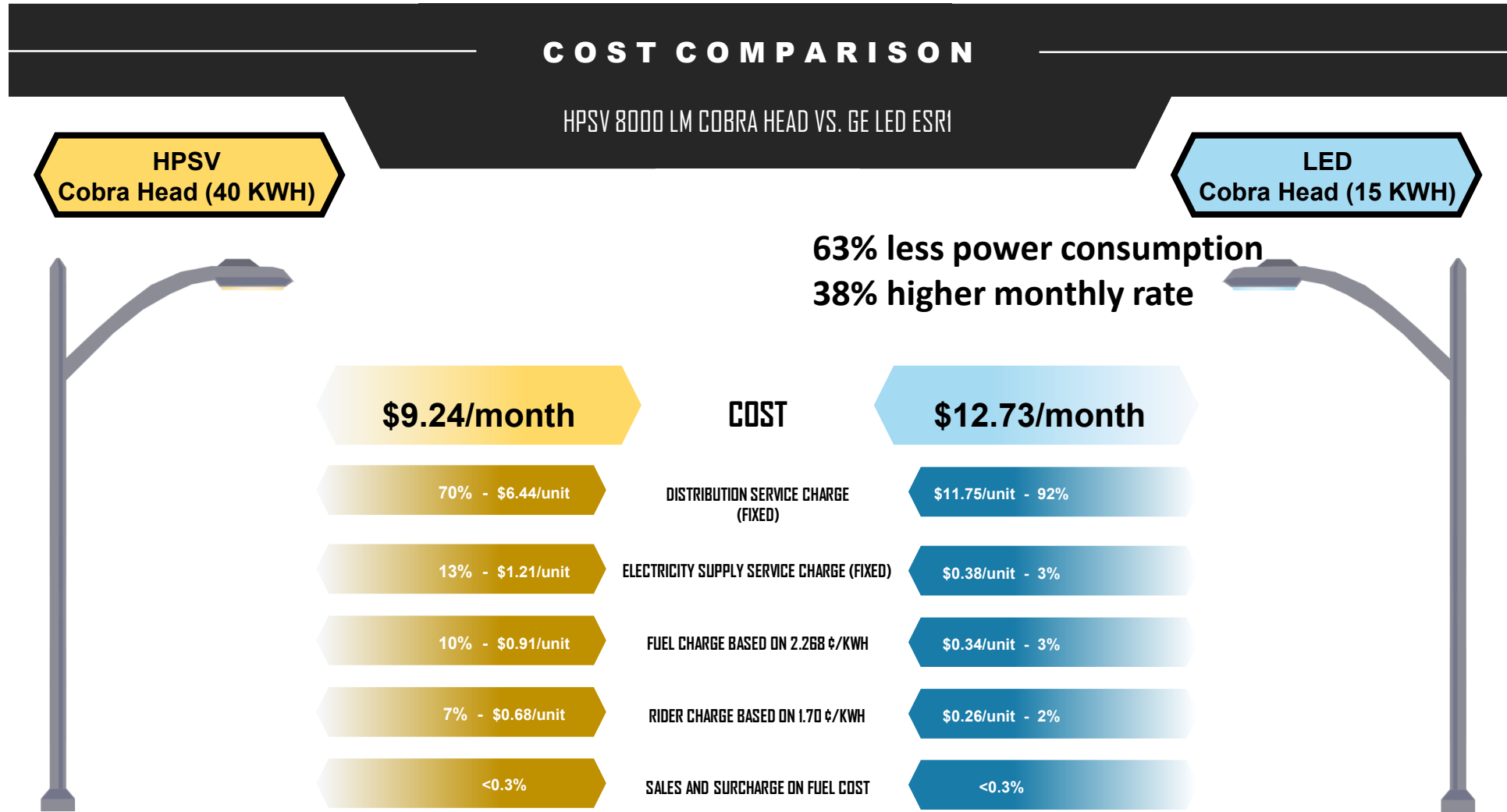


Decorative  
Acorn

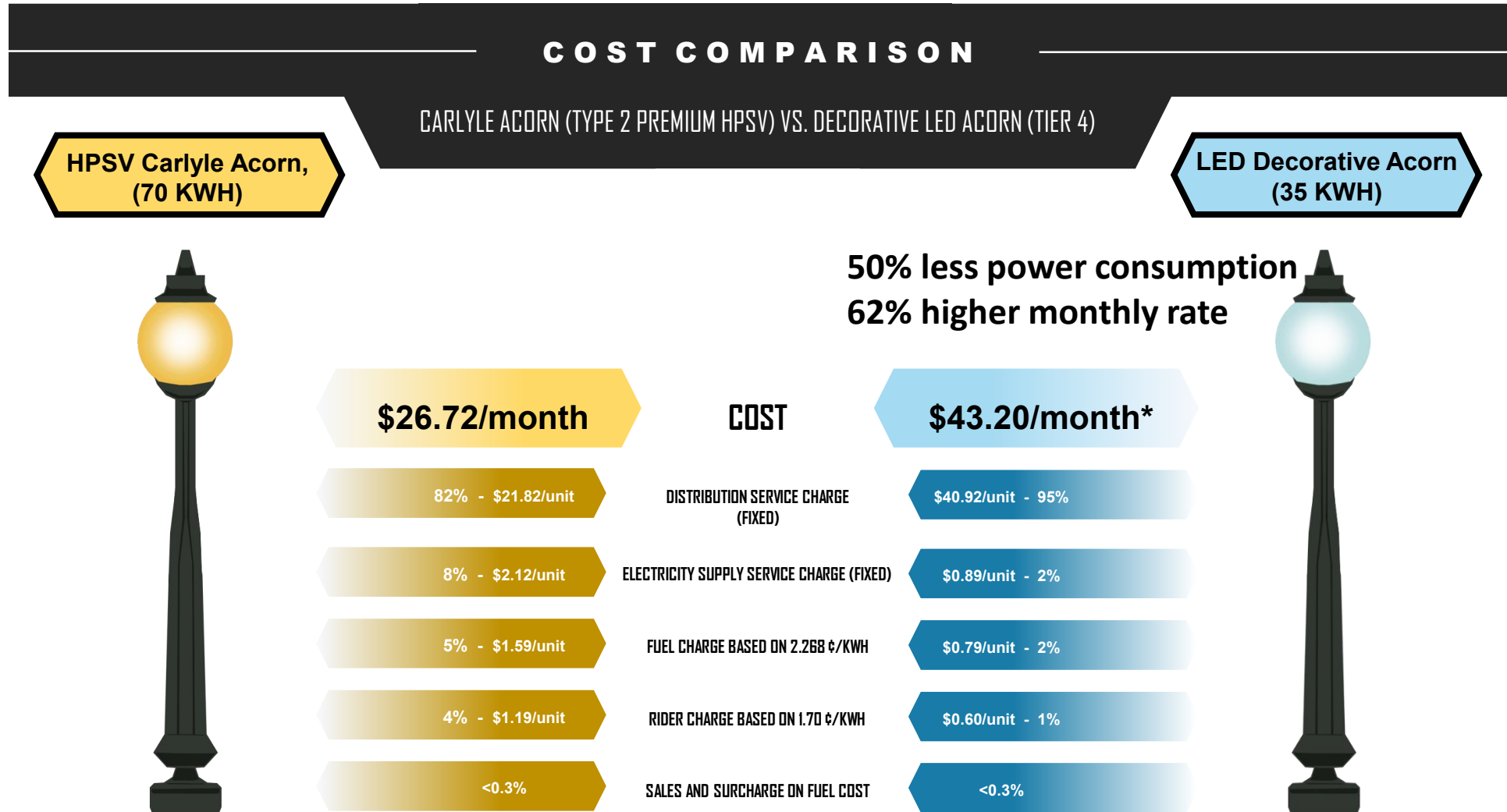


GE Evolve LED  
Enclosed Flat Lens

# Current Dominion Energy Options



# Current Dominion Energy Options





# Dominion Energy Issues

- Limited LED Streetlight Products/Options
  - One LED “Cobra” style lamp and one LED “Acorn” style lamp now offered
  - LED product offerings do not meet the aesthetic desires of CRDs
  - Offered LED fixtures have “Temperature Color” of 4000k (kelvin) vs. American Medical Association suggested 3000k or lower
  - Not adaptable to Smart City technologies
- No Pedestrian Lighting Products or Maintenance Offered

# Moving Forward

- Meet with Dominion Energy Sr. Management to discuss fixture offerings and rate structure
- Commission study to look at pros and cons of County vs. Dominion Energy ownership and control of selective streetlights to be able to realize real cost savings in energy usage/maintenance, utilization of smart city applications, and reduction our carbon footprint on the environment

Questions?



