



Slides for

**BIRD RIVER SMALL
WATERSHED ACTION
PLAN (SWAP)**

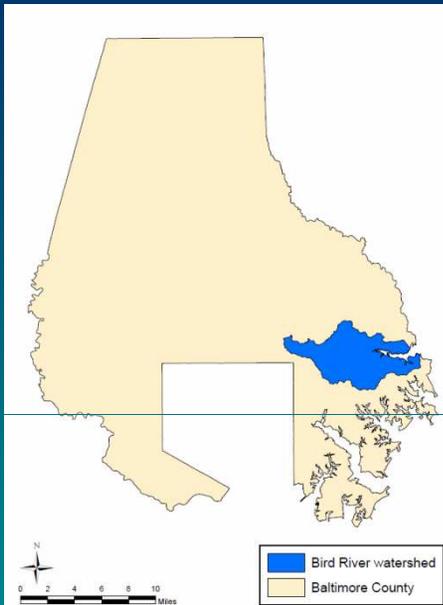
COMMUNITY MEETING #1

June 24, 2013

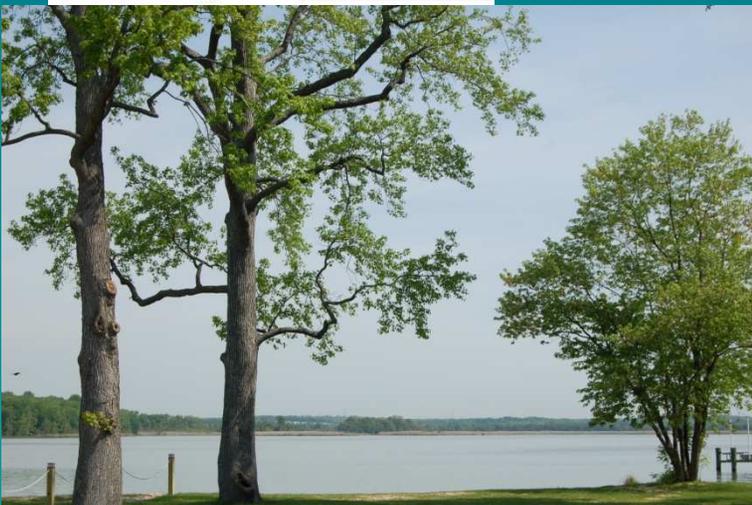




Overview: Conditions in the Bird River Watershed

