

FFY11

Richmond Regional PDC Technical Assistance FINAL REPORT

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Task Number: 48

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Virginia Coastal Zone
MANAGEMENT PROGRAM

Richmond Regional Planning District Commission

Planning district commissions make government more efficient and effective through coordinated planning and program analysis. Virginia's General Assembly created planning districts in 1968 under the authority of the *Virginia Area Development Act*-revised as the *Regional Cooperation Act* in 1995- "to promote orderly and efficient development of the physical, social and economic elements of the districts." Through planning district commissions, now 21 in number, local governments solve mutual problems which cross boundary lines and obtain expertise from professional staff and advice on making the most of scarce taxpayer dollars through intergovernmental cooperation.

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Executive Summary

A short summary of each product identified in the FFY11 Richmond Regional PDC Technical Assistance grant is included below.

Technical Assistance RRPDC staff processed 80 environmental and intergovernmental reviews during FFY 2011. RRPDC staff assisted local staffs with mapping and research during development of the Chesapeake Bay Total Maximum Daily Load (TMDL) Phase II Watershed Implementation Plan (WIP).

Coordination RRPDC staff coordinated with locality planning staff regarding the planning and implementation of the Chesapeake Bay TMDL and associated 2-year milestones. RRPDC staff also coordinated with locality staff regarding implementation of the revised Stormwater Regulations promulgated by the Virginia Department of Conservation and Recreation. This ongoing communication and coordination feeds directly into the planning of training sessions mentioned below. In May, RRPDC staff attended the Chesapeake Modeling Symposium 2012 in Annapolis, Maryland. RRPDC staff were able to gain great insight into the workings of the suite of models constituting the Chesapeake Bay model used to inform the Chesapeake Bay TMDL process. Findings were reported back to locality staff.

Training RRPDC staff hosted an Environmental TAC training session on April 16. RRPDC staff hosted an Environmental TAC meeting on June 28. In addition, multiple activities not listed were conducted during FFY11 but were separately funded, in part, by DCR. RRPDC staff also held coordination and educational meetings with local staffs during the development and refinement of the regional existing land use GIS layer. RRPDC staff also provided an educational training session for local planners about water quality and the TMDL process.

Coastal Mapping Update RRPDC staff has developed a regional existing land use map and data base. This existing land use map can serve a wealth of planning purposes related to Coastal Zone Management objectives. Analysis of land use by locality and by zoning classification within and outside utility service areas has begun. Presentations of the findings have been provided to the RRPDC board. For more information about the regional existing land use map, please contact RRPDC staff at 804-323-2033. Copies of the presentations and handouts can be found on our website at www.richmondregional.org. RRPDC staff began work with Virginia Department of Environmental Quality staff to map water quality monitoring data across the Richmond Region. The existing land use data, paired with water quality monitoring data will enable regional and local planners to track changes land use may have on water quality over time. Due to the complicated and disparate data for the various rivers in the Richmond Region, this mapping effort is not complete and is planned for continued work under the FFY12 grant.

Regional Future Land Use Update RRPDC staff incorporated the GIS data layer for the Town of Ashland's 2011 Comprehensive Plan Future Land Use map into the regional Future Land Use Map. RRPDC staff continues to coordinate with locality staff regarding amendments and updates to their respective future land use maps.

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Coordination on Public Access to the Region's Rivers RRPDC staff obtained a copy of a 1997 report produced jointly by the Virginia Department of Transportation, the Virginia Department of Game and Inland Fisheries, and the Virginia Department of Conservation and Recreation (VDNR): *Inventory of Bridges Receiving Recreational Use*. RRPDC staff has reviewed this report and summarized findings in the grant Final Product Report. Meanwhile, RRPDC staff was able to use funds from MeadWestvaco to reprint an additional 30,000 copies of the Rivers of the Richmond Region Public Access Guide produced during the FFY10 Richmond Regional PDC Technical Assistance Program grant. These maps have been reprinted and were distributed to interested partners across the region. PDFs of these maps are available <http://www.richmondregional.org/planning/RiversGuide.htm>.

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Product #1: Technical Assistance

Throughout the grant year, RRPDC staff provided technical assistance to locality staffs. Below are summaries of that work.

RRPDC staff processed 80 environmental and intergovernmental reviews during FFY11. These reviews include, but are not limited to, groundwater withdrawal permits, environmental impact reports, federal coastal zone consistency certifications, environmental impact reviews, Virginia water protection permits, etc. Once these reviews are received, PDC staff communicates with local staffs about comments or concerns they may have. PDC staff performs any further research or analysis necessary to fully understand the regional impacts of reviews in question. PDC staff prepares and submits an appropriate comment letter for the various proposed projects or permits.

A complete listing of all environmental and intergovernmental reviews processed by PDC staff is included in Appendix A.

RRPDC staff provided mapping, analysis, and further research for locality staffs in preparation for local submission of requested materials to the Virginia Department of Conservation and Recreation for the preparation for Virginia's Chesapeake Bay Total Maximum Daily Load (TMDL) Phase II Watershed Implementation Plan. Further comments on this work effort are included under Product 2, Coordination, and Product 3, Training, in this Report.

This work related to the Chesapeake Bay TMDL was partially funded by a grant from Virginia Department of Conservation and Recreation for Chesapeake Bay TMDL Phase II WIP planning that spanned October 15, 2011 – February 1, 2012. However, PDC staff did much work on this topic for localities in the region before and after this time frame.

Product #2: Coordination

RRPDC staff coordinated throughout FFY11 with locality staff on the implementation of the Revised Virginia Stormwater Regulations promulgated by the Virginia Department of Conservation and Recreation. RRPDC communications and meetings have served as a valuable forum for localities in the Richmond Region as they determine how best to structure and fund revised local stormwater programs. This coordination will continue into FFY12 with discussion meetings already scheduled for November and December 2012.

RRPDC staff continuously coordinated through meetings, discussions, email, and other communications with locality staff about Chesapeake Bay TMDL program development and the associated 2-year milestones. In May, RRPDC staff attended the Chesapeake Modeling Symposium 2012 in Annapolis, Maryland. RRPDC staff was able to gain valuable insight into the workings of the suite of models constituting the “Chesapeake Bay model” that are used to inform the Bay TMDL process. Findings were reported to locality staffs. As the Bay Program gears up for the 2017 Mid-Point Assessment of the model and the TMDL, RRPDC staff are staying informed of developments and sharing that information with local planners.

RRPDC staff are members of the James River Advisory Council (JRAC) attending four quarterly JRAC meetings during FFY11. Information gathered at these meetings is always shared with local staffs. For more information about JRAC, see their website at <http://www.jamesriveradvisorycouncil.com/>.

RRPDC staff are members on the Middle James Roundtable (MJRT) Steering Committee. The steering committee has regular quarterly meeting throughout the year, one of which is the large, annual meeting for planners from all over the Middle James Watershed. As with JRAC, RRPDC staff shares information gathered at the MJRT steering committee meetings with local planning staff. For more information about the MJRT, see their website at <http://mjrt.org/>.

Recently, the Virginia Department of Environmental Quality concluded the James River Bacterial TMDL Implementation Plan (IP). The TMDL noted that a major contributor of bacteria to the James and tributaries was domestic pet waste. The IP included language about enhanced pet waste pick-up campaigns, as well as other BMP measures such as sewer connection, septic repair and pump-out, streamside fencing in agricultural areas, and bioretention facilities, among others.

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Localities (Richmond, Chesterfield, and Henrico) in the Richmond Region have decided to approach an enhanced pet waste pick-up campaign regionally given anticipated efficiencies and effectiveness of a regional campaign compared to separate local campaigns. While this regional campaign is still in the planning stages, RRPDC staff have been involved in the planning committee. The campaign is expected to go into effect in December 2012 or January 2013.

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Product #3: Training

RRPDC staff hosted several educational meetings throughout FFY11. Agendas from these meetings are included in Appendix B.

On April 16, 2012, RRPDC staff hosted an Environmental Technical Advisory Committee meeting. Virginia Department of Conservation and Recreation staff provided presentations and materials related to Virginia's revised stormwater regulations and the planning process for implementing the Chesapeake Bay TMDL through the Phase II Watershed Implementation Plan.

RRPDC staff hosted an Environmental TAC meeting on June 28, 2012 RRPDC staff provided an update on various state initiatives such as Stormwater Regulations and Bay TMDL. A roundtable discussion provided opportunity for updates from each locality and the sharing of future plans, successes, complications, etc. Staff from the Virginia Department of Health and the Virginia Department of Transportation were also present to educate local planners about each state agency's perspective, resources, experience, and future tasks.

RRPDC staff provided an educational presentation in conjunction with Chesterfield County staff and Virginia Department of Transportation staff about water quality and the TMDL process. The presentations also spoke to the link between transportation, land use, and water quality. These presentations were provided to a meeting of transportation planning staff and local citizens at the Richmond Area Metropolitan Planning Organization's Citizens' Transportation Advisory Committee on July 24, 2012.