# Metropolitan Washington, District of Columbia Coastal Storm Risk Management Study

Update

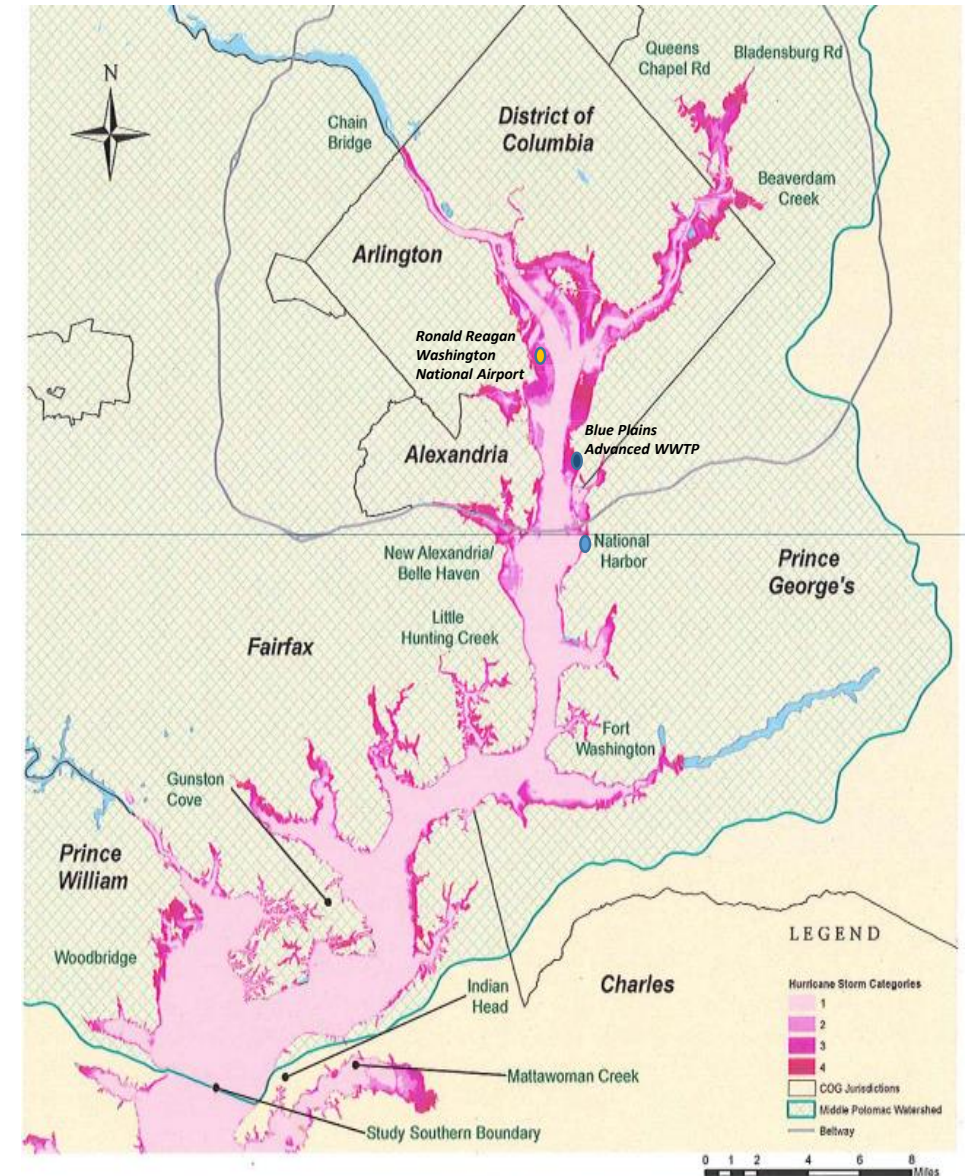
Dipmani Kumar, Chief,  
Watershed Planning and Evaluation Branch  
Stormwater Planning Division, DPWES