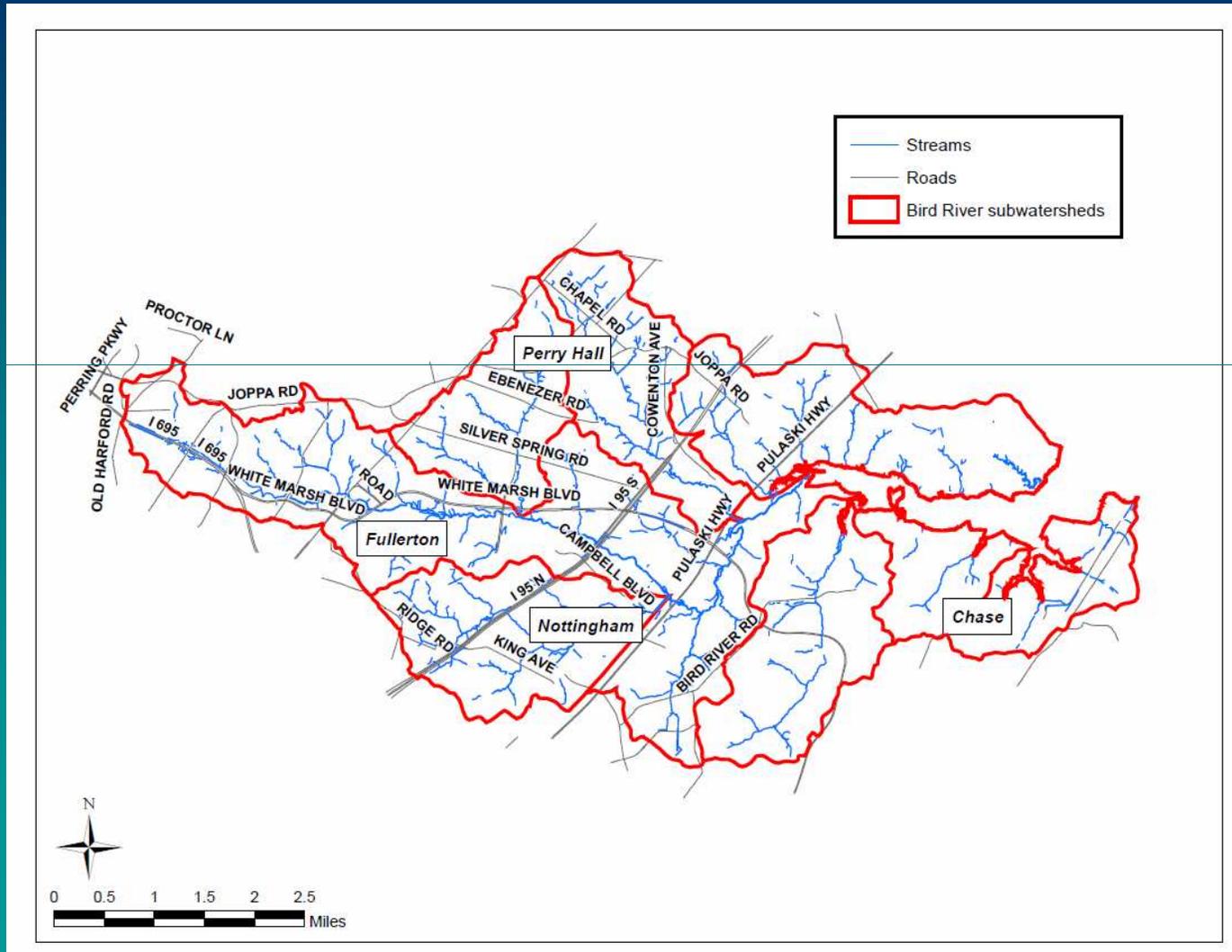


- 26 square miles
- Est. population: 60,895
- Includes White Marsh and portions of Perry Hall, Fullerton, Nottingham, Chase
- Major transportation corridors: I-95, Rts. 40, 43