On April 10, 2012, RRPDC staff hosted a meeting of local staffs to educate them about the development of the regional existing land use map and GIS layer (see Product 4 – Coastal Mapping Update). RRPDC staff presented a review of the technical process used to develop the data, educated local planners about current and future uses of the data, received feedback, and provided each locality with copies of the data set.

NOTE: Work and meetings related to the Chesapeake Bay TMDL was partially funded by a grant from Virginia Department of Conservation and Recreation for Chesapeake Bay TMDL Phase II WIP planning that spanned October 15, 2011 – February 1, 2012. However, PDC staff did much work on this topic for localities in the region before and after this time frame. A summary of meetings during this time period is also included in Appendix B.

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Product #4: Coastal Mapping Update

RRPDC staff developed an existing land use map and maintainable data base for the Richmond Region. While some localities maintain such a map and data, a generalized, existing land use map had never existed across the entire region. RRPDC staff worked with locality staff to inform the process and vet the finished product for accuracy. RRPDC staff met with staff from each locality in the region in January 2012. Comments and suggestions were received and used to refine the regional map and database for increased accuracy. On April 10, 2012, RRPDC staff hosted a meeting of local staffs to educate them about the development of the regional existing land use map and GIS layer. RRPDC staff presented a review of the technical process used to develop the data, educated local planners about current and future uses of the data, received feedback, and provided each locality with copies of the data set. Different options for maintaining an updated data base for the region was a central point of the discussion.

A regional existing land use map can serve a wealth of planning purposes relevant to Coastal Zone Management objectives. RRPDC staff has begun analyzing the regional existing land use map by zoning classification both within and outside areas served by public water and/or sewer. This analysis allows local planners and officials to understand how resulting land uses compare to the legal framework set by zoning within and outside areas of public utility service, both of which strongly impact the nature of development and, ultimately, water quality. RRPDC staff has presented findings from the ongoing analysis of the regional existing land use to the RRPDC Board. The first presentation was on July 12th, 2012. A subsequent presentation has been planned for October 11, 2012 and a later presentation is planned for late winter or early spring of 2013.

A summary of the mapping process and analysis performed to-date is included in Appendix C.

RRPDC staff began work with Virginia Department of Environmental Quality (DEQ) staff to map water quality monitoring data across the Richmond Region. Due to the complicated and disparate collection of data for the various rivers in the Richmond Region, this mapping effort is not complete and is planned for continued work under the FFY12 grant. RRPDC staff believe it may be valuable to explore the creation of a baseline from which trends can be measured over time, however, the disparate nature of data across the region would significantly hinder such an effort. RRPDC staff will discuss with DEQ staff and locality staff the feasibility of such baseline creation in a defined study area.

Product #5: Regional Future Land Use Map Update

RRPDC staff incorporated the GIS data layer for the Town of Ashland's 2011 Comprehensive Plan Future Land Use map into the regional Future Land Use Map. RRPDC staff will continue in FFY12 to coordinate with locality staff regarding amendments and updates to their respective future land use maps. Chesterfield County has recently adopted a new Comprehensive Plan; RRPDC staff plan to incorporate the revised future land use data into the regional map and database in early FFY12. Once updated, the regional future land use data will be used along with existing land use and zoning for analysis of water quality and other impacts from land use changes.

A copy of the latest draft of the regional future land use map is included in Appendix D.

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Product #6: Coordination on Public Access to the Region's Rivers

In 2011, RRPDC staff became aware of a 1997 Report produced jointly by the Virginia Department of Transportation (VDOT), the Virginia Department of Game and Inland Fisheries (VDGIF), and the Virginia Department of Conservation and Recreation (VDCR): *Inventory of Bridges Receiving Recreational Use*. In the following weeks, RRPDC staff obtained a digital copy of this report. An edited copy of the report focusing on the RRPDC area is included in Appendix E.

An interagency agreement exists among the three state agencies listed above that considers public access to the waters of the Commonwealth when road improvement and bridge replacement projects are planned. Much of the use of Virginia's streams originates from VDOT rights-of-way; many of these traditional access points have been removed from public use in recent years due to bridge design, increased use of guardrails, and restricted rights-of-way. The report was in response to a request by the VDOT Environmental Engineer for a priority list of bridges that would assist VDOT in deliberations related to water access at road crossings. The Report includes a "first priority" listing of streams and road crossing across the Commonwealth that were known to receive recreational use at the time the document was created. The listing details the location, the manner/agency through which the location had been recognized as access, the existence of any fee, and in what published book(s) or list(s) the access point had been previously acknowledged.

RRPDC staff planned to review access listings in this 1997 *Report* as part of the FFY 11 Coastal Zone Management Technical Assistance Grant.

Later in 2011, RRPDC staff learned that VDCR intended to hire interns during the summer months to minimally evaluate the 1997 VDOT Report and digitize listed access points in GIS. This recent VDCR report is included in Appendix F.

RRPDC staff reviewed both the original 1997 *Report* and the 2011 VDCR GIS layer and process report. RRPDC staff determined that locality interest in the Richmond region lie more in knowledge of river access throughout the entire region, not just at those points near VDOT maintained bridges. Therefore, RRPDC staff determined that publicizing and distributing the Rivers of the Richmond Region Public Access Guide created as part of the RRPDC FFY10 Coastal Zone Management Technical Assistance Grant than continuing concerted work effort on the 1997 *Report* and 2011 GIS layer.

Continued RRPDC Public Access Planning and Assistance Efforts

The Rivers of the Richmond Region Public Access Guide is a dual sided map guide designed for the general public. The document is intended to aid in locating and accessing public access points to the Rivers of the Richmond Region: the James, the Appomattox, the Pamunkey, and the Chickahominy. At the conclusion of the FFY 10 Regional Technical Assistance grant, RRPDC staff distributed them to numerous interested parties including: Local government Parks &

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Recreation Departments, James River Association, Partnership for Smarter Growth, Virginia Department of Conservation and Recreation, Blue Ridge Mountain Sports, Bell Tower Visitor Center, Altria, Dick's Sporting Goods, Tredegar Iron Works, and Bass Pro Shop.

In early 2012, MeadWestvaco generously donated funds to reprint more Rivers of the Richmond Region maps to meet increasing interest and demand in the Richmond Region. The map guide was slightly edited according to feedback from the first printing and 30,000 copies were printed. A distribution list for this second printing is included in Appendix G. A copy of the edited map guide is included in Appendix H. PDFs of the Guides are available online at <http://www.richmondregional.org/planning/RiversGuide.htm> .

APPENDIX A

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October 2011	7 Reviews	April 2012	2 Reviews
November 2011	3 Reviews	May 2012	12 Reviews
December 2011	8 Reviews	June 2012	7 Reviews
January 2012	6 Reviews	July 2012	9 Reviews
February 2012	12 Reviews	August 2012	5 Reviews
March 2012	9 Reviews	September 2012	7 Reviews

- ❖ Department of Environmental Quality; Whale Migration Corridors for MSP
- ❖ Department of Environmental Quality; Shoreline Management Planning and Inventory
- ❖ Department of Environmental Quality; VADEQ Community Scale Methyl Bromide Monitoring Project for Suffolk, VA
- ❖ Virginia State University; Quad II Residence Hall
- ❖ Department of Conservation and Recreation; Stratton Park Phase 1 Sports Field
- ❖ Department of Environmental Quality; Branchville-Boykins Waterworks Ground Water Withdrawal Permit
- ❖ Chesterfield County Budget and Management Department; Harrowgate Road Sidewalk and Cougar Trail Paved Shoulder
- ❖ Department of Environmental Quality; City of Norfolk for Four Suffolk Wells
- ❖ Virginia State University; Proposed Renovation of Fourth Avenue Building
- ❖ Department of Environmental Quality; Atlee Road Station
- ❖ Department of Environmental Quality; Colony Village Apartment
- ❖ Department of Environmental Quality; [12-06] VADEQ Abex Corp. RIFS OU-2
- ❖ Department of Environmental Quality; [12-07] VADEQ Culpepper Woods RIFS-OU-1
- ❖ Department of Environmental Quality; [12-08] VADEQ Rentokil RA OU-1
- ❖ Department of Environmental Quality; [12-09] VADEQ Saltville RIFS OU-3
- ❖ State Corporation Commission; Community Solar Power and Certification of Proposed Distributed Solar Generation Facilities, Dominion, PUE 2011-00117
- ❖ Department of Environmental Quality; Enhancement of Overnight Accommodations for the James River Ecology School at Presquile National Wildlife Refuge
- ❖ Virginia Commonwealth University; 12th Street Commons
- ❖ Virginia Department of Health; 2012 Drinking Water Construction Assistance
- ❖ Department of Environmental Quality; White Tail Report Ground Water Withdrawal Permit
- ❖ Department of Environmental Quality; Bow Creek Golf Course
- ❖ Department of Environmental Quality; Virginia Department of Corrections Water Line Improvement
- ❖ Department of Environmental Quality; City of Virginia Beach for Princess Anne Athletic Complex Ground Water Withdrawal Permit
- ❖ Department of Environmental Quality; Magnolia Gardens Apartment HUD Richmond
- ❖ Department of Environmental Quality; Brookland Park Plaza HUD Richmond
- ❖ Department of Environmental Quality; Springfield Road Landfill Transfer Station
- ❖ Greater Richmond ARC; FTA Section 5310 Transportation Equipment Purchase Request
- ❖ Heart Havens; FTA Section 5310 Transportation Equipment Purchase Request
- ❖ Chesterfield County Community Services Board; FTA Section 5310 Transportation Equipment Purchase Request
- ❖ Department of Environmental Quality; Capital One Services Water Protection Permit
- ❖ Department of Environmental Quality; Virginia Education Welding Shop/Powhatan Correctional Center
- ❖ Department of Environmental Quality; Buckingham Landfill RA
- ❖ Department of Environmental Quality; USDOT/Federal Aviation Administration, Install AWOS-III, New Kent County

