Amendments to the Environmental Management Ordinance

Environmental Policy Commission

November 18, 2013

Purpose

- Urban Water 101 – How does water cause pollution, how do we manage it?
- Why change the Ordinance?
- The Ordinance as it exists today.
- What do we want to keep?
- What do we want to change?
- Next steps

What is Stormwater?

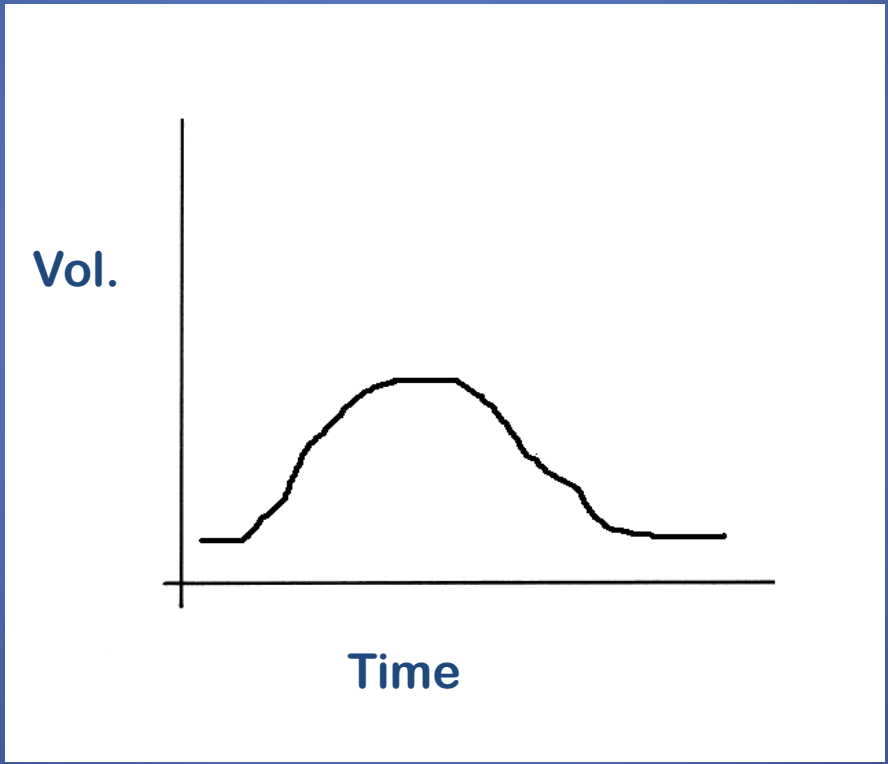
- That water that runs off impervious and pervious areas

  - Into stormdrain system
    - Into streams
      - Into Potomac River
        - Into the Chesapeake Bay

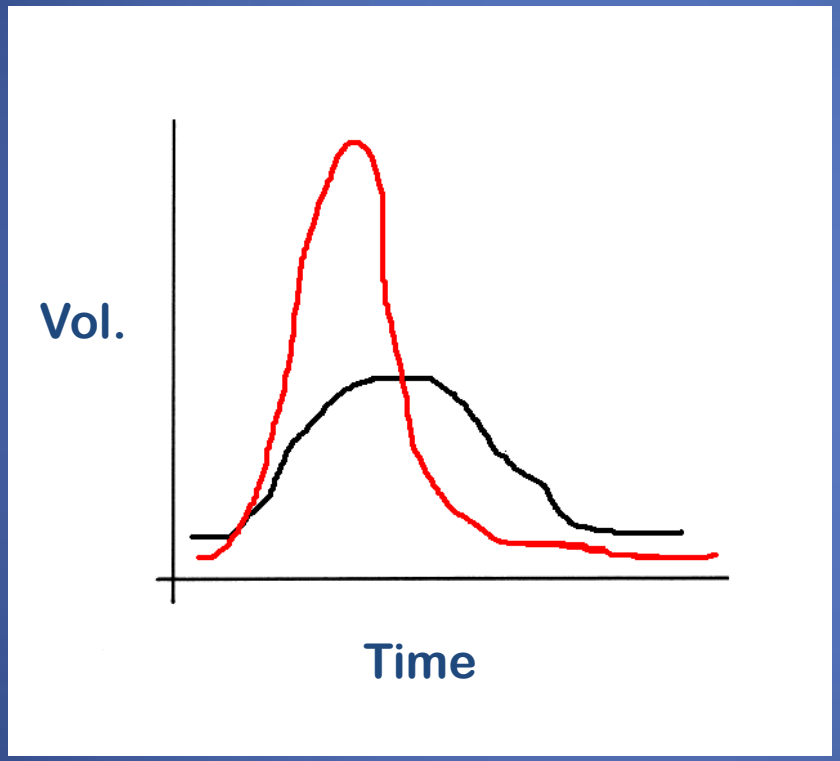
Urban Waters 101

- What does impervious surface have to do with anything?