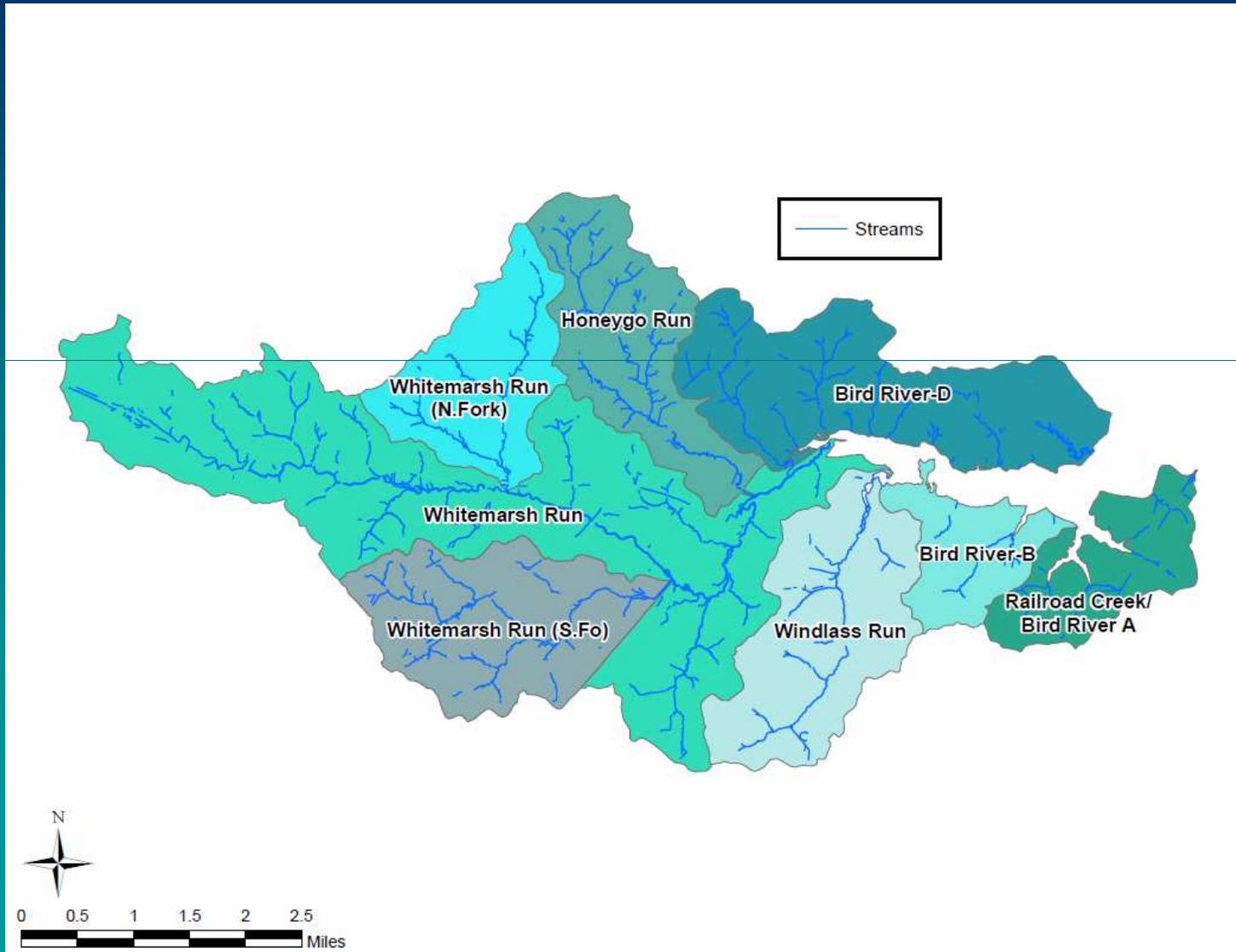


Bird River: Communities and Major Roads





Bird River: Subwatersheds



LOWER PATAPSCO SMALL WATERSHED ACTION PLAN (SWAP) STAKEHOLDER MEETING #1 • MAY 24, 2011



A Tour of Bird River



LOWER PATAPSCO SMALL WATERSHED ACTION PLAN (SWAP)
STAKEHOLDER MEETING #1 • MAY 24, 2011



A Tour of Bird River: A Typical Day in the Watershed



LOWER PATAPSCO SMALL WATERSHED ACTION PLAN (SWAP) STAKEHOLDER MEETING #1 • MAY 24, 2011



A Tour of Bird River: A Typical Day





A Tour of Bird River



LOWER PATAPSCO SMALL WATERSHED ACTION PLAN (SWAP)