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- ❖ Department of Environmental Quality; Aqua Virginia, Inc. for Avondale Public Water System Ground Water Withdrawal Permit
- ❖ Department of Environmental Quality; King William County Public Schools for AES Waterworks Ground Water Withdrawal Permit
- ❖ Department of Environmental Quality; Virginia Department of Corrections St. Brides/Indian Creek Correctional Center Ground Water Withdrawal Permit
- ❖ Department of Environmental Quality; Sydnor Utilities, Inc. for Scots Landing Water System Ground Water Withdrawal Permit
- ❖ Department of Environmental Quality; [12-11] Virginia's NO2 Near Road Monitoring Grant Program
- ❖ Department of Environmental Quality; DOE/Federal Energy Regulatory Commission, LN WM-109 Gateway Project, Columbia Gas Transmission, LLC. 1.3 Mile New Loop Extension
- ❖ Department of Environmental Quality; Aqua Virginia Utilities, Inc. for Manakin Farms Lagoon
- ❖ Department of Environmental Quality; [12-11] –Virginia's NO2 Near -Road Monitoring Grant Program
- ❖ Department of Environmental Quality; DOD/US Army Corps of Engineers Reissuance of Nationwide Permits & Virginia Regional Conditions
- ❖ Department of Environmental Quality; USDA/Animal & Plant Health Inspection Service/WS Management of Vulture Damage in Virginia
- ❖ Department of Environmental Quality; Permit Modification for the Hopewell Regional Waste Water Treatment Facility VPDES Permit No. VA0066630
- ❖ Department of Environmental Quality; [12-12] FY12 Sec 103 PM 2.5 Air Monitoring Program
- ❖ Department of Environmental Quality; Hanover Habitat for Humanity Single Family Home
- ❖ Virginia State University; Virginia State University for Wilkins Property Parking Lot
- ❖ Department of Environmental Quality; [12-13] FY2013 Chesapeake Bay Monitoring Program (CWA 117 E (1)(b))
- ❖ Department of Environmental Quality; [12-14] FY2013 Chesapeake Bay Monitoring Program (CWA 117d)
- ❖ Department of Environmental Quality; Virginia Pollution Abatement #00832 Nutri-Blend, Inc.
- ❖ Department of Environmental Quality; Southampton County Board for Drewryville System Ground Water Withdrawal Permit
- ❖ Department of Environmental Quality; 2010 Master Plan Projects, Richmond International Airport
- ❖ Office of Drinking Water; Safe Drinking Water Act --FY2013 Public Water System Supervision Grant
- ❖ Department of Environmental Quality; Reissuance of VPDES Permit No. VA0063690-Henrico County Water Reclamation Facility
- ❖ Department of Environmental Quality; Virginia Commonwealth University Acquisition of 217 West Main Street
- ❖ Department of Environmental Quality; DOD/US Army Corps of Engineers Reissuance of State Programmatic General Permit
- ❖ Department of Environmental Quality; Rockahock Campgrounds Ground Water Withdrawal Permit
- ❖ Department of Environmental Quality; [12-15] FY12-14 VADEQ Technical Review and Services for Defense Environmental Restoration Program Activities at Active DoD Facilities and Environmental Restoration at Base Closure Sites
- ❖ Department of Environmental Quality; [12-17] 27th Year VA CZM Implementation Application
- ❖ Department of Environmental Quality; [12-16] FY2012 State Revolving Loan Funds Capitalization Application
- ❖ Department of Environmental Quality; Staples Mill Marketplace, LLC. Virginia Water Protection Permit
- ❖ Department of Environmental Quality; VDGIF Headquarters Acquisition & construction, Hanover Co.
- ❖ Department of Environmental Quality; Staples Mill Marketplace. DOD/Dept. of the Army/Army

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Corps of Engineers

- ❖ Department of Environmental Quality; Security Perimeter Road Improvements, Richmond International Airport/USDOT/Federal Aviation Administration
- ❖ Department of Environmental Quality; [12-18] – Virginia DEQ DERA2 Project
- ❖ Department of Environmental Quality; VCU Construct & Renovate Information Commons & Libraries
- ❖ Department of Environmental Quality; [12-19] VADEQ Saltville RA OU2
- ❖ Department of Environmental Quality; [12-20] Arrowhead Plating RA OU2
- ❖ Department of Environmental Quality; Aqua Virginia, Inc. for Oak Springs Water System Ground Water Withdrawal Permit
- ❖ Department of Environmental Quality; Aqua Virginia, Inc. for Brookwood Manor Water System Ground Water Withdrawal Permit
- ❖ Office of Drinking Water; FY2012 Drinking Water State Revolving Fund Program--Safe Drinking Water Act
- ❖ Department of Environmental Quality; Public Notice-Environmental Regulation: Open Burning
- ❖ Department of Environmental Quality; Chickahominy-Summerplace, LLC. For Summerplace Subdivision Ground Water Withdrawal Permit
- ❖ Department of Environmental Quality; Pooles Mobile Home Park, LLC for Pooles Mobile Home Park Water System Ground Water Withdrawal Permit
- ❖ Department of Environmental Quality; Town of Wakefield for Wakefield Town Public Water System Ground Water Withdrawal Permit
- ❖ Department of Environmental Quality; Department of Interior: Fish and Wildlife Service Presquile National Wildlife Refuge Conservation Plan
- ❖ Department of Environmental Quality; [13-01] VADEQ Pollution Prevention Enhancement
- ❖ Department of Environmental Quality; Presquile National Wildlife Refuge Draft Comprehensive Conservation Plan and Environmental Assessment
- ❖ Department of Environmental Quality; Construction of Taxiway N, Richmond International Airport
- ❖ Department of Environmental Quality; Environmental Regulation
- ❖ Department of Environmental Quality; Reissuance of VPDES Permit No. VA0089915-Totopotomoy Wastewater Treatment Plant
- ❖ Department of Environmental Quality; City of Suffolk Department of Public Utilities for Village of Holland Ground Water Withdrawal Permit
- ❖ Department of Environmental Quality; Reissuance of VPDES Permit No. VA0005819 Appomattox River Water Authority
- ❖ Department of Environmental Quality; Sedley Water Company for Town of Sedley Water System Ground Water Withdrawal Permit
- ❖ Department of Environmental Quality; VPDES Permit VA007572 TravelCenters of America--Ashland TravelCenter
- ❖ Department of Environmental Quality; Richmond/Hampton Roads Passenger Rail Project, Tier 1 Final EIS

APPENDIX B

AGENDA

Environmental TAC Meeting

April 16, 2012

Richmond Regional Planning District Commission
Large Conference Room
9211 Forest Hill Ave, Ste. 200
Richmond, VA 23235

CALL TO ORDER12:30 P.M.

12:30 Introductions & Purpose: Virginia’s Revised Stormwater Regulations

12:40 Relevant Legislation and Regulatory Actions
Ginny Snead, DCR

1:00 Overview of Revised VSMP Regulations
Doug Fritz, DCR

2:00 Local Stormwater Program Adoption Tools
Joan Salvati, DCR

2:20 Final Q&A, Next Steps

2:30 Adjourn

AGENDA

**Chesapeake Bay TMDL
Regional Roundtable/Environmental TAC Meeting**

June 28, 2012

Richmond Regional Planning District Commission
Board Room
9211 Forest Hill Ave, Ste. 200
Richmond, VA 23235

CALL TO ORDER1:00 P.M.

1:00 Introductions

1:05 CZM Program Update

1:10 PDC Update

- Recurrent Flooding Study
- JRA - Local Government Authority at the 2013 General Assembly
- Latest from DCR on Stormwater
- Latest news from DCR on Bay TMDL

1:30 Round Robin

- Action Update
- Future Plans
- Successes & Obstacles

2:55 Future Meeting Ideas/Topics

3:00 Adjourn

AGENDA

Richmond Area
Metropolitan Planning Organization (MPO)

**CITIZENS TRANSPORTATION
ADVISORY COMMITTEE (CTAC)**

July 24, 2012

**Richmond Regional Planning District Commission
Board Room
9211 Forest Hill Avenue, Suite 200
Richmond, VA 23235**

CALL TO ORDER 12:00 noon

Lunch provided for CTAC members and alternates, staff and invited guests.