Hydrograph

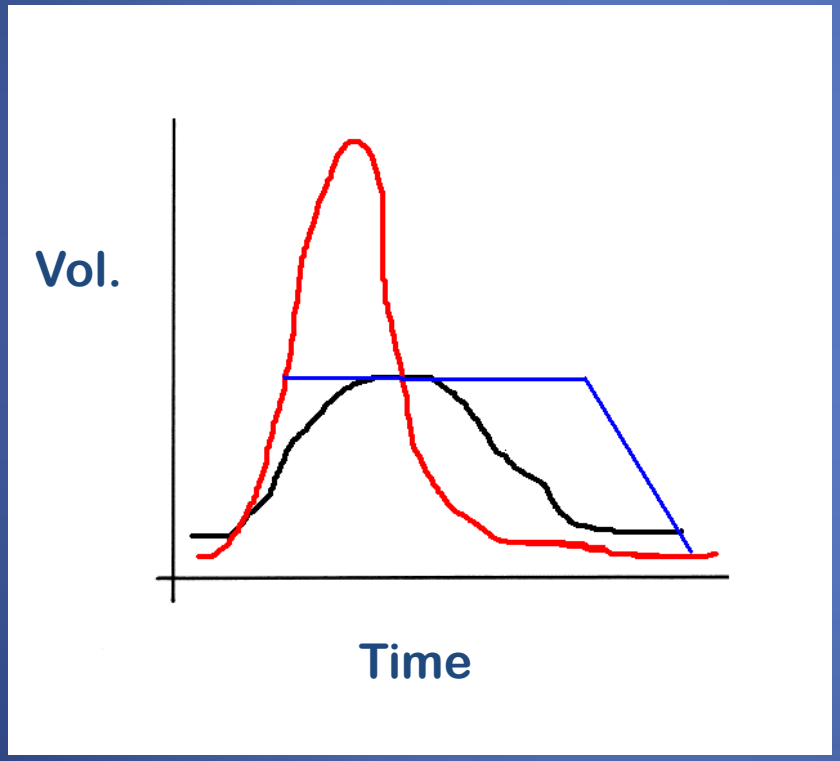


After Development



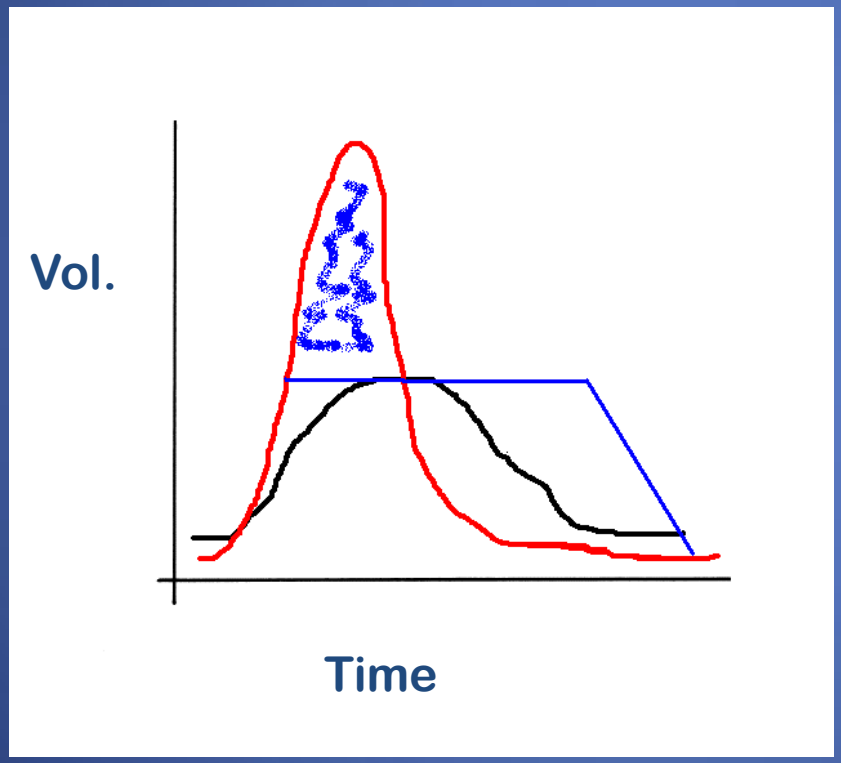
- More Water
- Higher Peak
- Peak is reached faster
- Lower Base Flow

Detention



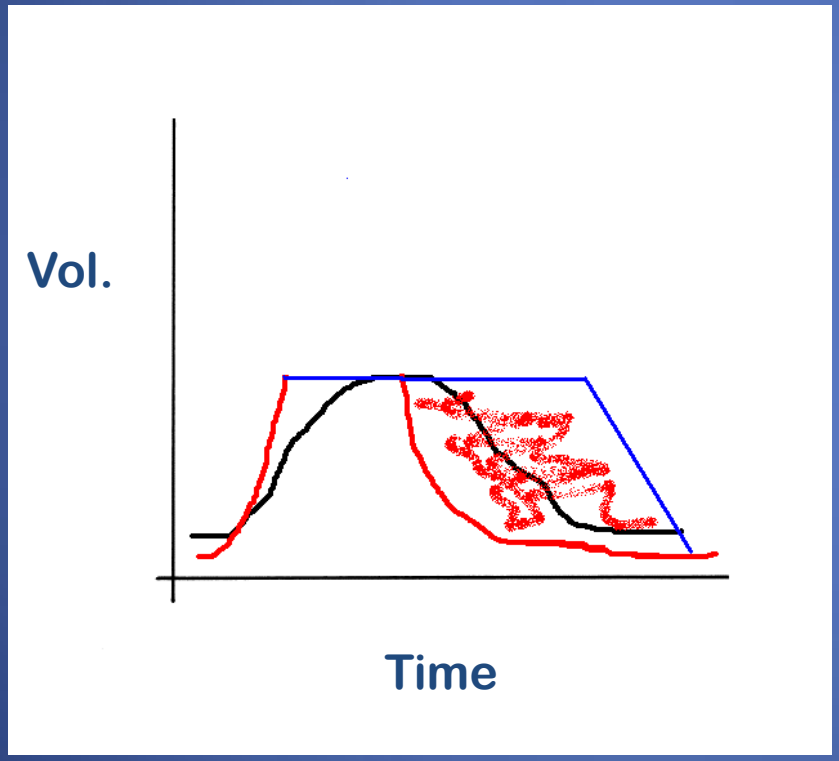
- To protect the neighbor's property from flooding
- Protects stream morphology