STAKEHOLDER MEETING #1 • MAY 24, 2011

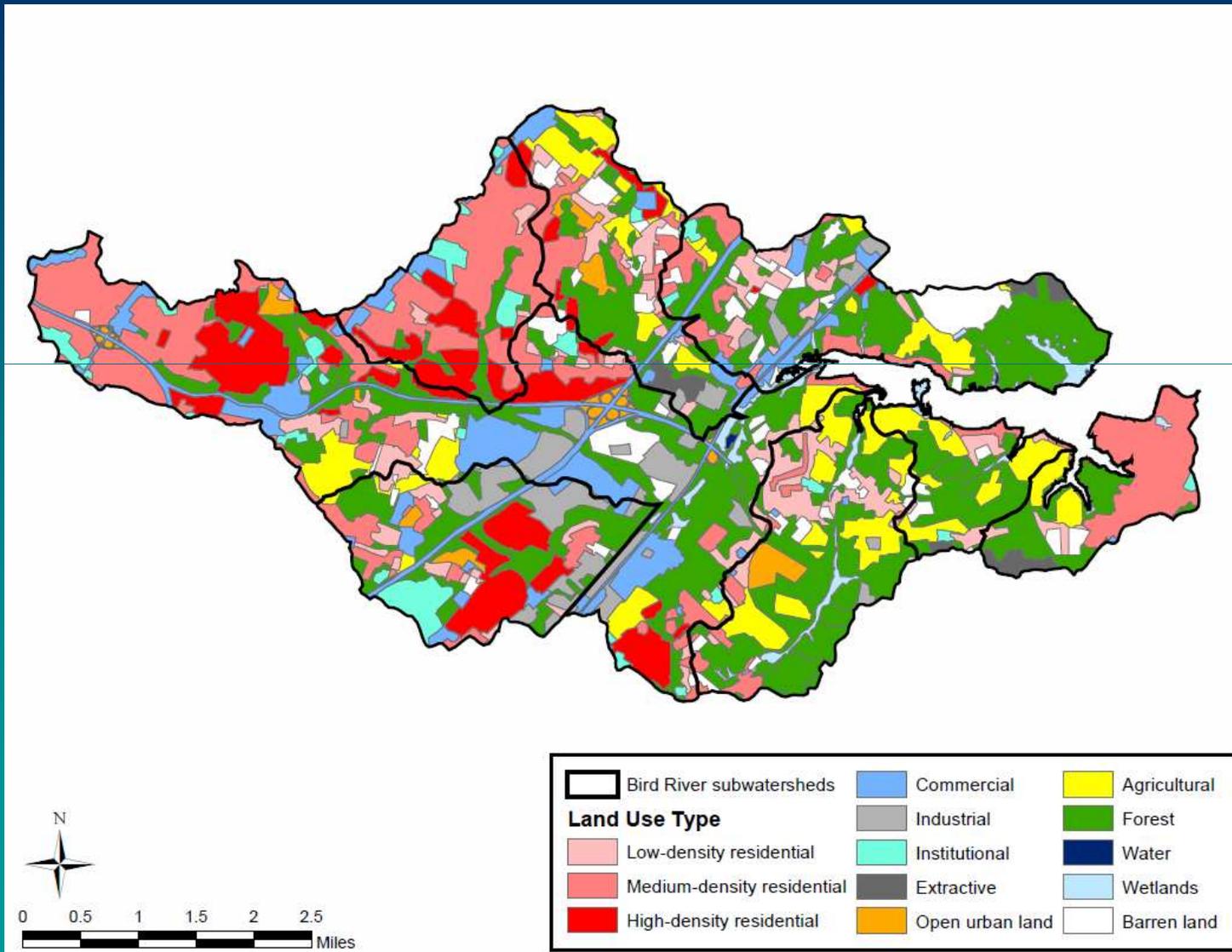


A Tour of Bird River





Bird River: Land Use





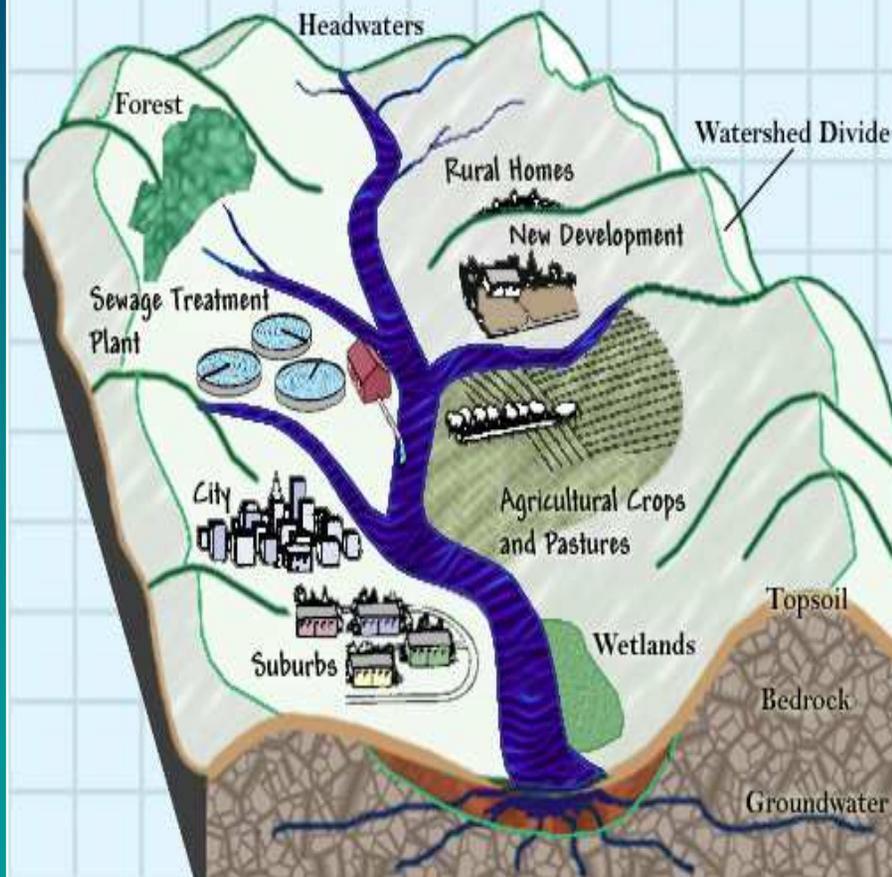
Bird River: Land Uses

Land Use	Acres	% of Watershed Area
Low-density Residential	1182.6	7.2
Medium-density Residential	3210.7	19.6
High-density Residential	1474.4	9.0
Commercial	1116.7	6.8
Industrial	766.0	4.7
Institutional	436.9	2.7
Extractive	158.6	1.0
Transportation	331.6	2.0
Open Urban Land	297.6	1.8
Agricultural	1801.0	11.0
Forest	5061.6	30.8
Water	29.7	0.2
Wetlands	270.7	1.6
Barren	270.2	1.6