PLEDGE OF ALLEGIANCE

INTRODUCTIONS

- Brian Ohlinger, CTAC Member, Virginia Commonwealth University
VCU Associate Vice President for Facilities Management
- Kenneth E. Lantz, CTAC Member, FY 13 EDAC Chairman
Richmond Area Mobility Manager, Senior Connections, CAAA
- Londella Hamilton, CTAC Alternate Member, FY 13 EDAC Vice Chairman
Job Coach/Case Manager, Goodwill of Central Virginia

Page(s)

I. ADMINISTRATION

Approval of May 22, 2012 CTAC Meeting Minutes -

(Guthrie/5 minutes) 1 - 4
CTAC ACTION REQUESTED

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Open Public Comment Period -

(Guthrie/5 minutes)..... -

Individuals requesting to speak are requested to state their name and organization (if any) that they represent before making comments. Individuals and organizations have up to three minutes to address CTAC.

Approval of the July 24, 2012 CTAC Meeting Agenda -

(Guthrie/5 minutes)..... -

CTAC ACTION REQUESTED

II. PRIMARY MEETING TOPIC

A. Total Maximum Daily Load (TMDL) and Impacts of Transportation on the Chesapeake Bay -

(Harmon/Stewart/Flanigan/50 minutes)..... -

Presentations by representatives from VDOT, RRPDC and Chesterfield County on state, regional and local water quality initiatives.

Contact Information

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 VDOT
 Natural Resources Section
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 Richmond, VA 23219
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 Water Quality
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 9800 Government Center Parkway
 P.O. Box 40
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 E-mail: flanigans@chesterfield.gov

Ms. Sarah Stewart
 Principal Planner
 RRPDC
 9211 Forest Hill Ave., Suite 200
 Richmond, VA 23235
 Phone: 323-2033
 E-mail: sstewart@richmondregional.org

III. OTHER BUSINESS

A. CTAC Vice Chairman's Report -

(Guthrie/5 minutes)..... 5 - 6

1. Resolution of Appreciation -

- Robert L. Basham, Jr., Outgoing CTAC Chairman

Richmond Regional PDC Technical Assistance FFY11
FINAL REPORT

2. Resolution of Appreciation –	
• Paul P. Jez, Virginia Commonwealth University	
3. Voting Membership on MPO –	
Discussion deferred from May 22 CTAC meeting; see page 2 of May 22 minutes from Open Public Comment period.	
4. Other Business –	
B. Transportation Director’s Report –	
(Lysy/5 minutes).....	7 – 8
1. MPO Meeting Report for July 12, 2012 –	
2. Brief Status Report: MAP-21, Moving Ahead for Progress in the 21st Century –	
C. <i>Announcements for Upcoming Meetings and Events –</i>	
(Guthrie/5 minutes).....	9 – 10
1. VTrans2035 Update Public Open-House Meetings –	
2. Other Announcements –	
D. CTAC Open Comment Period –	
(Guthrie/10 minutes).....	–
E. Articles of Interest –	
(Guthrie/5 minutes).....	11 – 23
F. Future Meeting Topics –	
(Guthrie/5 minutes).....	–
1. Port of Richmond – Virginia Port Authority: Future Opportunities in the Richmond Region	
2. VDOT’s Evaluation of Devolution of the Transportation System	
3. 2040 Regional Transportation Energy Sources: Effects of Hybrid, Electric, Natural Gas, Shale Fracking, and Other Energy Sources	
G. Other Business –	
(Guthrie/5 minutes).....	–

IV. ADJOURNMENT

CATEGORY DESCRIPTIONS

Benchmark III - Regional Existing Land Use Assessment RRPDC March 2012

The following categories were created to display a uniform and consistent dataset to represent land uses across the region, to be used in the regional existing land use inventory. Each jurisdiction keeps different information and uses various land use categories, and therefore these regional descriptions will be somewhat different from each jurisdiction's customary categories.

Where available, land use designations were determined using GIS information kept by the county, adapted to these categories. Where the data was not available or inconsistently available, staff determined land use by aerial photography flown in 2009 (the most recently available), NAVTEC data and feedback from jurisdiction staff. Because of the necessity of reliance on aerial photography in many cases, this inventory is a snapshot of the year 2009.

Residential: Whether the county provided the updated information in GIS format, or whether PDC staff determined a residential use by aerials, all residential parcels were labeled as such and then broken out by parcel size. Except for High Density Residential, which includes multi-family parcels, there is one unit per parcel.

High Density Residential: parcels less than 0.2 acres, as well as apartment complexes, condos and mobile home parks, all on one parcel

Medium Density Residential: ≥ 0.2 and < 0.5 acres

Low Density Residential: ≥ 0.5 and < 2 acres

Rural Residential_1: ≥ 2 and < 5 acres

Rural Residential_2: ≥ 5 and 10 acres

Rural Residential_3: ≥ 10 and < 20 acres

Commercial/Office: This category includes retail, office and food service, etc.

Parks/ Open Space: Parks, golf Courses, ball parks, tennis courts and cemeteries. Designation was determined from GIS information for the jurisdictions that keep it, and by aerials, NAVTEC data, the regional parks layer completed by the PDC in 2009, and feedback from jurisdiction staff.

Institutional: This category includes prisons, schools, and government buildings.

Benchmark II PDC_LU

	High Density Residential
	Medium Density Residential
	Low Density Residential
	Rural Residential_1
	Rural Residential_2
	Rural Residential_3
	Ag/Forest
	Agricultural
	Forest
	Parks/Open Space
	Commercial/Office
	Institutional
	Mixed Use
	Industrial
	Airport
	Undeveloped
	Water

Industrial: This category includes both heavy and light industrial as well as public utilities, cell tower parcels, water treatment plants and other municipal service locations.

Agricultural: These are parcels that are at least 80-90% plowed, tilled or planted area. Also includes pasture, barns, silos etc. This was done entirely by aerials (in rural localities we didn't have the information, and in the suburban counties these parcels were all labeled as vacant).

Airports.

Ag/Forest: These parcels were roughly (between 40/60% of one or the other), all also done by aerials.

Forest: These are parcels that are at least 80-90% forested. Most of them were 100% forested.

Undeveloped: These parcels are those that can't be defined as any of the above. In the rural areas this includes bare parcels that look like they've been stripped or burnt, or wetland areas that are divided by parcel, or small junkyards. In the suburban areas and to some extent in Richmond and Ashland, undeveloped may also mean that the parcel is surrounded by developed land, is under approximately four acres, and is most likely not of ecological significance (even if it's a forested parcel). This could be the buffer of woods between a housing development and a road, or the unbuilt parcels between houses. In many cases subdivided parcels indicating plans for a subdivision were labeled as "undeveloped", even if they were forest or farm. In the cases of large subdivisions that were built between 2009 and the present, it is important to reiterate that this is a snapshot of 2009

Mixed Use: An area in which there is a mix of commercial, office and residential uses.

Richmond Regional PDC Technical Assistance **FFY11**

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RRPDC staff held, coordinated and attended meetings regarding the Chesapeake Bay TMDL during this time frame, paid for by a grant to Chesapeake Bay PDCs from Virginia Department of Conservation and Recreation for Chesapeake Bay TMDL Phase II WIP planning that spanned October 15, 2011 – February 1, 2012. Technical assistance work concerning water quality relevant to the TMDL has been on-going ever since it appeared on the scene years ago. Indeed, plenty of work took place during the time period between Oct 1 and Oct 15 that contributed to the design and content of these meetings and was charged to our Technical Assistance grant.

- **October 11, 2011 – VADCR Demonstration of Virginia Assessment and Scenario Tool (VAST) Webinar:** DCR staff provided an overview on the use of the VAST tool. RRPDC staff participated and notified locality staff about the webinar.
- **October 19, 2011 – Local Government Involvement under the New Bay TMDL Webinar:** Webinar hosted by the Sands Anderson law firm; included presenters from Sands Anderson, DCR, among others. Provided and updated overview of the Phase II WIP process.
- **October 25, 2011 – Richmond – Crater Region VAST Training Session:** DCR staff provided a detailed overview of the VAST tool and an opportunity for locality staff to use the tool.
- **November 2, 2011 – APA Chesapeake Bay Restoration Webinar:** RRPDC staff notified locality staff of the webinar. Staff from DCR and other stakeholder organizations provided an overview and insight into the WIP II planning process and how the outcome will be utilized.
- **November 7, 2011 – VADCR Phase II Watershed Implementation Plan Stakeholder Advisory Group Meeting:** RRPDC staff notified locality staff of the date and time of the meeting; RRPDC staff attended and provided a meeting summary to locality staff.
- **December 5, 2011 – Richmond Regional Phase II WIP Roundtable Meeting:** Roundtable meeting hosted by RRPDC staff. Agenda included progress updates from locality staff and discussion of regional consensus on how to move forward with data preparation as part of the WIP II process. Agreement to prepare and submit regional Phase II WIP submission to DCR.