Detention



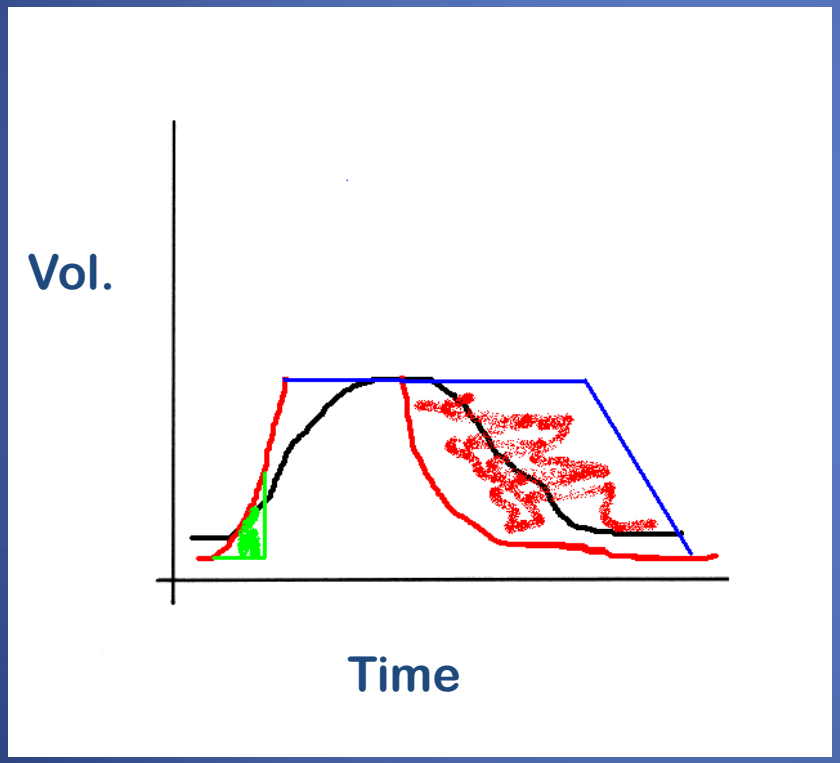
- Lowers the Flood Peak

Detention



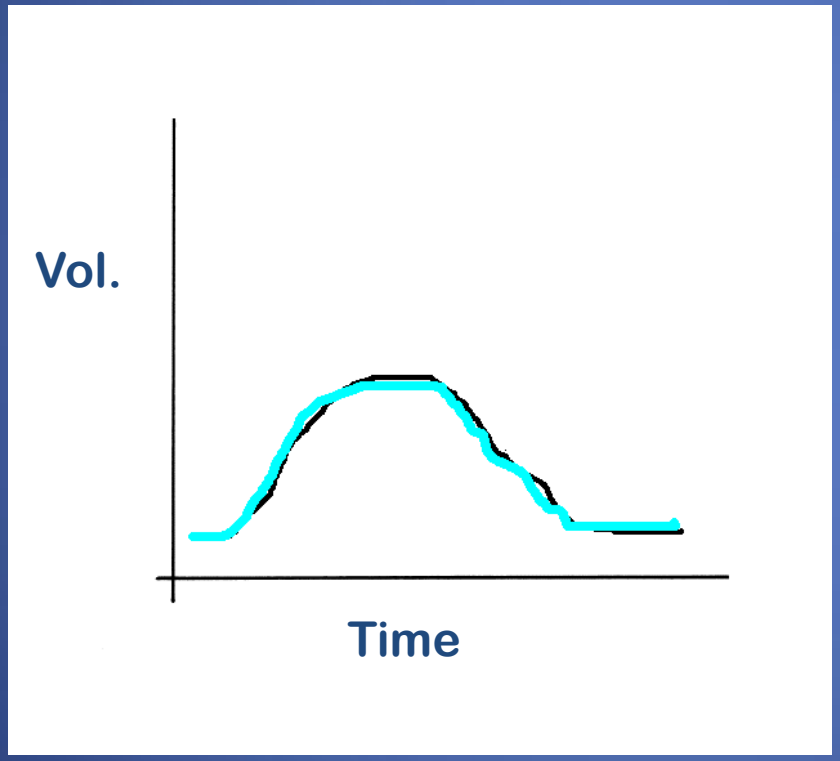
- Lengthens the Peak

Water Quality Protection



- Chesapeake Bay Requirements
- Designed to catch maximum pollutant load

Comprehensive Stormwater Management



- Infiltrates/Filters water
- Detention
- Lowers the Peak
- Increases Base Flow (perhaps)

So, now we know the problem – How do we manage stormwater?

- Clean Water Act 1972
- Chesapeake Bay Agreement in 1987
- Alexandria's Ordinance set up performance criteria (required BMPs – water cleansing devices or water cleansing practices) in 1992, 2004, with minor changes in 2006

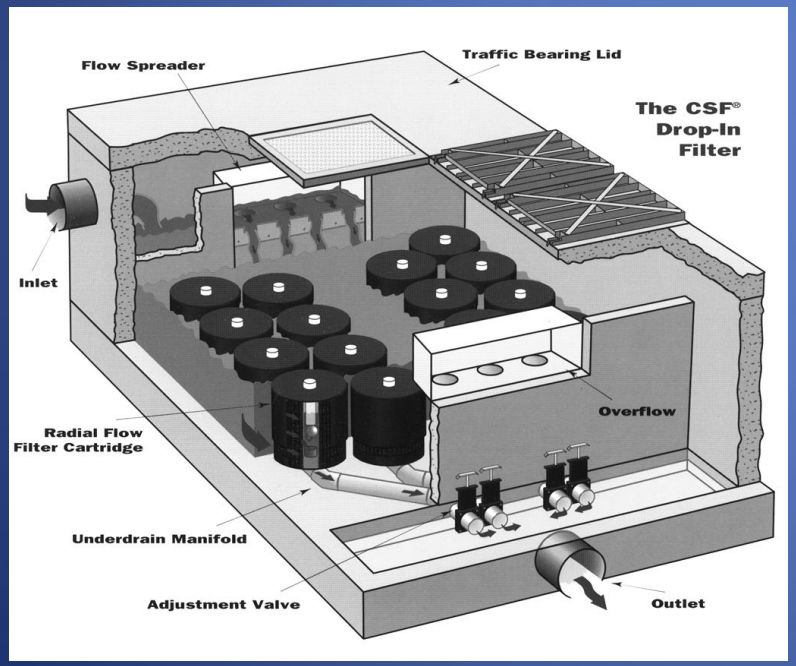
What is a Best Management Practice?

- Schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the discharge of pollutants to waters of the United States.

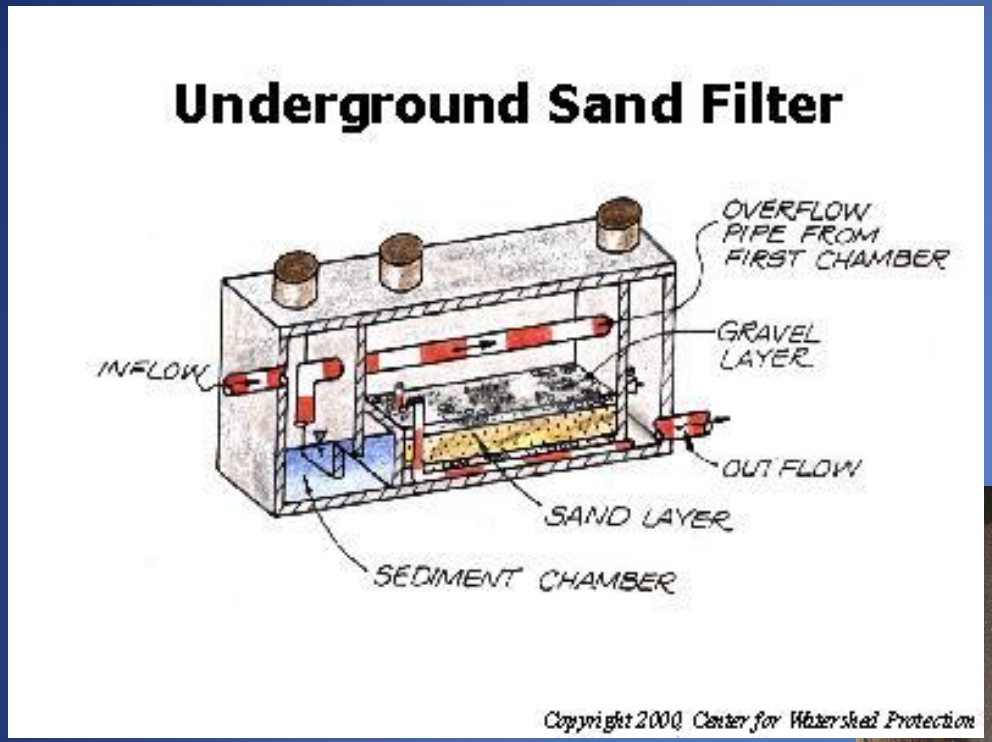
- BMPs also include treatment requirements, operating procedures, and practice to control plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage.

