

Loudoun County, Virginia _____



**Potomac River Basin Drinking Water
Source Water Protection Partnership**

June 1, 2006

Loudoun County, Virginia

Water Resources Management Program

Wm. Kelly Baty

Department of Building and Development



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- ♦ **Water Resources Monitoring**
 - ♦ **Watershed Planning**
 - ♦ **Low Impact Development**
 - ♦ **Streams and Wetlands**
 - ♦ **Erosion & Sediment Control**
 - ♦ **Stormwater Management**
 - ♦ **Other Related Activities**



Water Resources Monitoring

TYPES OF DATA COLLECTED OR INCORPORATED -

- ◆ **Precipitation/Rainfall**
- ◆ **Stream Stage & Discharge**
- ◆ **Stream Water Quality**
- ◆ **Groundwater Level**
- ◆ **Groundwater Quality**
- ◆ **Stream Assessment**
- ◆ **Biological Stream Monitoring**





Water Resources Monitoring

DATA SOURCES:

- ♦ Loudoun County Depts. of Building & Development, General Services, and Planning
- ♦ U. S. Geological Survey, U.S. EPA, and the U.S. Army Corps of Engineers
- ♦ National Weather Service
- ♦ Environmental Health permitting records
- ♦ Hydrogeologic studies
- ♦ Virginia DEQ
- ♦ Metro Wash. Council of Governments (COG)
- ♦ Volunteer organizations—Loudoun Watershed Watch, et. al.