Background: How Does the Watershed Affect Bird River and Its Tributary Streams?

The Watershed and Pollution Sources

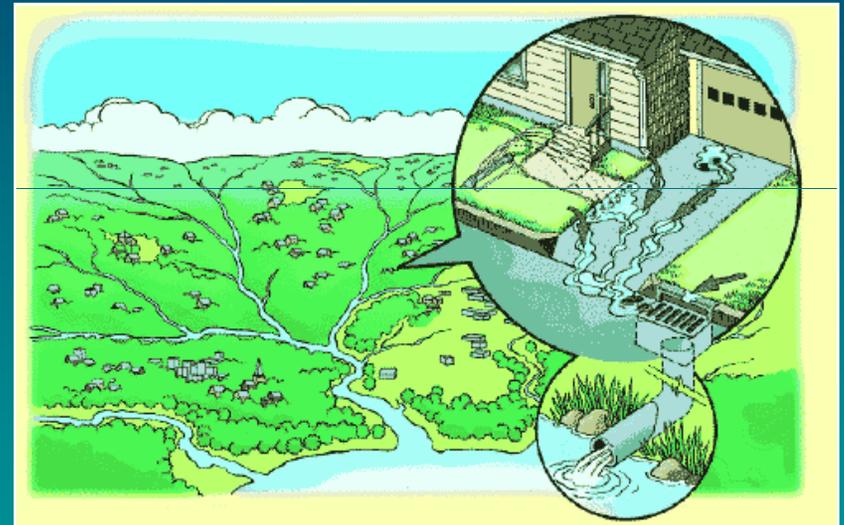


- Land uses in a watershed impact streams
 - **point source pollution** - industrial facilities, landfills, wastewater treatment plants – sometimes from a pipe
 - **nonpoint source pollution** – runoff carried off the land (“**stormwater**”), includes a variety of urban pollutants
 - **Increased force and volume of stormwater** - Urban areas contain more hard (“**impervious**”) surfaces that prevent rain from soaking into the ground