Most BMPs in Alexandria are Ultra-Urban – underground

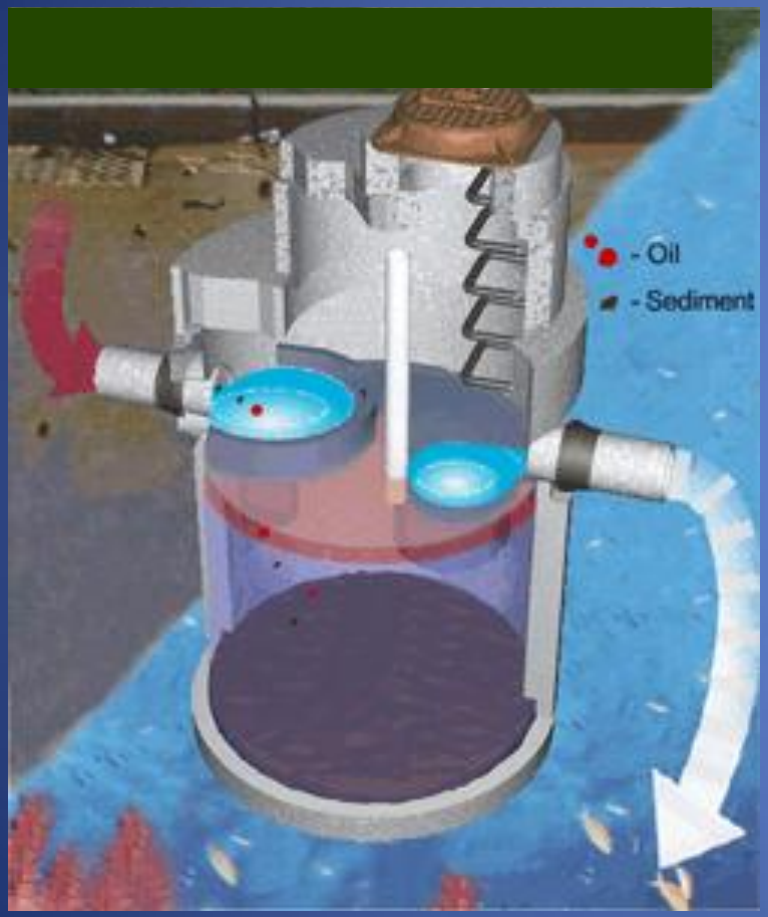
(these are proprietary devices and not specifically endorsed by the City of Alexandria)



Sand Filter


Underground Sand Filter
OVERFLOW PIPE FROM FIRST CHAMBER
GRAVEL LAYER
INFLOW
OUT FLOW
SAND LAYER
SEDIMENT CHAMBER
Copyright 2000 Center for Watershed Protection