October 3, 2017

# Coastal Storm Risk Management Study

## Scope and Purpose

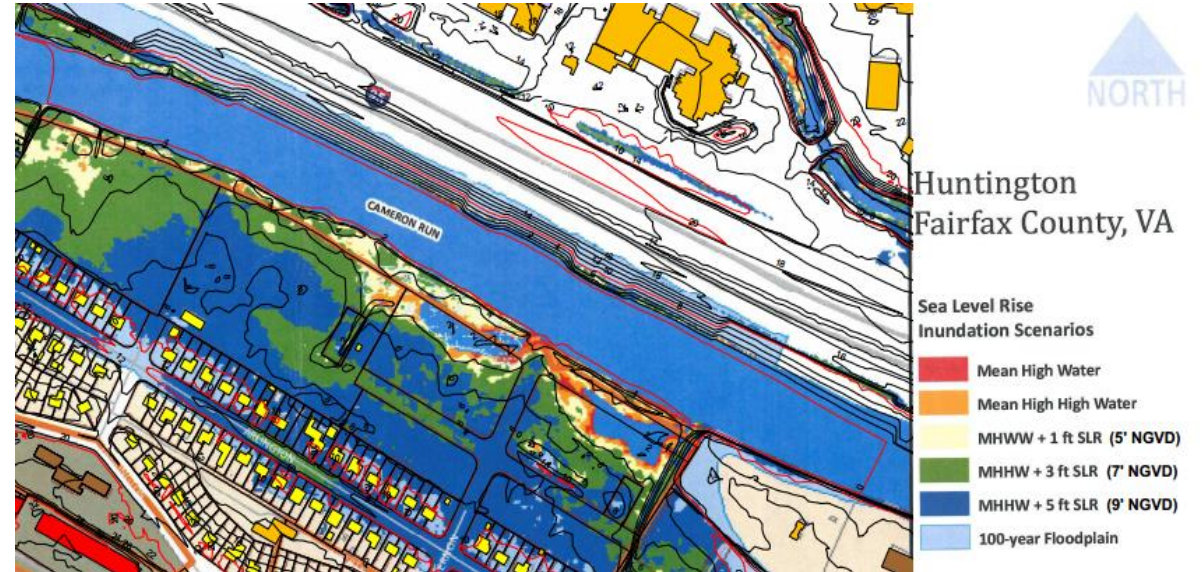
- Investigate flood risk in the vicinity of the region's tidal areas
- Identify potential solutions for protecting vulnerable infrastructure on which the region relies
- Study boundary: Chain Bridge to Prince William County line on Potomac
- Total estimated Cost \$3 Million
  - County share: \$250,000 to a maximum of \$350,000
- Participating jurisdictions:
  - Fairfax County
  - Arlington County
  - Washington DC
  - Alexandria
  - Prince George's County



# Coastal Storm Risk Management Study

## Background

- NVRC study of 2012 indicated 1-5 feet of Sea Level Rise (SLR) by 2100
- The Virginia Institute of Marine Science (VIMS) report in 2013 estimated 3-8 ft SLR by 2100
- Proposed study is a follow-up to the USACE North Atlantic Coast Comprehensive Study (2015)



# Benefits of the Study

- Provide the most up to date SLR estimates for the Washington DC metropolitan area
- Provide an assessment of climate change impacts on precipitation and groundwater
- Identify solutions to protect vulnerable urbanized areas and infrastructure.
- Collaboration with regional partners



# Coastal Storm Risk Management Study Agreement Details

- Study to be performed by USACE
- COG will manage the USACE contract
- Participating communities will enter into an agreement with COG
- Draft agreement provided to jurisdictions by COG for review and authorization





# Coastal Storm Risk Management Study

## Project Schedule

- Agreement template being reviewed by OCA
- Present agreement to the BOS for authorization in November
- Preliminary Schedule for Study:
  - Study to begin by December, 2017
  - Draft Report – October, 2018
  - Draft Final Report – December, 2019



# Questions?