Water Resources Monitoring

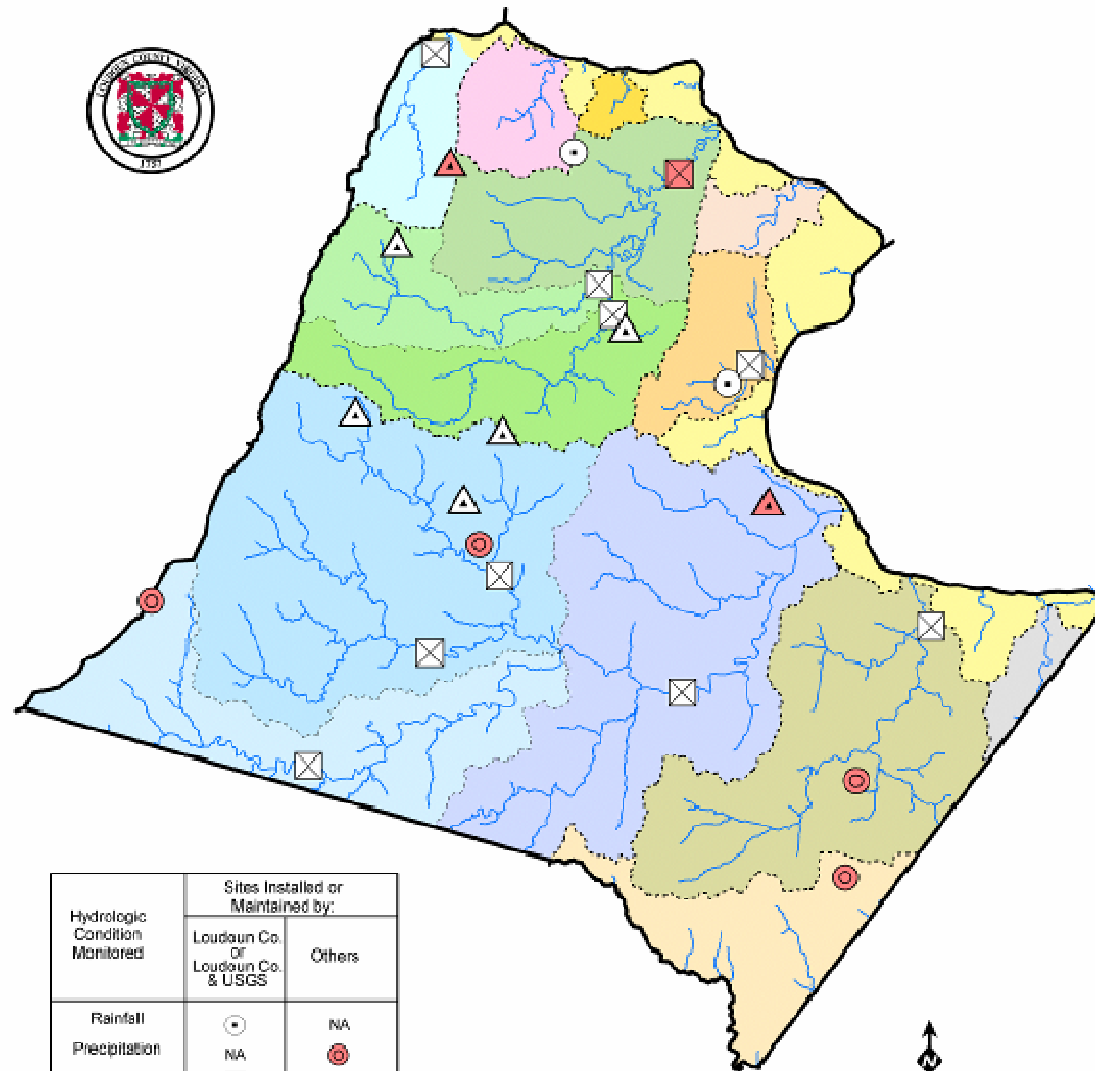
Status of Major Program Components

PROGRAM COMPONENT

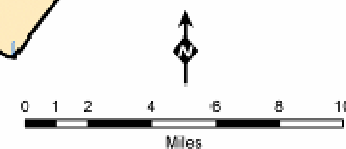
STATUS

- | | |
|----------------------------|----------------------------|
| ♦ Precipitation Monitoring | 7 sites |
| ♦ Stream Gaging | All (10) sites established |
| ♦ Groundwater Monitoring | 8 of ~25 wells established |
| ♦ Stream Assessments | Primarily FY07 – FY08 |
| ♦ Data Management | On-going |
| ♦ Data Analyses | Primarily FY07 and on |

Selected Hydrologic Monitoring Sites Loudoun County, VA (2005)