Hydrodynamic devices

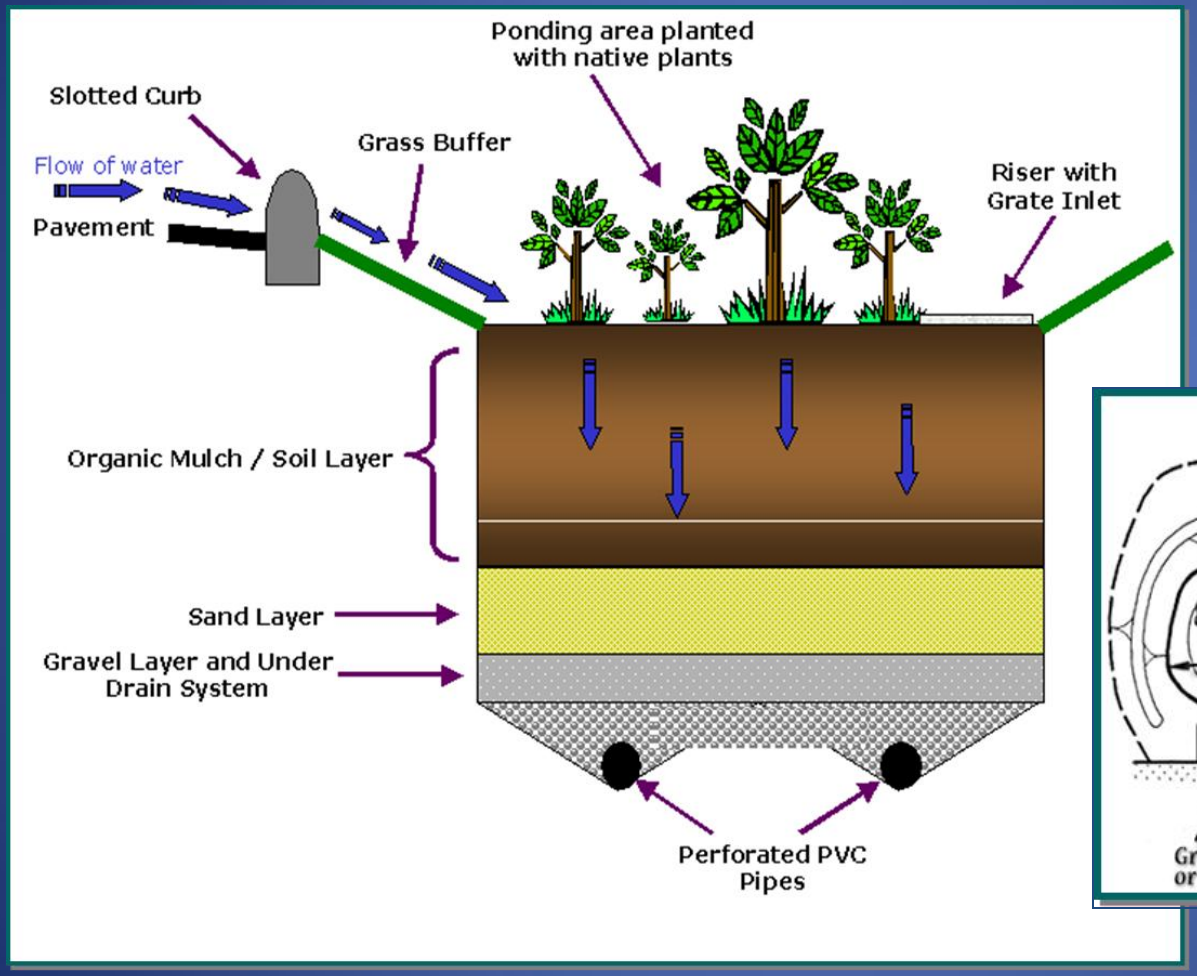


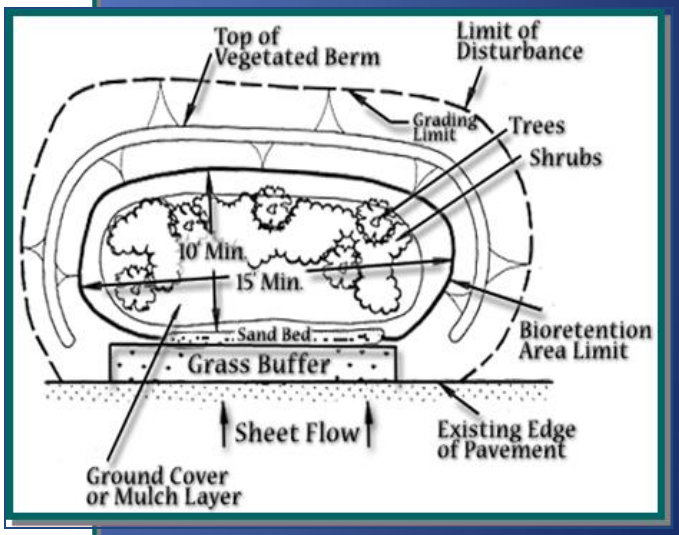
What is a Bioretention Area?

- Bioretention is a practice that uses the physical, chemical, and biological properties and processes of plants, soil, and microbes to remove pollution from stormwater runoff. Bioretention areas are vegetated depressions constructed on developed sites to catch and clean stormwater runoff.

- Bioretention areas also help create small pocket habitat areas that support wildlife (birds, amphibians, insects, and small mammals) as well as aesthetically pleasing landscaped areas.

What is the design concept?





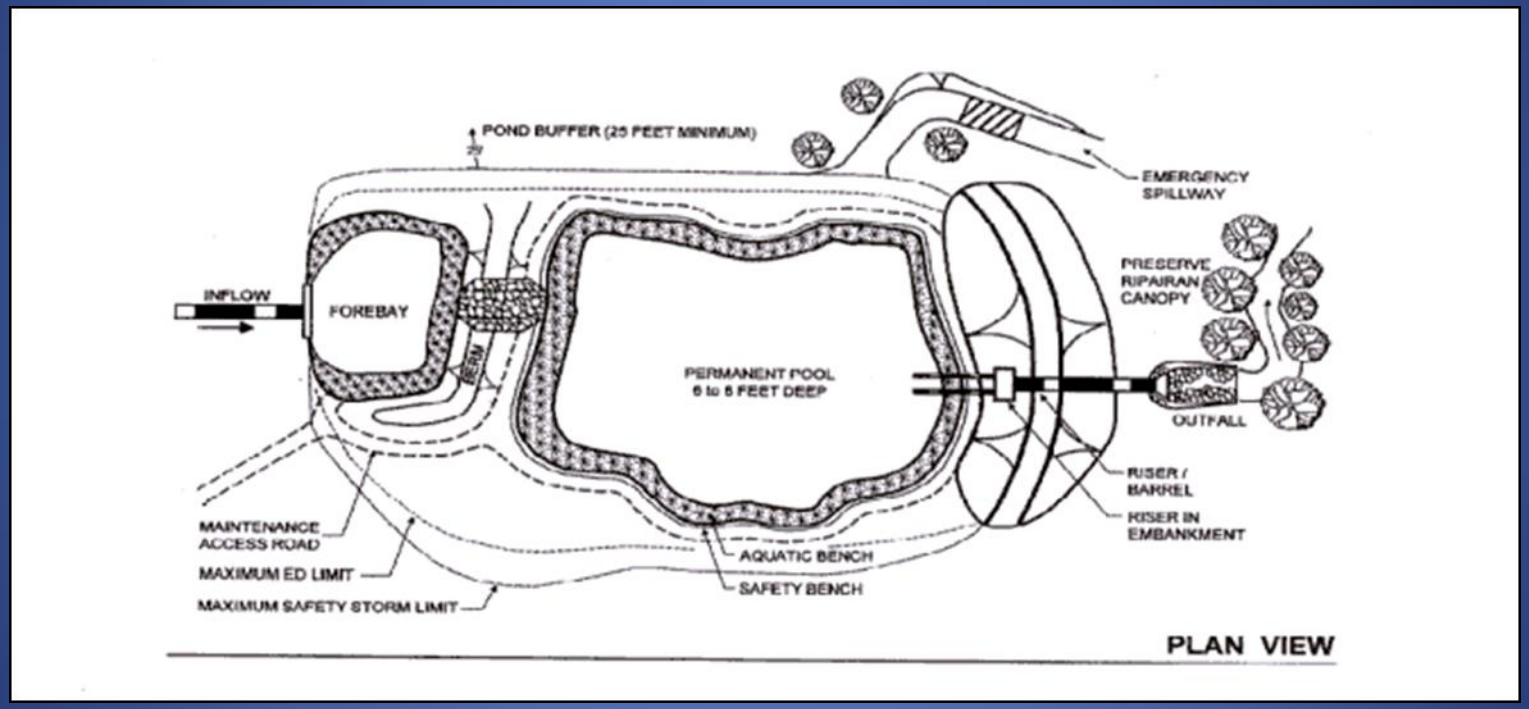
Beatley Library

Beatley Library

What is a Stormwater Pond?

Wet detention ponds maintain a permanent pool of water in addition to temporarily detaining stormwater. These ponds fill with stormwater and release most of it over a period of a few days, slowly returning to its normal depth of water. The permanent pool of water enhances the removal of many pollutants.

What is the design concept?



Forebay

Located near the main inlet and serves to trap coarse sediment before the water gets into the main ponding area. Note the trash rack to capture larger floating debris

Extended Detention Pond

The main pond is an area of extended detention that provides for gradual release of stormwater runoff generated from impervious surfaces. The pond acts to increase settling of pollutants and protects downstream channels from the flashiness of frequent storm events.