Environmental Roundtable Meeting

December 5, 2011

Based on the discussion, the localities in the RRPDC have generally agreed to a regional approach in responding to some of the requested deliverables due to DCR as part of the WIP II process. Specifically, itemized bullets 3 – 5 on the revised guidance letter from DCR (dated November 9, 2011) will be addressed through this regional response. Localities in the region will work with PDC staff to develop general statements concerning: reductions as suggested in the Phase I WIP document, strategies that can be implemented across the region to reach Phase I WIP reductions, and cost estimates for reaching Phase I WIP reductions. There appeared to be regional consensus that, where relevant, reduction and strategy language should focus on the percentage reductions called for in the WIP I rather than specific BMP or land use numbers. It is important to acknowledge the existing limitations of data and process in regional statements by appropriately adjusting specificity accordingly. Meanwhile, it is important to express genuine local interest in cooperating with state and federal partners to improve both of these complicated aspects. Additionally, there was consensus that a regional response must recognize and underscore the importance of local flexibility in designing effective reduction strategies and using locally available, accurate data as the basis for decision making.

Towards the creation of this regional submission, RRPDC staff will:

- Download Phase I WIP reduction numbers (included in VAST) by segmentsheds and distribute to the localities
- Coordinate with NVRC and HRPDC staff on the creation of the regional strategies for their respective organizations.
- Craft a strawman narrative for locality review and editing, this strawman will be similar to that being produced by HRPDC and NVRC. The strawman will be submitted to DCR as part of the Phase II deliverable package.
- Explore the development of regional cost estimates (magnitude of costs based on the HRPDC and Greeley & Hansen methodology) for achieving WIP I reductions.
- Compile regional strategies table for submission to DCR.
- Work towards an understanding of and explore a means of quantification of state agency responsibility for WIP II reductions (i.e. VDOT, VDH, DMME).

Richmond Regional PDC Technical Assistance **FFY11**

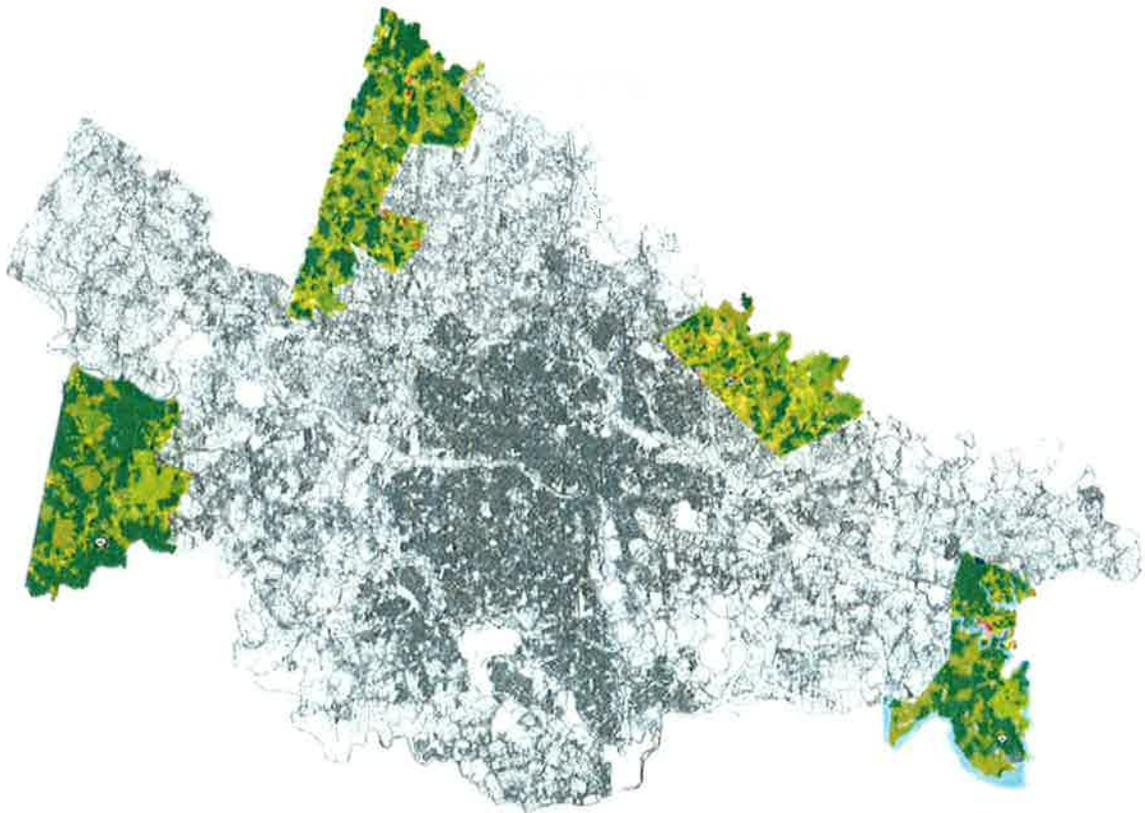
FINAL REPORT

For final products that will be submitted to DCR, RRPDC staff requests local assistance and review of draft documents. We will provide a basic framework for the DCR response by next week. In the meantime, please supply RRPDC staff with narrative text you wish to be included and wording for suggested regional strategies to be considered. Our goal will be to incorporate all locality information and input by early January so we have adequate time to discuss as a group prior to the Feb 1 deadline.

Please direct information submissions and responses to Sarah Stewart at ssewart@richmondregional.org.

APPENDIX C

RICHMOND REGIONAL EXISTING LAND USE INVENTORY



Process Summary prepared by

Richmond Regional Planning District Commission staff

November 2012

Project Intent

Richmond Regional Planning District Commission staff has completed an existing land use inventory using Geographical Information Systems (GIS) software, and is currently working on calculations and applications of the data into regional land use planning processes.

Before this project began in January of 2011, there had been no comprehensive inventory of land use in the region by this or any other agency. Staff believed that such an inventory is necessary in order to:

- Begin to track land use changes on a regional scale
- Have an apples-to-apples comparison of land uses in various jurisdictions at a regional scale
- Have an accurate dataset which can be used to connect land use, transportation, and water quality as well as be used in regional or statewide planning projects, for instance to inform the Chesapeake Bay TMDL model
- Calculate undeveloped land by zoning classification
- Understand the availability of undeveloped land served by water and sewer
- Educate the public and elected officials about the character of land use at a regional scale and the effects of various regional development scenarios

Staff also believed that it is important to keep the inventory at a parcel-based level, rather than breaking each parcel down into land cover. Therefore, each parcel is kept whole with a majority land use assigned. Detailed category descriptions are in Attachments.

Project Process, Benchmarks I and II

The first step in the project was to do research on other regions' efforts to create a regional existing land use inventory, their results and various ways of publishing or conveying the information. Staff investigated several the efforts of other PDCs in Virginia, and other metropolitan areas across the U.S. Each process varied by intent, availability of existing data, and character of the region. Staff then researched common land use categories and accompanying color schemes. These too varied according to intent and character of the region. After study and discussion, staff decided to create categories and a color scheme that is specific to the Richmond Region – in particular the wide range of land use character between intensely developed urban core and extremely rural jurisdictions. The categories were also dictated by the amount of information available, which also made up a wide range between detailed and current data from some jurisdictions to almost non-existent or inaccurate data in others.

In January of 2011, PDC staff met with staff from each jurisdiction's planning department to explain the intent and scope of the project and to gather the most recent and accurate GIS land use information that each jurisdiction had available. PDC staff then investigated each dataset by comparing them to aerial photography in GIS. Some proved extremely accurate, and so would just need to be reassigned with the regional categories. Regional categories for the first phase of the inventory were: agricultural/forest/undeveloped, commercial, heavy industrial, light industrial, low density residential, medium density residential, mixed use, parks/public open space, public/semi-public, rural residential 1, 2 and 3, undeveloped, water and vacant. The rural residential categories decrease in density; rural residential 1 is more dense than rural residential 2 or 3. (These categories have changed slightly between this point and the third benchmark of the project in March 2012)

After initial investigation into each jurisdiction's data, staff began to create customized processes to classify local data according to the regional common land uses. For localities with accurate data, the process simply involved grouping each parcel into the regional categories, or making relatively minor changes. For jurisdictions with varying degrees of accuracy in their data, more involved and individualized processes were needed. Much of this process has relied on the Virginian Geographic Information Network (VGIN)'s aerial photography. In early 2011, the latest available aerials from VGIN were from 2009, therefore the existing land use inventory is a snapshot of 2009 in most areas. Urban and suburban counties are more up-to-date. The following is a brief summary of the process to bring each jurisdiction to the regional standard.