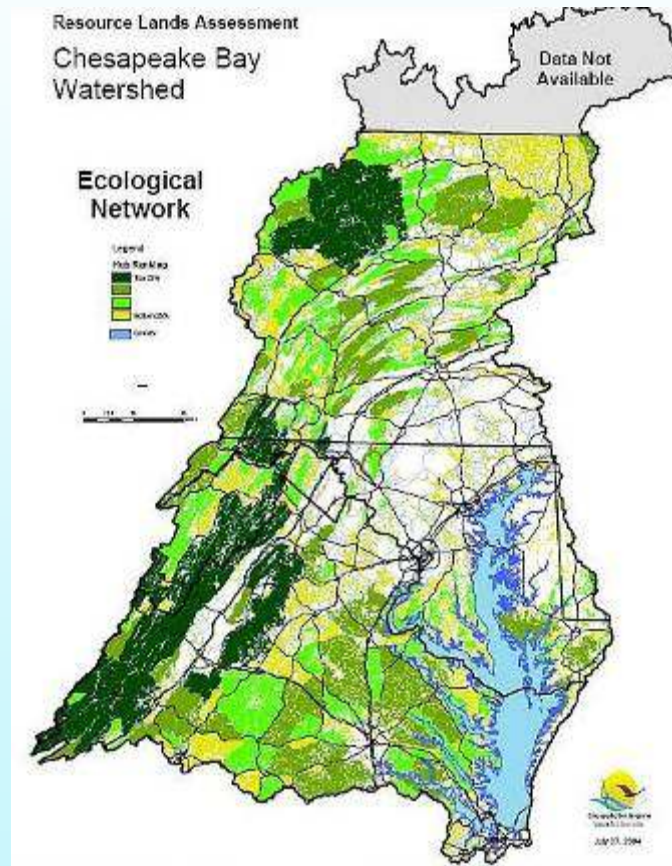
Hydrologic Condition Monitored	Sites Installed or Maintained by:	
	Loudoun Co. Or Loudoun Co. & USGS	Others
Rainfall	●	NA
Precipitation	NA	●
Stream Flow	☒	☒
Groundwater Lvl.	☒	☒
~~~~~ Watershed Divide		



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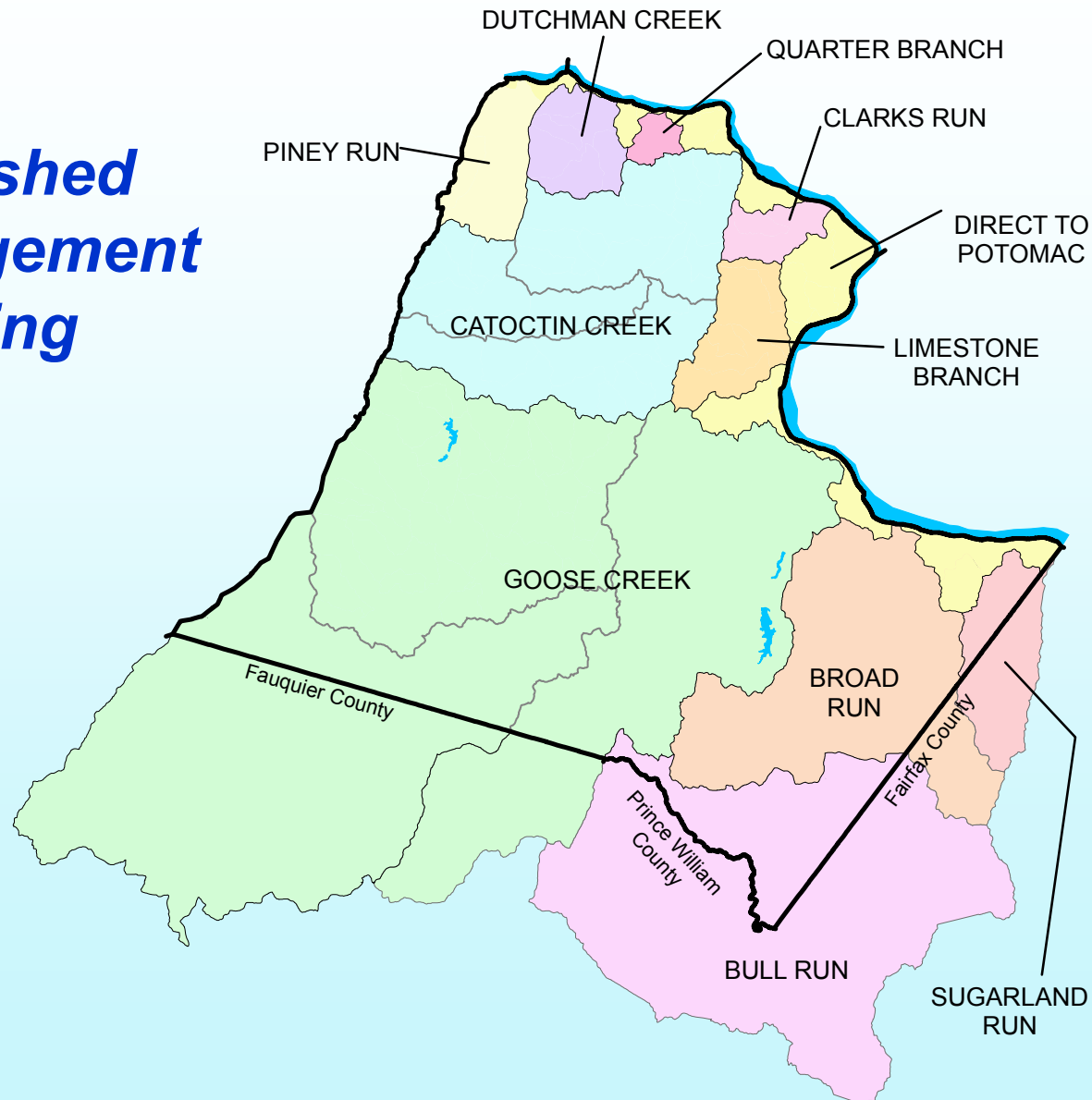
## Watershed Management Planning and the Region



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## ***Local Watershed Management Planning***







## ***Watershed Management Planning***

### **Phase 1 – Strategic Plan**

**Strategic Watershed Management Solutions  
(SWMS) Stakeholders Team Meetings to Form  
SWMS Steering Committee Feb. through June 2006**

- **Inventory and Integrate Local and Regional On-Going Water Resource Management Strategies, e.g., LID, Wetlands Model, VA DCR -E&S Controls and SWM Upgrades, DEQ Water Supply Planning, etc.**

### **Phase 2 – Comprehensive Management Plan Consultant to Complete FY 2007**

### **Phase 3 – Implementation**



## ***Low Impact Development (LID)***

***-LID defined – A planning and design approach that minimizes impervious percentage of site, preserves forest cover and permeable soils, engineers site to maintain existing rates and volumes of storm runoff, and minimizes the need for stormwater ponds.***

### ***County policy encourages LID measures***

**Facilities Standards Manual references “LID Design Strategies” from Prince Georges County, MD as an acceptable stormwater management design method**

**Goose Creek Source Water Protection Strategy from LCSA recommends infiltration and non-structural measures and discourages large dry ponds**

***Ponds remain an essential stormwater design component***

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## ***Streams & Wetlands***



## **Wetlands Model**

- ✓ **Created Eastern Wetlands Model**
- ✓ **When compared to actual wetland delineations, the model overestimates the presence of wetlands by 6% and underestimates an average of 2%**