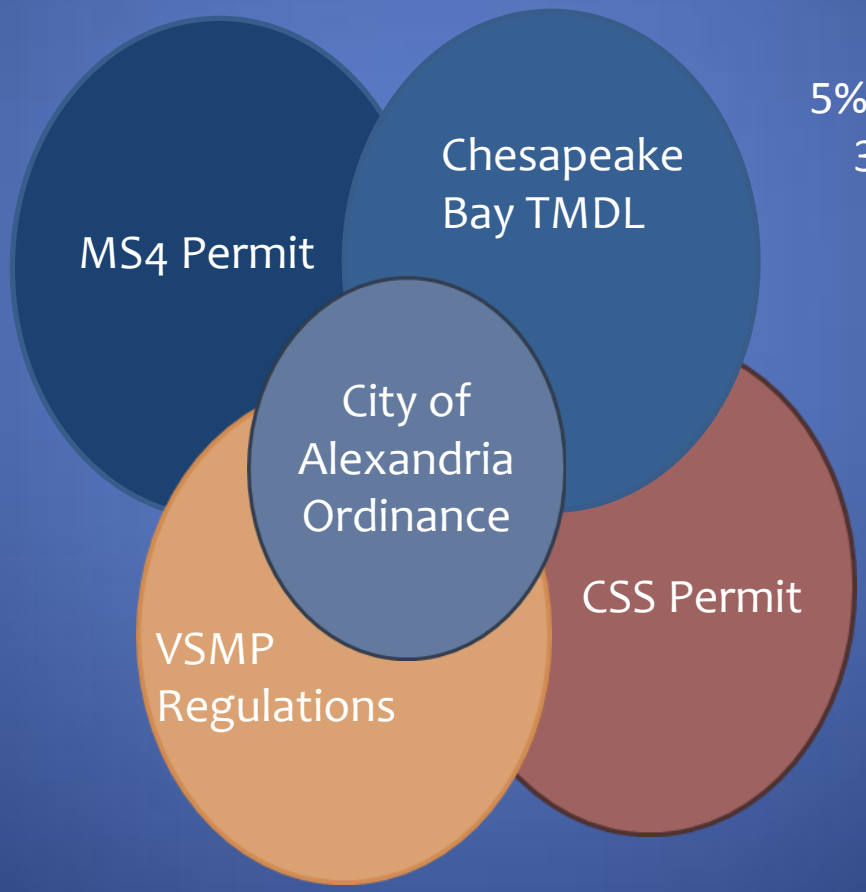
Vegetated Buffers

Provide water quality benefits, nuisance bird control and protection against inadvertent entry (child control).

Upflow Filter

Cool bottom water flows up and through the filter media utilizing the difference in water elevations to "push" the water through the filter. This design provides good pollutant removal while requiring less maintenance versus a traditional down flow filter. It also serves to protect aquatic life in the receiving stream by delivering cooler water preventing thermal shock.

New Requirements facing the City of Alexandria



5% 2018
35% 2023
Remaining 60% 2028

Cost = $75-$150 M

Change the Ordinance to:

- Comply with the State VSMP regulations
- Aide in reaching Chesapeake Bay TMDL objectives
- Aide in complying with MS4 Permit
- Aide in complying with CSS Permit

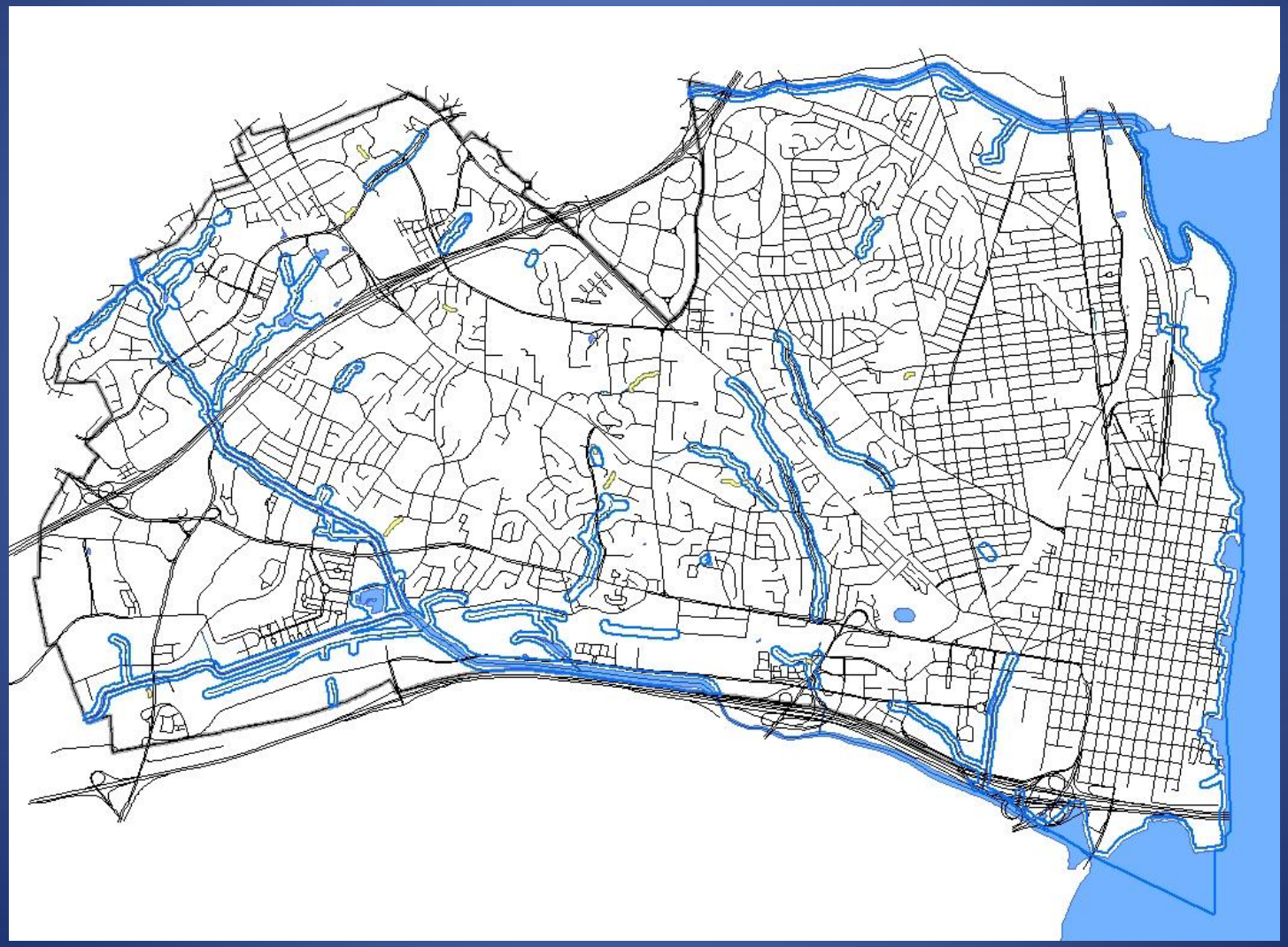
Environmental Management Ordinance

- Waterwise, how is the City organized?

Urban Land Organized by:

- City has Resource Protection Areas(RPA) and Resource Management Areas (RMA).
- Development is constrained in RPA to water dependent uses.
- Water quality and quantity improvements are generally required in RMAs.

RPA, RMA, Intermittent Stream



What is Presently Required?