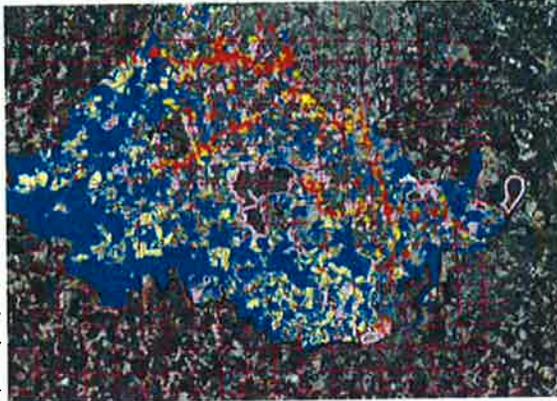
Ashland: Maintains up-to-date data. PDC staff changed all residential parcels from their classifications to regional, density-based classifications, and changed all "vacant" parcels to "undeveloped" if they were under 5 acres, and "Agricultural/Forest/Undeveloped" if they were over 5 acres.

Charles City: Maintains a "tax parcel" file, with owner names and some other attributes, but no land use information. In 2007 the PDC created an amorphous, non-parcel specific, land use file based on land cover data (note: land cover, not land use).

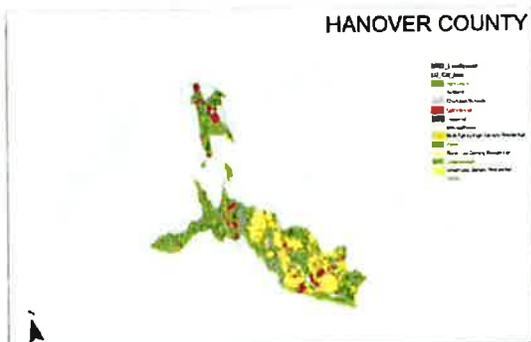
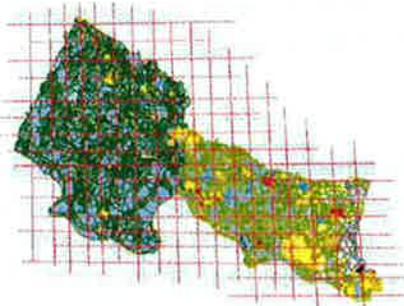
After attempting to use the provided information to determine land use, staff changed tack and created a grid to overlay the county in GIS and methodically went through each parcel and assigned a land use by what each parcel appeared to be.



Chesterfield: Updates parcel-based land use in GIS weekly. The major change from their categories to the regional scheme is that the larger part of the county is termed “vacant”(shown in the image to the right in blue). Developed categories were translated into their regional counterparts, with residential parcels broken into the acreage-based regional categories. The “vacant” parcels were identified by aeriels, using a grid: those over five acres were labeled “Agricultural/Forest/Undeveloped”, and those under 5 acres were labeled “Undeveloped”.



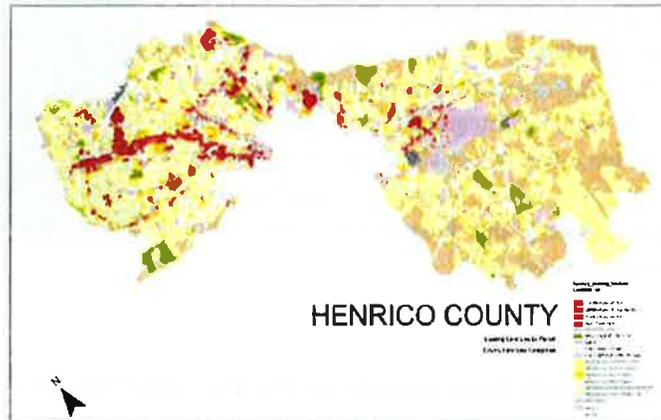
Goochland: Keeps two relevant files: (1) a parcel file, fairly up-to-date, with little associated information in the attribute table, and (2) a zoning file, which is mainly two large polygons, for the eastern half and western half of the county. Goochland staff indicated that the zoning file was a decent indicator of land use, so PDC staff began the process by imposing each zoning classification onto the parcel file. Aerial spot checks then made clear that that process yielded a low degree of accuracy. At that time PDC staff spot-checked the zoning on every parcel by using the zoning color as an outline, not a fill color, with aeriels. By selecting each outline that appeared to be accurate (see blue outlines in image to the right) and filling in the accompanying value, staff was able to compare the assigned value with the aerial for each parcel, weed out the inaccurate designations, and change them to reflect existing land use and the regional categories.



Hanover: Has two files which could be used in this process: a 2002 parcel-based file of “land cover”, with a field called “land use”, only covering the suburban service area (parcels shown in map), and a fairly up-to-date tax parcel file for the whole county. PDC staff underwent a complex process to decipher land use and impose classifications using various attributes in the two

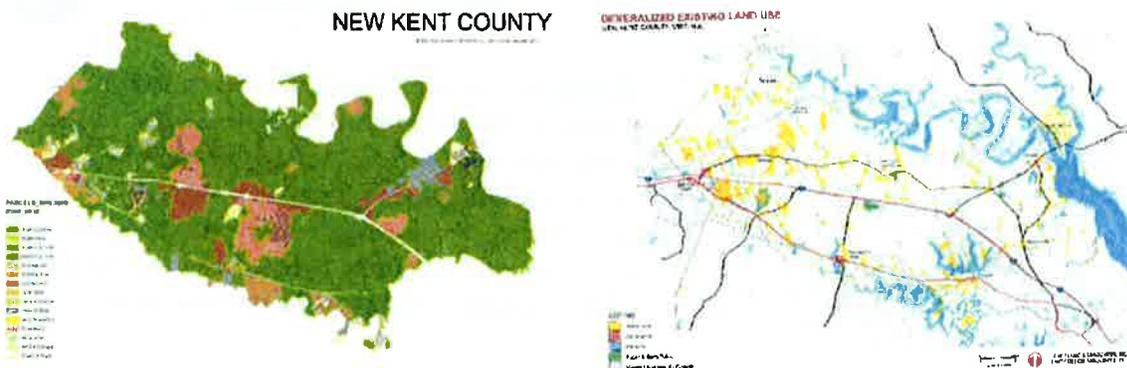
files, as well as zoning classifications. Spot-checking proved that this process also yielded a low degree of accuracy, and so staff once again created a grid and rechecked every parcel by aerials, changing their classification where necessary.

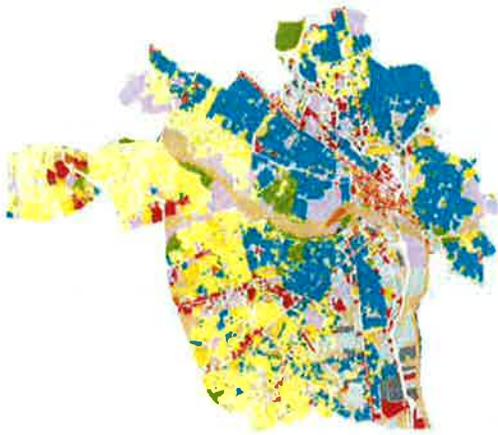
Henrico: Keeps well-managed, up-to-date GIS data of every parcel in the county, with similar categories to the regional ones PDC staff is imposing. However, a good deal of land is labeled “vacant” (beige in the image at the right), particularly in the eastern half of the county. Staff reviewed each by aerials and categorized those parcels under 5 acres as “Undeveloped”, and assigned those over five acres as “Agricultural/Forest/Undeveloped”.



Powhatan: Keeps a parcel shapefile with a land use attribute. However, both due to categories like “Vacant Rural Residential”, or “Vacant Mixed Use” which indicate they may be at least influenced by zoning, and spot checks with aerials led staff to believe that there was a high degree of inaccuracy. Staff used the categories as a starting point, reviewed each parcel by aerial photography, and assigned a land use category.

New Kent: Keeps parcel-based file with various information, including zoning. However New Kent staff stated at the initial meeting that the file was inaccurate, especially the zoning (below left). The county provided a paper copy of a “generalized [not parcel-based] existing land use” map made by a consultant in 2003 (below right). The map seemed to be fairly accurate, so staff “rubber-sheeted” i.e. geo-referenced the map into a GIS document, and imposed the land use categories onto each parcel, then spot-checked them with aerials, making changes as necessary.