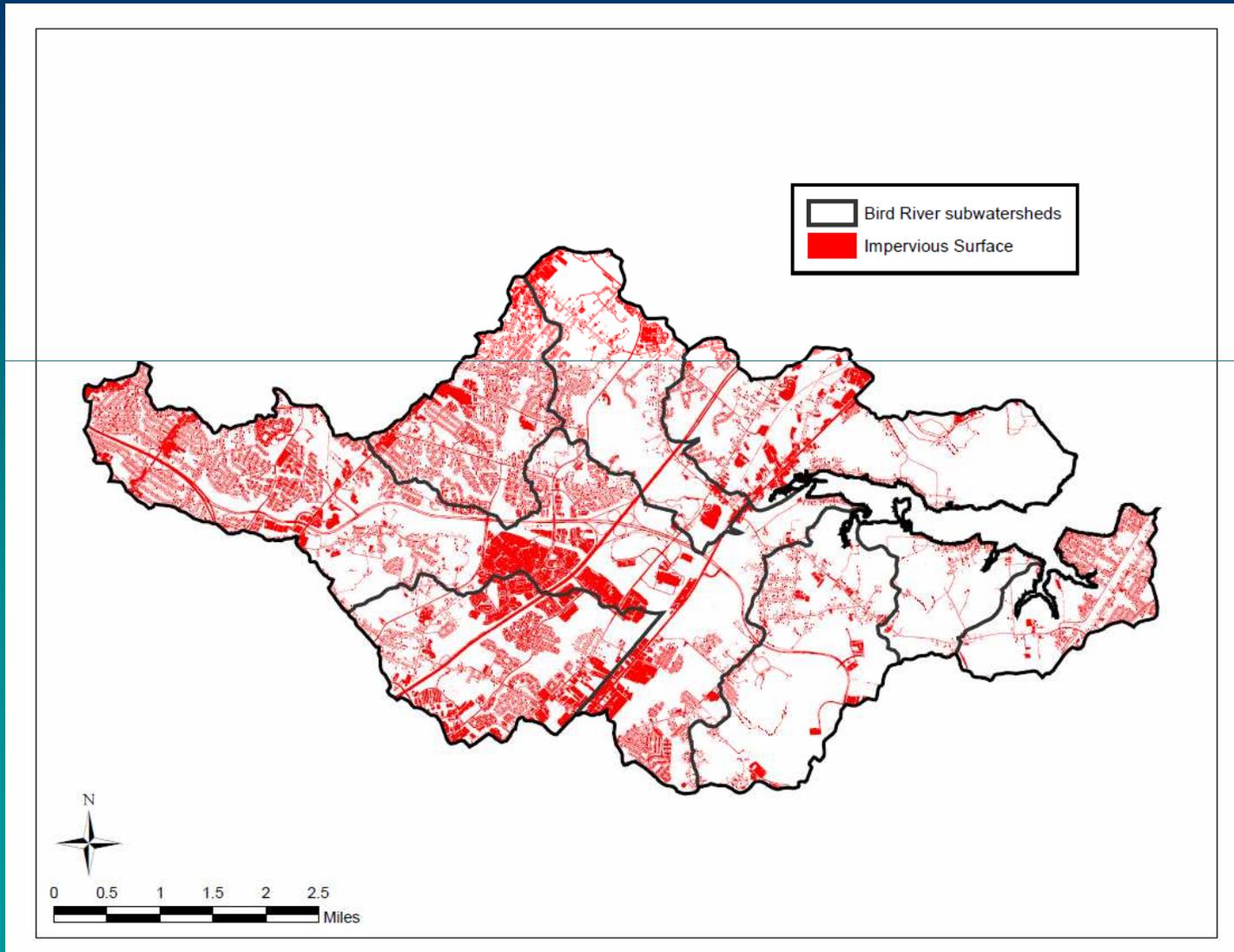
Problems: Stormwater Runoff

- Adding more hard (“*impervious*”) surface to watershed keeps rain from soaking in, causing greater and more rapid runoff
- “**Flashy**” stormflows – water runs off land with more force, higher volume
 - can cause flooding
- Causes streambank erosion and threatens channel stability
 - loss of trees
 - harms fish and other animals
 - degrades water quality and habitat
 - changes the stream hydrology, channel shape
 - can threaten infrastructure
- Older development does not include modern stormwater controls





