

Implementing Nonpoint Source Reductions at the County Level in Virginia

June 20, 2007

Jack E. Frye

Director, Division of Soil and Water Conservation
Department of Conservation and Recreation

Two Facets

- Good Information
- Viable Approach

GOOD INFORMATION: Review of Phase 5

- DCR staff looking at data inputs and assumptions
- Reviewing model to identify any systematic issues - original goal was to report all these by July 2007
- Initially expected to begin county-by-county review of data in July 2007
- County review was expected to last 6 months
- Hoped to report back to CBP on county meetings by end of 2007

DCR Review of Phase 5

- Want to involve local governments in Phase 5 development:
 - To ensure data is correct
 - To acquaint counties with modeling tool
 - To prevent problems that could result later if they say “I never saw that information”
 - To INVOLVE them

Virginia Locality Review of Phase 5

Possible Methods to Present

- Provide trend lines to show localities land use changes for years 1982, 1987, 1992, 1997, and 2002, 2007, 2012, 2017, 2022, 2027
- Example - all 16 Phase 5 agricultural land covers may be grouped into a single land use category

EPA-CBPO Model v5.x

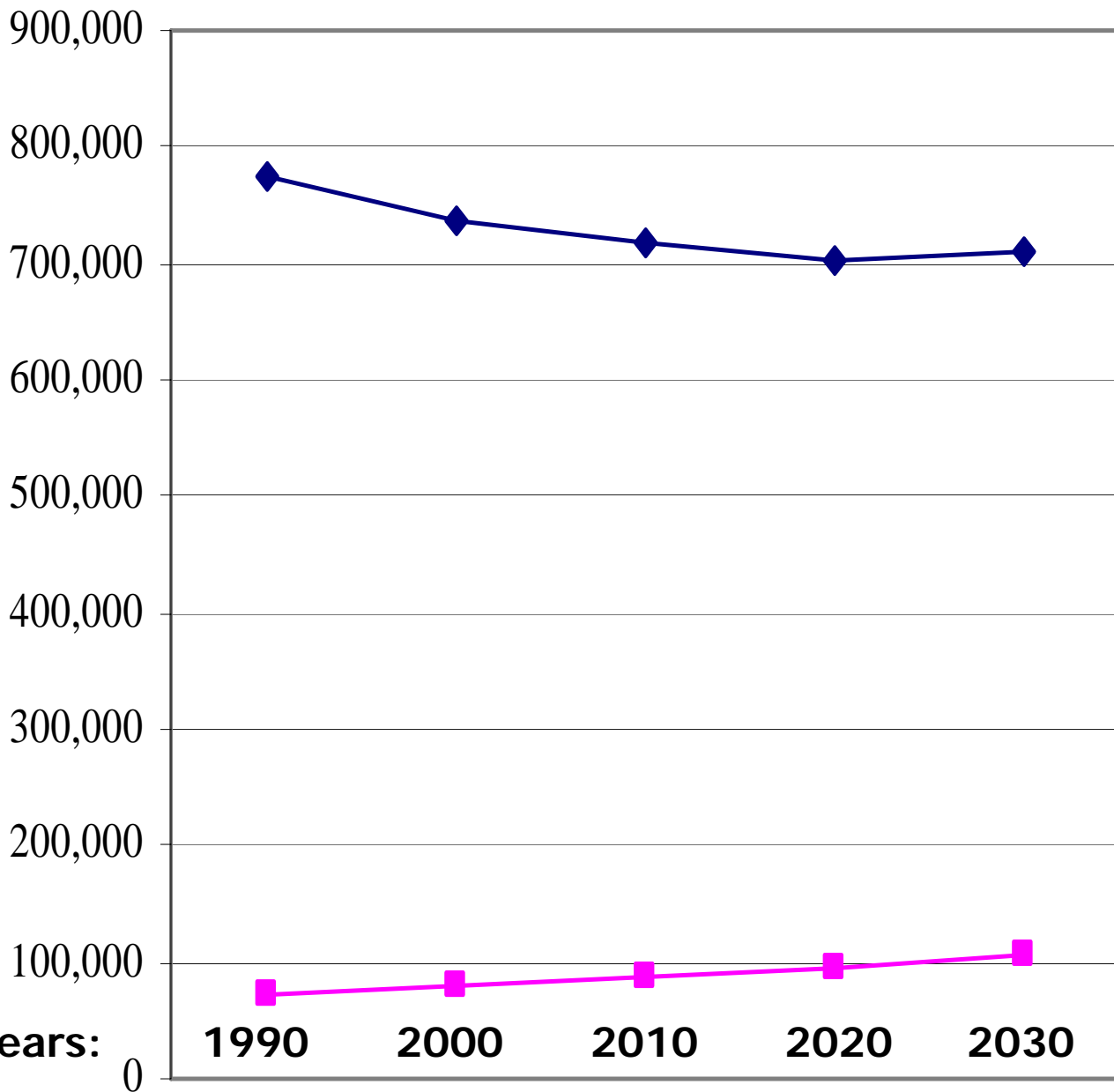
Land Use Categories

1. **Animal Feeding Operation**
2. **Alfalfa**
3. **Nutrient Mgt Alfalfa**
4. **Hi-Till w/o Manure**
5. **Hi-Till w/ Manure**
6. **Nutrient Mgt Hi-Till w/ Manure**
7. **Nutrient Mgt Hi-Till w/o Manure**
8. **Low-Till w/ Manure**
9. **Nutrient Mgt Low-Till w/ Manure**
10. **Hay w/o Nutrients**
11. **Hay w/ Nutrients**
12. **Nutrient Mgt Hay w/ Manure**
13. **Pasture**
14. **Nutrient Mgt Pasture**
15. **Trampled Pasture**
16. **Nursery**
17. **Barren**
18. **Extractive**
19. **Forest**
20. **Harvested Forest**
21. **Grassland (not managed)**
22. **Impervious Urban High Density**
23. **Impervious Urban Low Density**
24. **Pervious Urban High Density**
25. **Pervious Urban Low Density**
26. **Water (non tidal)**

Virginia Locality Review of Phase 5

- Need CBP 2030 land use estimates in 5 year increments starting from 2002 (2007, 2012, 2017....)
- Need CBP help in generation of graphics, GIS files/maps showing differences from 2007 to 2030

Acres



**Example of
Land Cover
Changes
Over Time**



**Trend Lines to
Show Local
Experts For
Verification**

Impervious Surface Change (1990 – 2000)

Year 1990 (BLACK)

Year 2000 (RED)