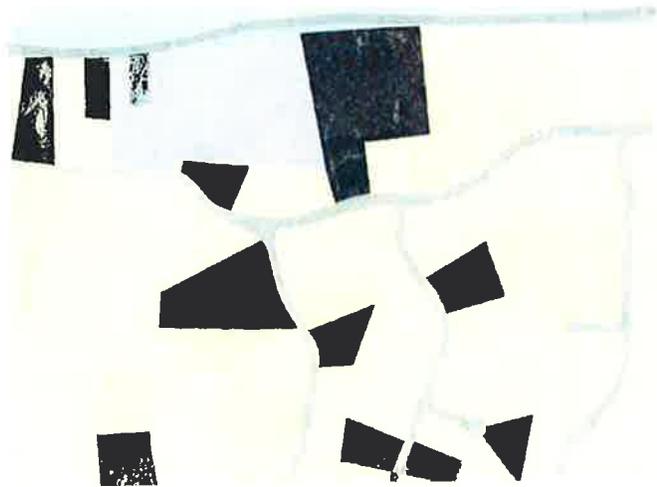




Richmond: Keeps extremely up-to-date files. PDC staff reconciled the categories to the regional categories, which in this case, like Henrico and Chesterfield, is a simplification of the City's more complex categories. For example: Richmond differentiates between "Office" and "Commercial", but since we don't have that information for the rural counties, those categories were merged to "Commercial/Office". Residential uses were divided according to the regional density breaks.

Project Process, Benchmark II

Staff reviewed by aerials each parcel labeled "Agricultural/Forest/Undeveloped", and assigned a category of "Agricultural", for open fields or farms, "Forest" for forested land, and "Undeveloped" – large parcels labeled thusly are few and far between, and represent parcels like a de-forested or burned parcel, while small "undeveloped" parcels are those already subdivided but yet unbuilt, as in the parcels between houses in a neighborhood, or a small forest between two built parcels. (see image on right)



Project Process, Benchmark III

In January of 2012, RRPDC staff once again met with staff from each jurisdiction, to get feedback on the current regional existing land use for their jurisdiction. Staff examined the maps and pointed out questions or inaccuracies, based on their knowledge of the jurisdiction. RRPDC staff noted discussion and comments on parcel designations, the categories and color scheme. After meeting with all jurisdictions, staff refined the land use categories and designations according to comment, bringing the dataset to "Benchmark III".

Beyond the Benchmarks – Using the Data

The Regional Existing Land Use dataset will be constantly evolving, as land use patterns change and new information becomes available. However, RRPDC staff is confident that the dataset is an accurate tool to make calculations and assessments at a regional level. To date, staff has used the dataset to calculate and map Regional Developed and Undeveloped Land; Regional Undeveloped Land by Zoning Classification and Regional Undeveloped Land by Zoning Classification within Water/Sewer Service Areas.

Attachments:

- Existing Land Use Inventory Summary (presented to the Richmond Regional Planning District Commission Board July 2012)
- Developed and Undeveloped Land in the Richmond Region (map)
- Undeveloped Land by Zoning Classification Inside the Water/Sewer Service Area Boundary (map)

Richmond Regional Existing Land Use Inventory



Richmond Regional Planning District Commission
July 12, 2012

In 2012 Richmond Regional Planning District Commission staff completed a regional, parcel-based land use inventory, using *geographic information systems* or GIS. This summary report was derived from the GIS information and shows land use by jurisdiction, as percentages of total acreage.

The categories used in the inventory were created to display a uniform and consistent dataset to represent land uses across the region. Each jurisdiction keeps different information and uses various land use categories, and therefore these regional descriptions will be somewhat different from each jurisdiction's classifications.

Where available, land use designations were determined using GIS information kept by the county, adapted to these categories. Where the data was not available or inconsistently available, staff determined land use by Virginia Geographic Information Network (VGIN) aerial photography flown in 2009 (the most recently available when the project began), Navteq (private GIS data provider) data and feedback from jurisdiction staff. Because of the necessity of reliance on aerial photography in many cases, this inventory is a snapshot of the year 2009 in rural counties (Charles City, New Kent, Goochland, Powhatan and Hanover). Urban and suburban jurisdictions (Richmond, Ashland, Henrico and Chesterfield) are a snapshot of 2011.

Residential: Whether the county provided the updated information in GIS format, or whether PDC staff determined a residential use by aeriels, all residential parcels were labeled as such and then broken out by parcel size. Except for High Density Residential, which includes multi-family parcels, there is one unit per parcel.

High Density Residential: parcels less than 0.2 acres, as well as apartment complexes, condos and mobile home parks, all on one parcel

Medium Density Residential: ≥ 0.2 and < 0.5 acres

Low Density Residential: ≥ 0.5 and < 2 acres

Rural Residential_1: ≥ 2 and < 5 acres

Rural Residential_2: ≥ 5 and 10 acres

Rural Residential_3: ≥ 10 and < 20 acres

Land Use Categories

	High Density Residential
	Medium Density Residential
	Low Density Residential
	Rural Residential_1
	Rural Residential_2
	Rural Residential_3
	Agricultural
	Ag/Forest
	Forest
	Parks/Open Space
	Commercial/Office
	Mixed Use
	Institutional
	Airport
	Industrial
	Undeveloped
	Water



Commercial/Office: This category includes retail, office and food service, etc.

Parks/ Open Space: Parks, golf Courses, ball parks, tennis courts and cemeteries. Designation was determined from GIS information for the jurisdictions that keep it, and by aerials, NAVTEC data, the regional parks layer completed by the PDC in 2009, and feedback from jurisdiction staff.

Institutional: This category includes prisons, schools, and government buildings, as well as churches and other parcels previously labeled "public/semi-public" in urban/suburban jurisdictions.

Industrial: This category includes both heavy and light industrial as well as public utilities, cell tower parcels, water treatment plants and other municipal service locations.

Agricultural: These are parcels that are at least 80-90% plowed, tilled or planted area. Also includes pasture, barns, silos etc. This was done entirely by aerials (in rural localities we didn't have the information, and in the suburban counties these parcels were all labeled as vacant).

Airport. Both commercial and general aviation airports.

Ag/Forest: These parcels were roughly between 40/60% of one or the other agricultural or forested, all also done by aerials.

Forest: These are parcels that are at least 80-90% forested. Most of them were 100% forested.

Undeveloped: These parcels are those that can't be defined as any of the above. In the rural areas this includes bare parcels that look like they've been stripped or burnt, or wetland areas that are divided by parcel, or small junkyards. In other areas, undeveloped may also mean that the parcel is surrounded by developed land, is under approximately four acres, and is most likely not of ecological significance (even if it's a forested parcel). This could be the buffer of woods between a housing development and a road, or the unbuilt parcels between houses. In many cases subdivided parcels indicating plans for a subdivision were labeled as "undeveloped", even if they were forest or farm. In the cases of large subdivisions that were built between 2009 and the present, it is important to reiterate that this is a snapshot of 2009.

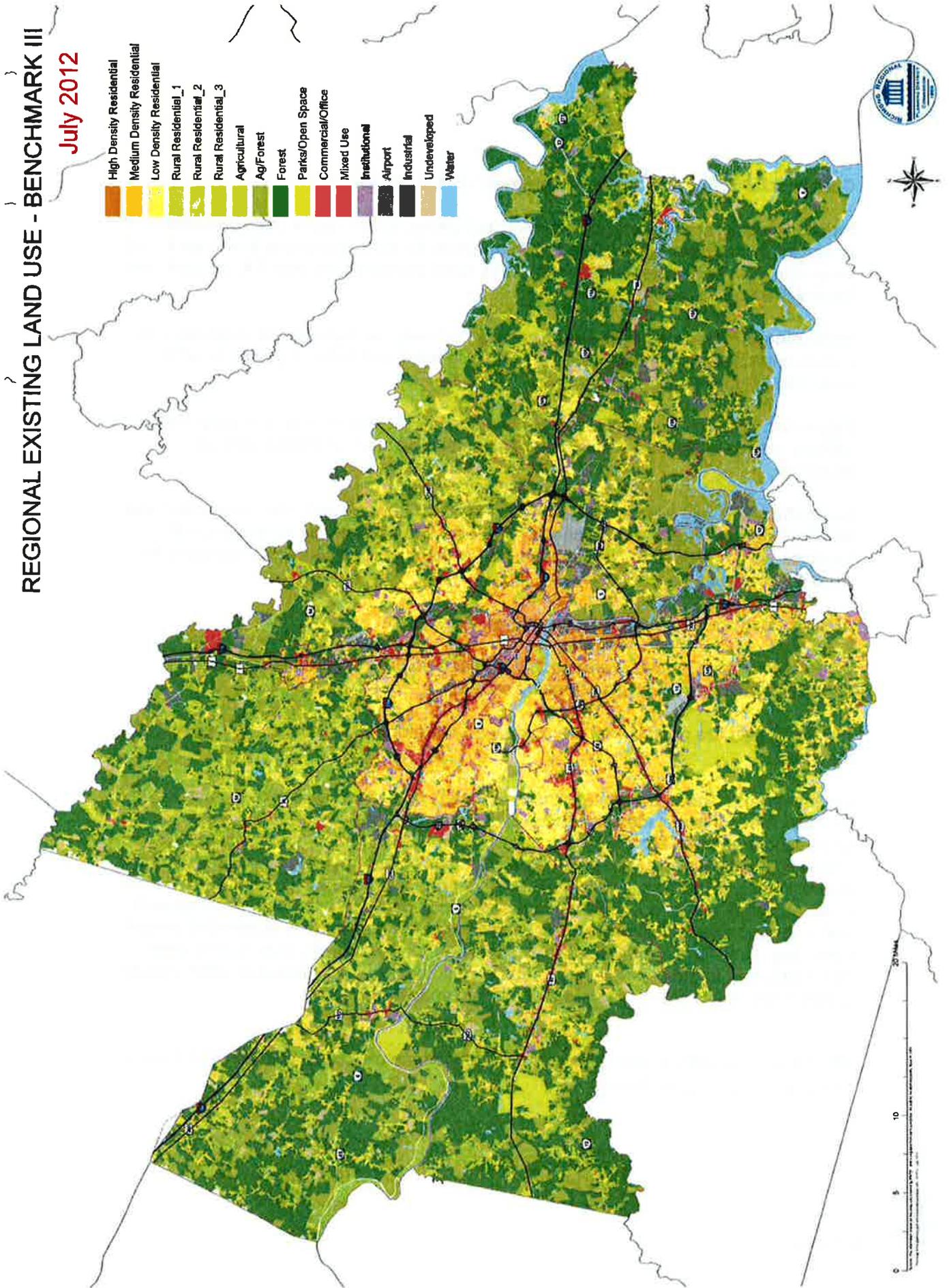
Mixed Use: An area in which there is a mix of commercial, office and residential uses, determined by the jurisdiction.