Environmental Management Ordinance

- Redevelopment within RPAs is permitted only in the existing impervious footprint
- Some exceptions for developments platted and constructed before 1989
- Water quality and quantity improvements are generally required in RMAs
- Intermittent stream protection (RPA of 50 feet)

What is the Present Performance Criteria?

Environmental Management Ordinance

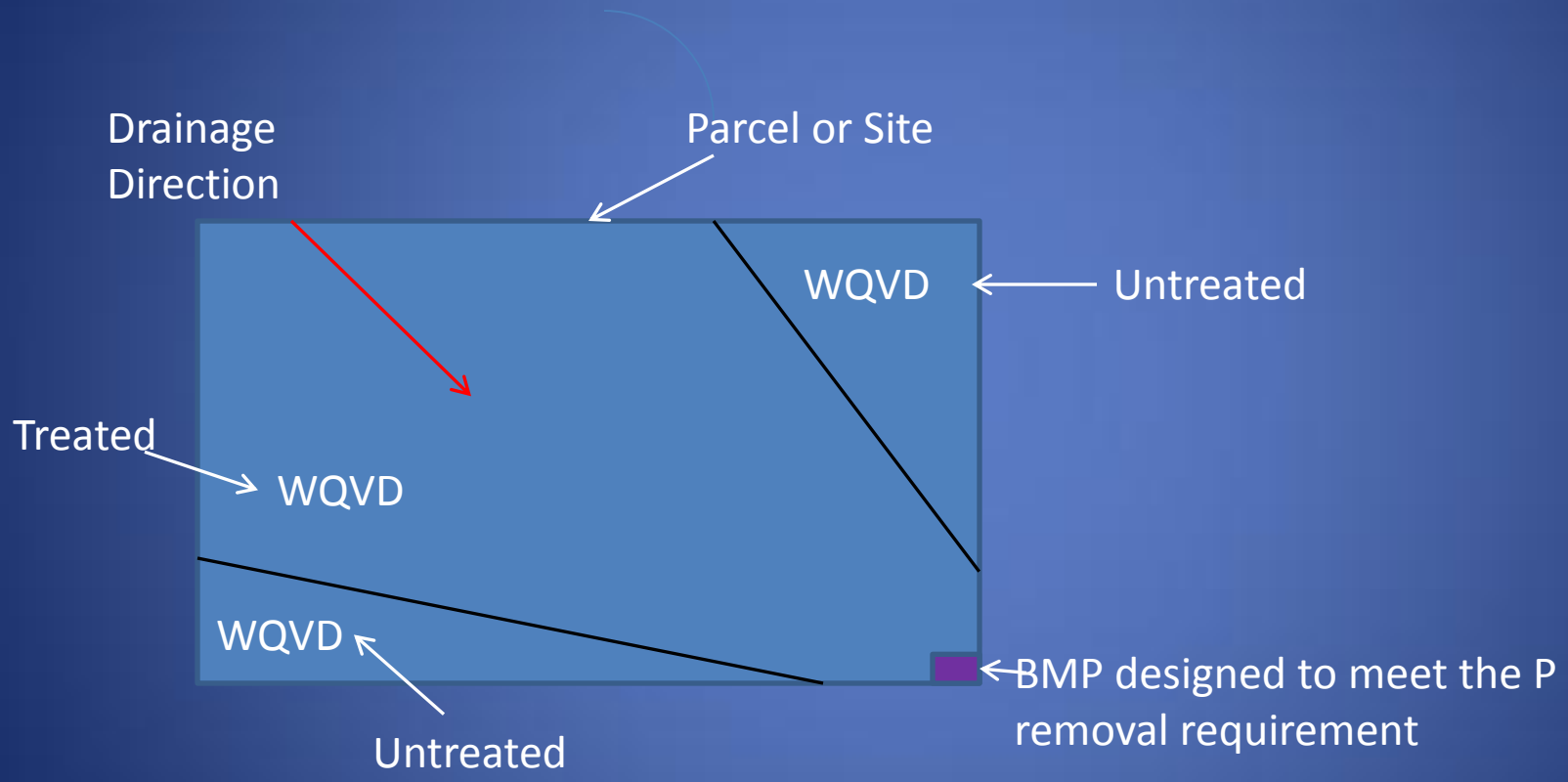
- 10% P removal from existing condition
- Peak flows shall be the same or less than the existing conditions
- WQVD treated with BMP of choice

What is the Alexandria WQVD?

Environmental Management Ordinance

- Alexandria Water Quality Volume Default (treat the first ½ inch of runoff from all impervious surfaces through a BMP – over and above meeting the P removal requirement
- Options for compliance including a Fee In Lieu

What is the Alexandria WQVD?



New Performance Criteria that the State Mandates

- Redevelopment changes from 10 to 20% reduction for land disturbance larger than 1 acre (10% for land disturbance less than 1 acre)
- New development that maintains no net loss (0.41 lb P/ac) – present requirement is 0.9 lbs P/ac.
- Compliance methodologies encourage Runoff Reduction, Environmental Site Design, LID techniques, and treatment of 1 inch of rainfall (presently ½ inch)

Areas where the City would like to continue to be more stringent

- Maintain Water Quality Volume Default requirement
  - Helps assure no backsliding
  - P removal credits will accrue to the City to meet the TMDL load reduction requirements
- Continue protection of Natural Intermittent Streams

WQVD requirement maintained for the first ½ inch of volume

- No change from existing Ordinance.
- In a built-out community most development will be through redevelopment. Without this additional incremental load reduction we will lose the opportunity to treat existing impervious area when it is being redeveloped
- Additional burden is borne by the developer during redevelopment rather than the city attempting to retrofit the area. The engineering of this is more efficient and cost effective
- Provides additional revenue for water quality improvements elsewhere when Fee In Lieu is employed

Natural Intermittent Stream

Already protected in the present ordinance

- Any natural or engineered channel that has water flowing during certain times of the year (key is groundwater flow vs. Rainfall runoff)
- Protect with a 50 foot resource protection area (buffer).
- Development within that 50 foot RPA is limited similar to the 100 foot RPA

Based on feedback, areas where the City would like to adjust to our community's needs

- Site (disturbed area) vs. Parcel
- Single Family Residential

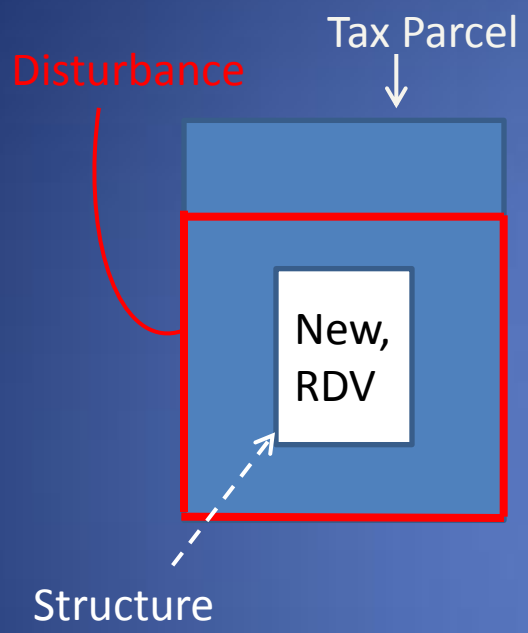
The City should use the impervious area within the site (disturbed area) or legal tax/zoning parcel in computing the pollution reduction requirements

Current City ordinance uses tax parcel, new state regulations use site (disturbed area).