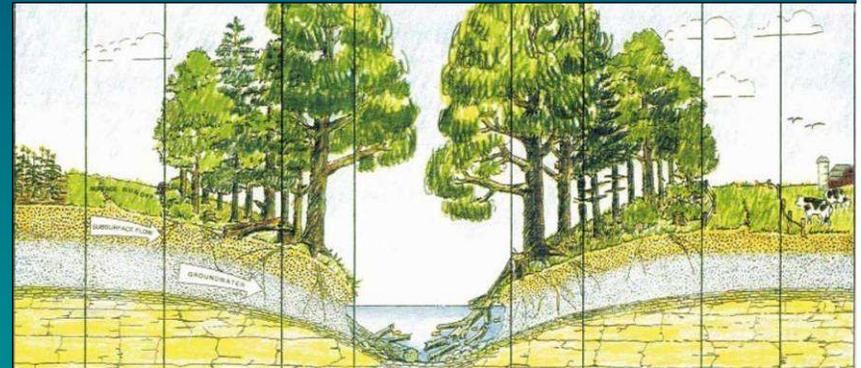
Bird River: Impervious Surface





Problems: Loss of Streamside Vegetation

- Natural forest vegetation along streams (*“Riparian Buffer”*) provides many key functions
 - Acts as buffer to filter pollutants and sediment
 - Provides shade and cover
 - Roots stabilize stream banks
 - Leaves feed aquatic organisms
 - Wood provides habitat
- Loss of riparian buffer common in developed urban/suburban areas





Problems: Water Quality Degradation

- Excess sediment - particularly during storms
- Nutrients
- Toxic pollutants – such as metals, oil and grease, pesticides – runoff from urban areas
- Bacteria



Problems: Excess Nutrients

- Excess nutrient loads to Chesapeake Bay - a major region-wide concern
- Sources of nitrogen and phosphorus include
 - sewage
 - fertilizers
 - animal waste
 - soil erosion
- Too many nutrients, not enough oxygen for fish and other critters



➤ The Bay is on a “Pollution Diet” with limits set by EPA



Problems: Trash in Streams

- Streams sometimes used as dumpsites
- Trash from streets and parking lots is washed into storm drains and flows directly to streams



Example Solutions: Watershed Restoration

- Prevent problems at the source:
 - Improve control of stormwater runoff, with new or upgraded stormwater management facilities
- Restore degraded areas:
 - Improve poor stream conditions





Examples: Types of Stormwater Controls

Traditional Controls



Wet Pond

Innovative Controls



Rain Garden



Dry Detention Pond



Rain Barrel or Cistern



Solutions: Stream Restoration

- Can restore streams that have been impacted by erosion
- Stream restoration and riparian planting can
 - Stabilize banks
 - Reduce sediment and erosion
 - Improve habitat and aesthetics
 - Improve water quality



Individual and Community Actions to Improve Water Quality

Individual Actions

- Bay wise landscaping
- Planting native trees, shrubs, & perennials
- Picking up after pets
- Slowing down the rain: rain barrels & rain gardens
- Practicing greener lifestyles, e.g. composting, natural lawn care (minimizing fertilizer), natural household cleaners, “Low salt” diet for waterways, etc.
- Reducing auto trips