- ✓ **Working to develop Western Wetlands Model**
- ✓ **Model is a good predictive tool for the likely presence of jurisdictional wetlands on a parcel of land**



## ***Streams & Wetlands***

### **Wetland & Stream Mitigation Banks**

- ✓ **Loudoun County Wetlands Bank, WSSI, approximately 10 credits located along Big Branch at Courtland Farm, approved on December 7, 2005.**
- ✓ **Howser's Branch Mitigation Bank, Marsh Resources, approximately 20 wetland credits and Stream credits (TBD), located on Howser's Branch east of Gilbert's Corner.**
- ✓ **Staff has been notified of a pending submission by Angler Environmental for a project-specific stream and wetland mitigation plan to mitigate impacts in Fairfax and Prince William Counties within Loudoun.**
- ✓ **Staff is working to streamline the Mitigation Bank Review process to encourage additional projects within the County.**







## ***Erosion and Sediment Control***

### **STRUCTURE –**

- ♦ Program Manager    ♦ 2 Assistant Program Managers
  - ♦ 16 Inspectors       ♦ 2 Administrative support staff
- (1998 – 2 Full Time Inspectors)

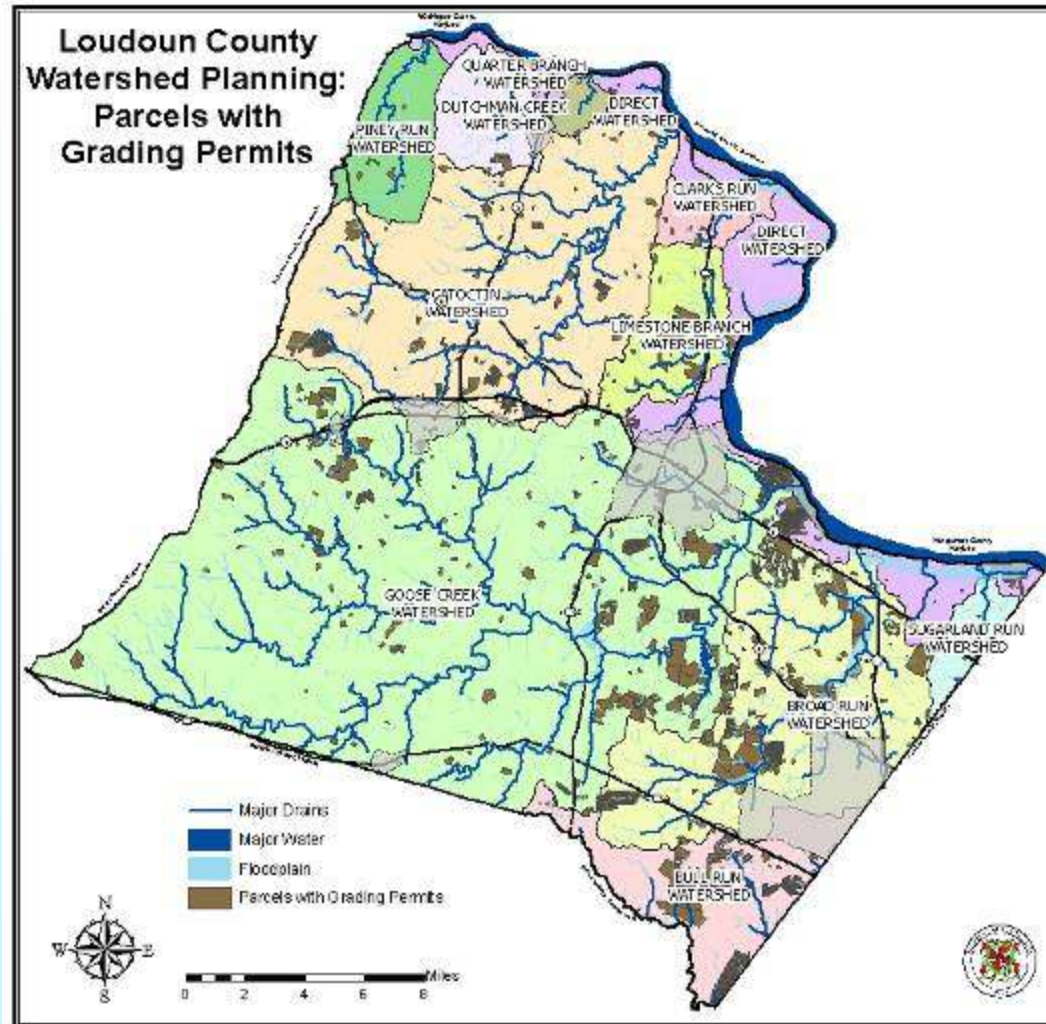
### **RESPONSIBILITIES –**

- ♦ Effectively manage urban land-disturbing activities while ensuring compliance with VESCL Minimum Standards.
- ♦ To responsibly balance needs of the environment with reasonable needs of the development community.

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## ***Erosion and Sediment Control***



## **Stormwater Management**

- *Department of General Services*
  - Oversees implementation of VPDES MS4 permit
  - Manages illicit discharge detection/elimination program
  - Manages stormwater infrastructure survey data collection; custodian for data
  - Based on BOS resolution, manages stormwater infrastructure maintenance and repair
  - Addresses stormwater complaints for properties off bond
  - Initiates on-going stormwater strategic planning process

## **Stormwater Management**

- ***Department of Building and Development***