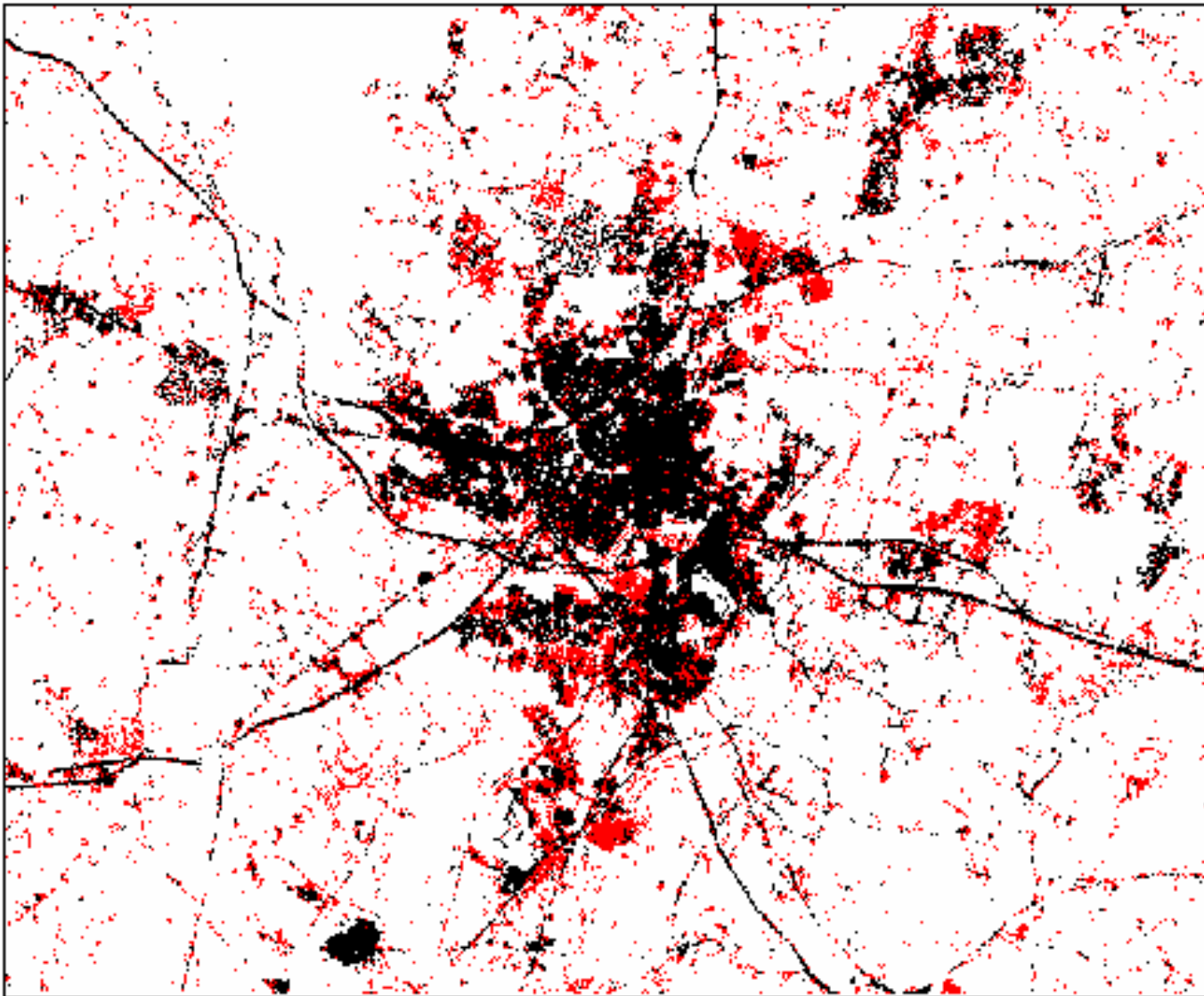
Urban/non-urban

1990 accuracy >79%

2000 accuracy >83%

**Type of
Graphic
County Staff
Could Assess