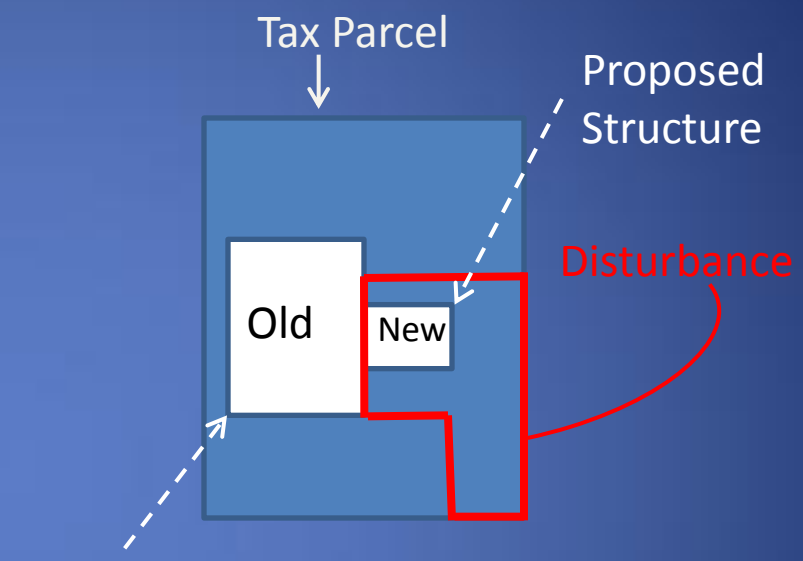
Site (disturbed area) with a trigger of greater than 50% disturbance requiring tax/zoning parcel to be treated

- Addresses larger parcels with small areas of disturbance
- Addresses SFR parcels
- Slight relaxation of our existing rules
- Easier to apply and more objective, fair

Tax Parcel vs. Site (disturbed area)



Parcel:
Disturbance is more than 50% of the lot



Site (disturbed area):
Disturbances is less than 50% of the lot size

If several parcels make up a single development (zoning parcel) all the parcels together are considered the parcel.

Single Family Residential (SFR) shall be exempt from BMP requirements yet subject to the WQVD requirement. If the applicant wishes to pay the full fee that is acceptable.

This benefits the Homeowners:

- Not quite as stringent for SF homeowners
- Difficult for homeowners to maintain BMPs with rapid home turnovers
- Greater flexibility in compliance options

This benefits the City:

- Inspection and enforcement becomes less burdensome to City
- Additional revenue for the City to generate a more efficient and effective BMP elsewhere

Quantity

- Quantity is as per the state requirements. No change.

Flooding

- Allow the City to opt out of detention in areas where it is advisable to remove stormwater before upstream flows reach the area.
- Capacity analysis whether the area is presently flooding or not.

Next Steps

- More Community Outreach
  - Nov. 20 Development Coordinating Committee
  - Dec. 2 Federation of Civic Associations
- Comments submitted to OEQ by Dec. 2
- Submit Ordinance to DEQ by Dec. 13
- Planning Commission January or February
- City Council February or March

Thank You

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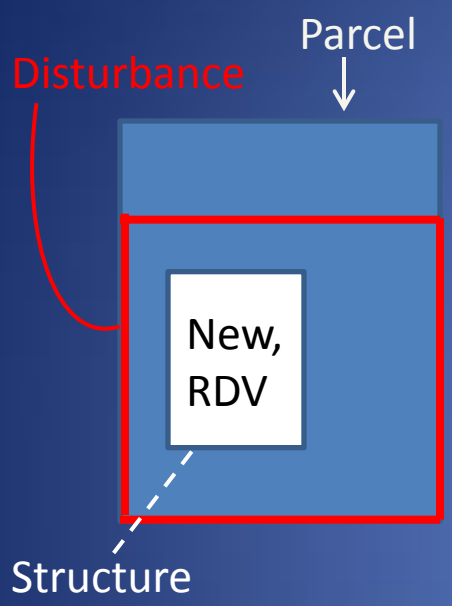
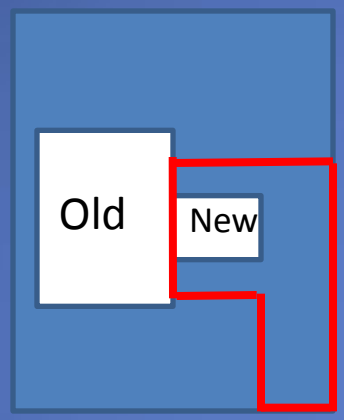
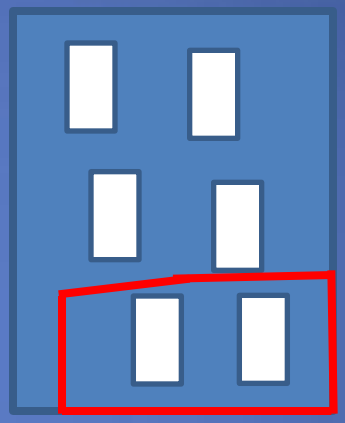
Grandfathering

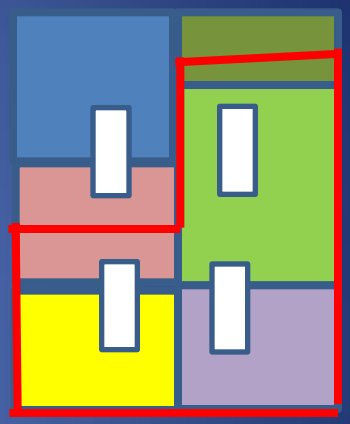
Preliminary Plan Submitted	VSMP Obtained	Grandfathered Until
Before July 1, 2012	Before July 1, 2014	2024
July 1, 2012 – June 30, 2014	Before July 1, 2014	2024
Before July 1, 2012	On or After July 1, 2014	2019
July 1, 2012 – June 30, 2014	On or After July 1, 2014	?

Parcel vs. Site









Parcel:
Disturbance is more than 50% of the lot

Site:
Disturbances is less than 50% of the lot size

Site:
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