Community Restoration Actions

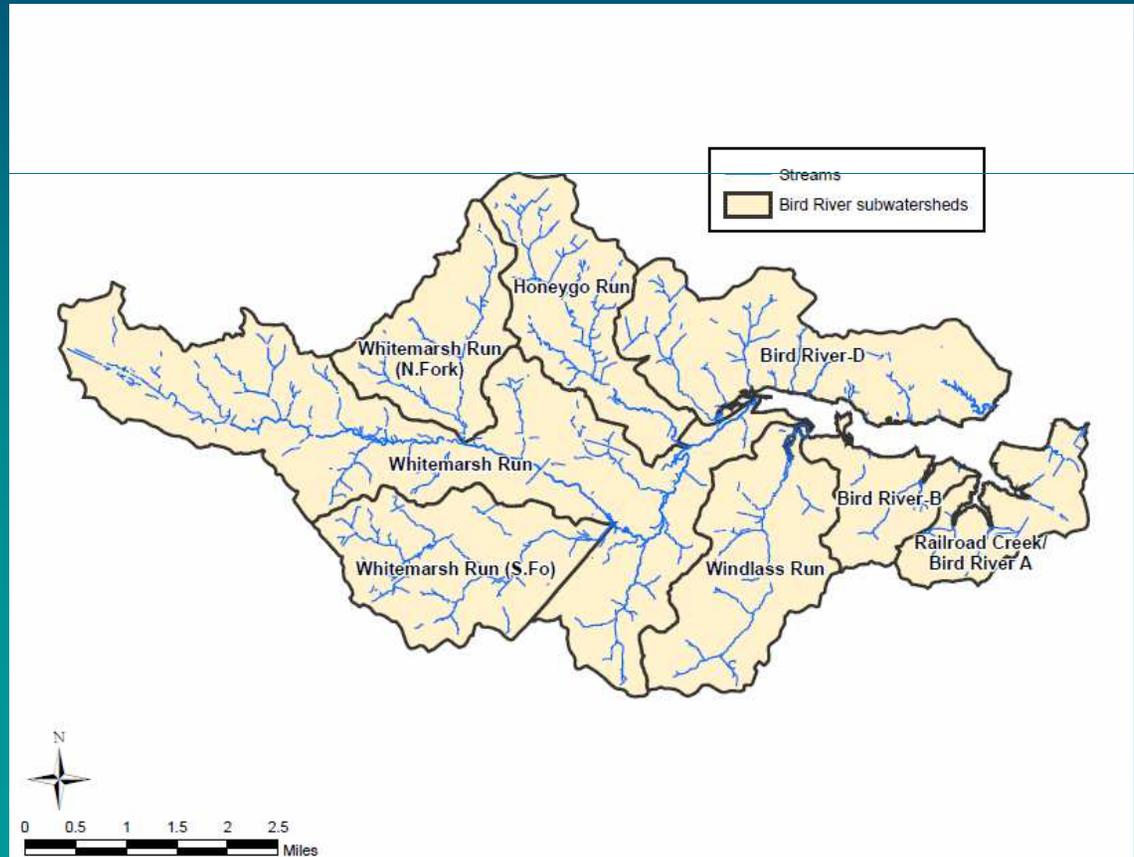
- Stream cleanups
- Creating demonstration rain gardens
- Planting native shrubs, trees or grasses along streams and drainages
- Reducing hard surfaces
- Developing areas to catch and filter water coming from parking lots
- Retrofitting old storm water management structures





Status of the Bird River SWAP Development

- Field Work
- Analysis
- Reports





Field Work Update

- Hotspot Investigations
 - Completed at 20 commercial and industrial sites



Slide 24

MB1

Checking with Alexi to confirm how many he did, scope says 25.

Morgan, Brenda, 6/19/2013



Field Work Update

- Neighborhood Source Assessments
 - “Where are the best opportunities to plant trees or improve stormwater management?”
 - 100 neighborhoods assessed
- Stream Assessments
 - “Where are the best locations for stream restoration?”
 - 15 miles of stream assessed





Field Work Update

- Institutional Site Investigations
 - “Where can we plant trees and improve water management at schools, churches, and parks?”
 - Completed, 40 sites





Field Work Update

- Pervious Area Assessments
 - “Where are the best places to plant trees?”
 - Completed, 25 sites
- Evaluations of Stormwater Management Facilities
 - “Where can we upgrade older facilities?”
 - Completed, 20 sites





Analysis

- Compilation of field results
- GIS mapping
- Water quality data collected by Baltimore County EPS and others



Reports

- Watershed Characterization report
 - will include results of all field, GIS and data analysis to characterize conditions
- SWAP
 - plan will be focused on meeting goals and objectives specific to Bird River
 - will recommend actions for each subwatershed



Schedule and Next Steps

- Review and analyze field data
- Characterization Report
- Ongoing coordination with Steering Committee
- Community meeting in fall 2013 to review findings and recommended actions for SWAP
- Final SWAP Report



Thank you...for your participation!



For further information, contact:

Nathan Forand

Baltimore County Department of
Environmental Protection and
Sustainability

410-887-7695

nforand@baltimorecountymd.gov

www.baltimorecountymd.gov/birdriver