to Verify
Trends**

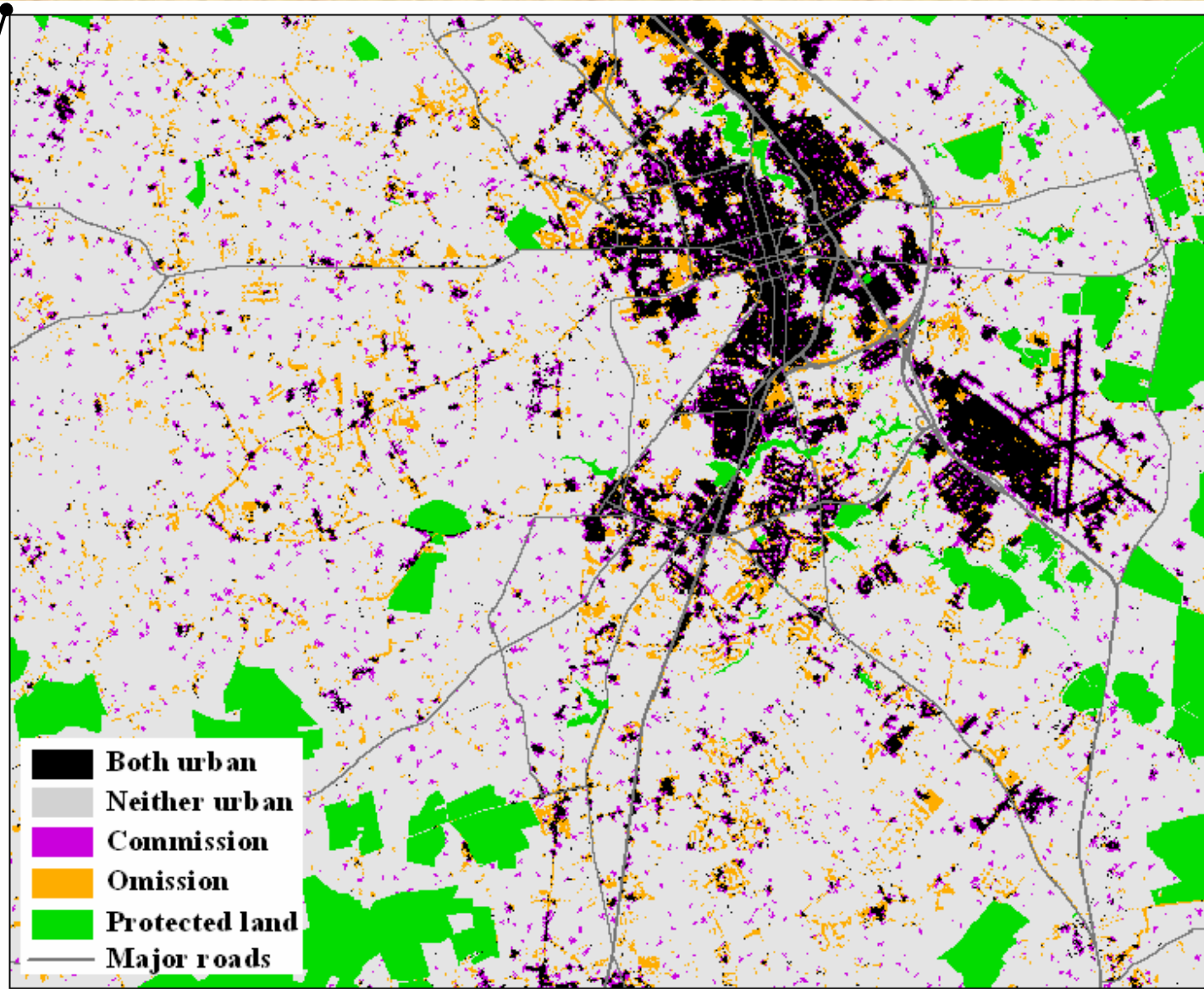
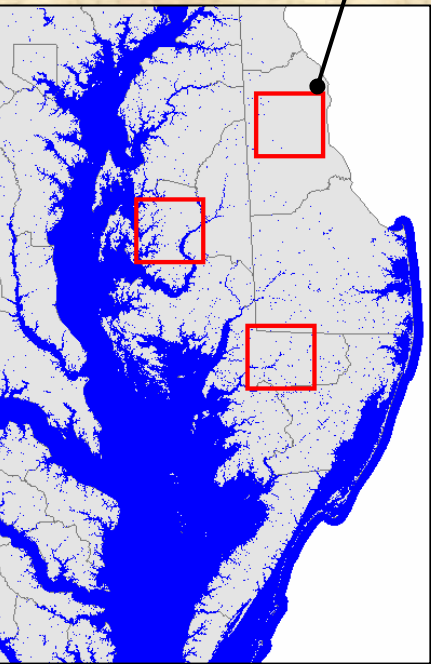
**Human Population
Graphs Needed**