  - **Manages County Erosion & Sediment Control program**
  - **Manages County Floodplain Management Program (NFIP)**
  - **Addresses stormwater complaints for bonded projects**
  - **Provides other development review-related inspection and management services**
  - **Manages the County's telephone complaint line**



## **Stormwater Management**

- *Department of Planning*
  - Policy arm of building and development guidelines in the County
  - Serves a role on County development review team for compliance with County zoning ordinance and Revised General Plan consistency
    - Rezoning application review
    - Special exceptions review
  - County repository for demographic data

## **Stormwater Management**

- ***Loudoun County Sanitation Authority***
  - **Manages stream assessments for water supply watersheds**
  - **Performs infiltration and inflow investigations (I&I) on sanitary sewer lines**
  - **Manages a fleet of sanitary sewer equipment**
  - **Limited service area in the County**

## **Stormwater Management**

- ***Loudoun County Soil & Water Conservation District***
  - **Active in public education and outreach on stormwater topics**
    - **Drain stenciling projects around the County**
  - **Working relationships with County's agricultural community (TMDLs)**
  - **Administers CREP, Ag BMP cost-share programs**

## **Stormwater Management**

- ***Health Department***
  - **Jurisdiction over water-related health concerns**
    - **Mosquito control (can be related to standing water)**
    - **Well and septic regulations**
    - **Failing septic systems, relation to surface and ground water resources**



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## ***Other Related Activities***

- **VA DEQ Water Supply Planning Compliance**
- **Environmental Review Team**
- **Review of development applications for stormwater management/drainage design**
- **Review of Floodplain Studies and Alterations**
- **Review of hydrogeologic studies (*with Health Dept.*)**