0 1 2 3 Miles

Example SLEUTH Output

Type of Graphic
County Staff
Could Assess
to Verify
Trends



0

5

10 Kilometers

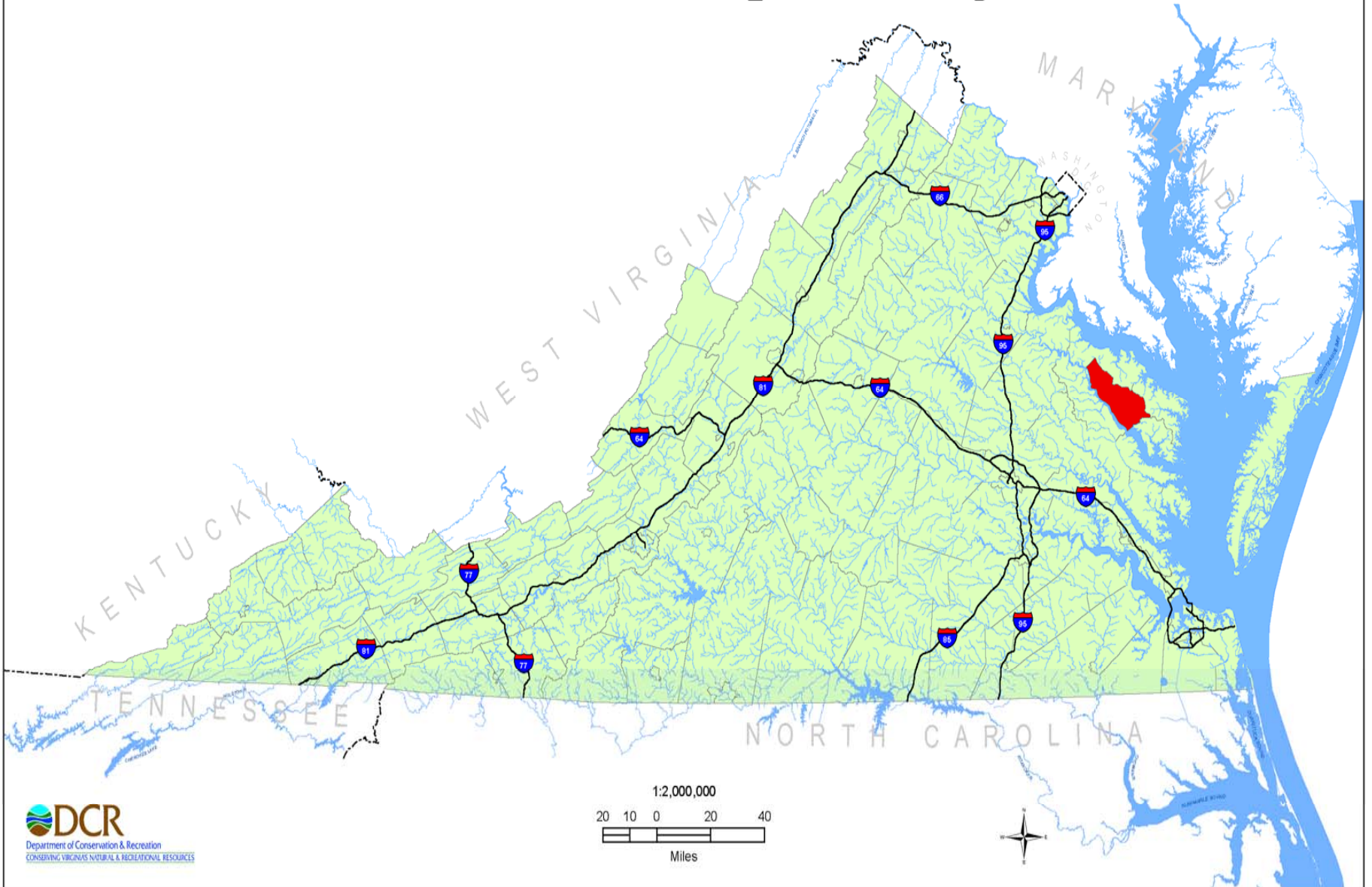
Virginia Locality Review of Phase 5

Example: Livestock Populations

Example County								
	1987	1992	1997	2002	2030a	2030b	2030c	2030d
Cattle	838	727	596	606	282	285	292	273
Dairy	0	0	14	12	7	7	7	7
Non-Dairy	838	727	582	606	201	204	193	186
Hogs & Pigs	5,950	2,574	1,052	0	1,816	3,354	7,958	18,769
Poultry	2,695,195	3,028,901	4,518,240	5,891,861	10,208,253	10,773,328	12,148,953	11,796,247

**Tables or Graphs Will Need to Be Developed
to Inquire About BMPs Installed as Well as
Livestock Numbers**

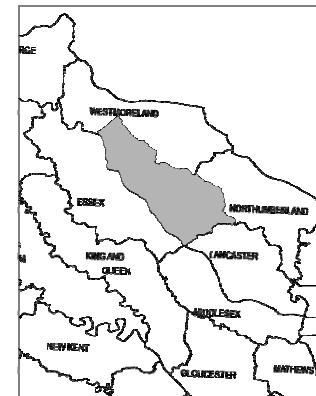
Richmond County, Virginia



Virginia's 6th Order NWBD Hydrologic Units (VAHU6)

JURISDICTION:

RICHMOND



Part Two: Viabile Approach

- Richmond County Pilot – Grant Application
- Northern Neck of Virginia
- On the Rappahannock
- Rural, Low Population (about 10,000)
- Farming, Forestry and Fishing
- Town of Warsaw

Testing the Approach Richmond County

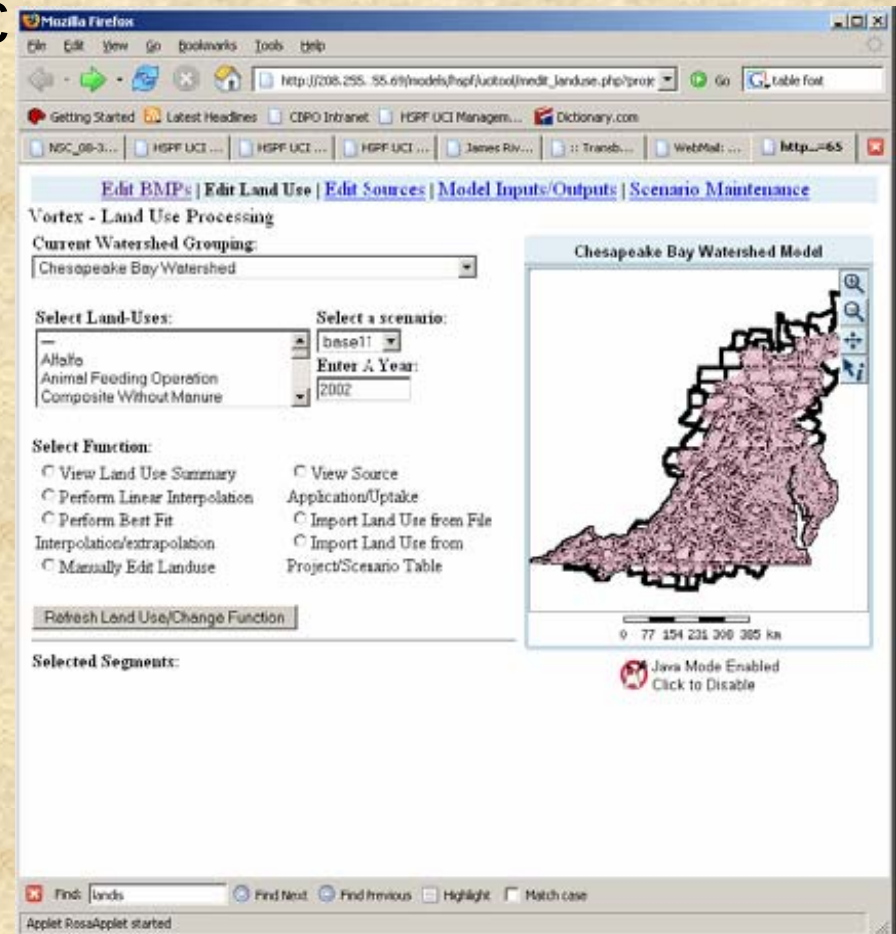
- Work with local County staff
- Involve Planning District Commission and Soil and Water Conservation Commission
- Divide basin load reductions into County sections determined by Phase 5 model
- Discuss concepts behind load allocations, local land management, maintaining cap

Testing the Approach Richmond County

- The Tributary Strategy for the county: to accomplish and maintain the load reduction
- Tracking and monitoring of nonpoint source loads: merged into county infrastructure & operations
- Reduction scenarios can be tested and compared using county-based, Phase 5 model

"Vortex" - Interface

- Local Version of Phase 5 Model
- We'll test to operate within a County
- Organized by major topic
 - Land Cover
 - Sources
 - BMPs
 - Model Inputs/Outputs
 - Zoning categories
 - Land Use





Department of Conservation & Recreation

CONSERVING VIRGINIA'S NATURAL & RECREATIONAL RESOURCES