REGIONAL EXISTING LAND USE - BENCHMARK III

July 2012

- High Density Residential
- Medium Density Residential
- Low Density Residential
- Rural Residential_1
- Rural Residential_2
- Rural Residential_3
- Agricultural
- Ag/Forest
- Forest
- Parks/Open Space
- Commercial/Office
- Mixed Use
- Institutional
- Airport
- Industrial
- Undeveloped
- Water

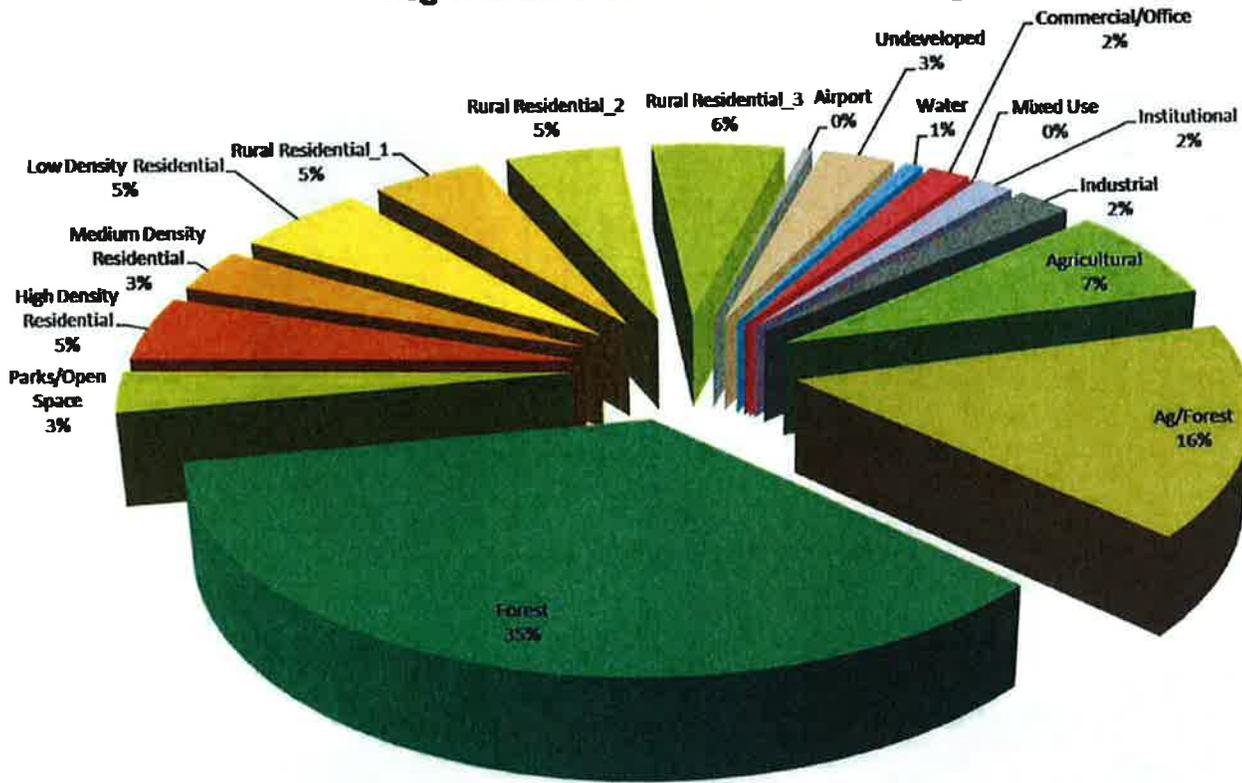


0 5 10 20 MILES

Map prepared by the South Regional Planning Authority, 10000 South Regional Parkway, Suite 100, Dallas, Texas 75243. All rights reserved. No part of this map may be reproduced without the written permission of the South Regional Planning Authority.



Regional Land Use as % of Total Acreage



Category	Acreage	% of Total
Ag/Forest	222,751	16%
Agricultural	99,972	7%
Airport	5,491	0%
Commercial/Office	24,802	2%
Forest	488,600	35%
High Density Residential	67,033	5%
Industrial	32,409	2%
Institutional	21,802	2%
Low Density Residential	74,970	5%
Medium Density Residential	45,633	3%
Mixed Use	292	0%
Parks/Open Space	43,293	3%
Rural Residential 1	64,690	5%
Rural Residential 2	66,619	5%
Rural Residential 3	76,816	6%
Undeveloped	42,890	3%
Water	10,933	1%
Total	1,388,996	100%

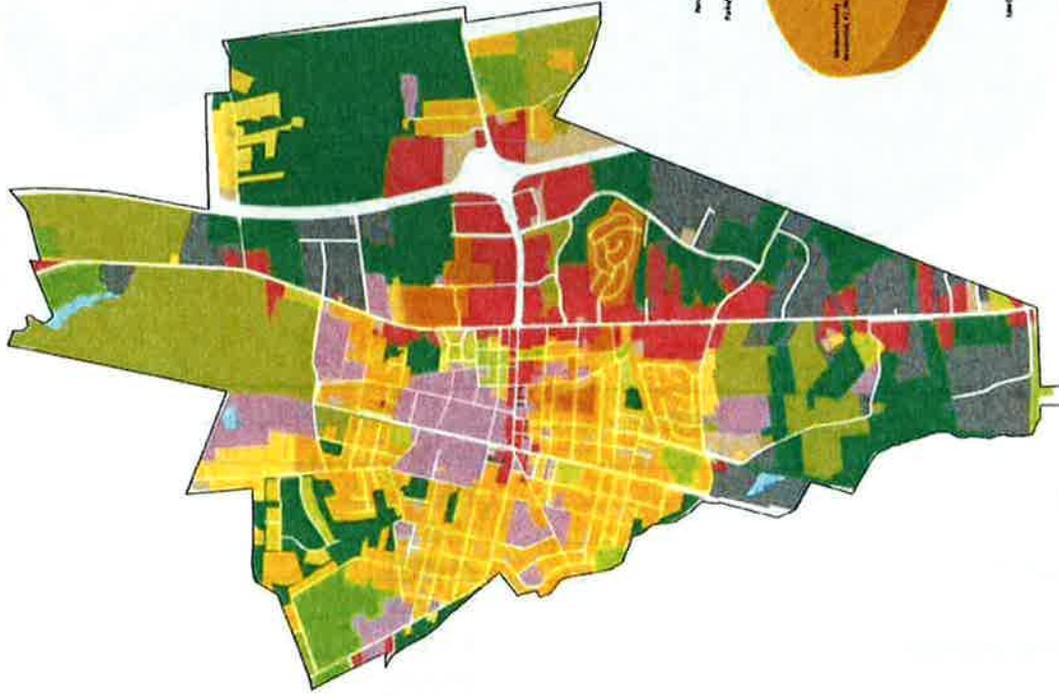


REGIONAL EXISTING LAND USE - BENCHMARK III

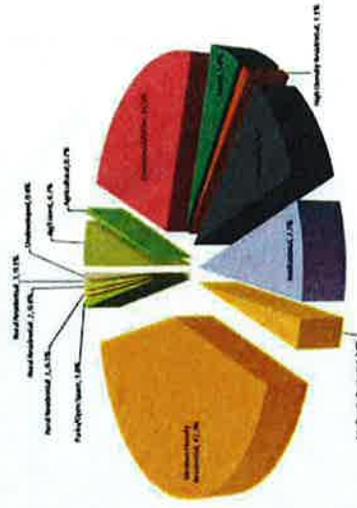
May 2012

Ashland

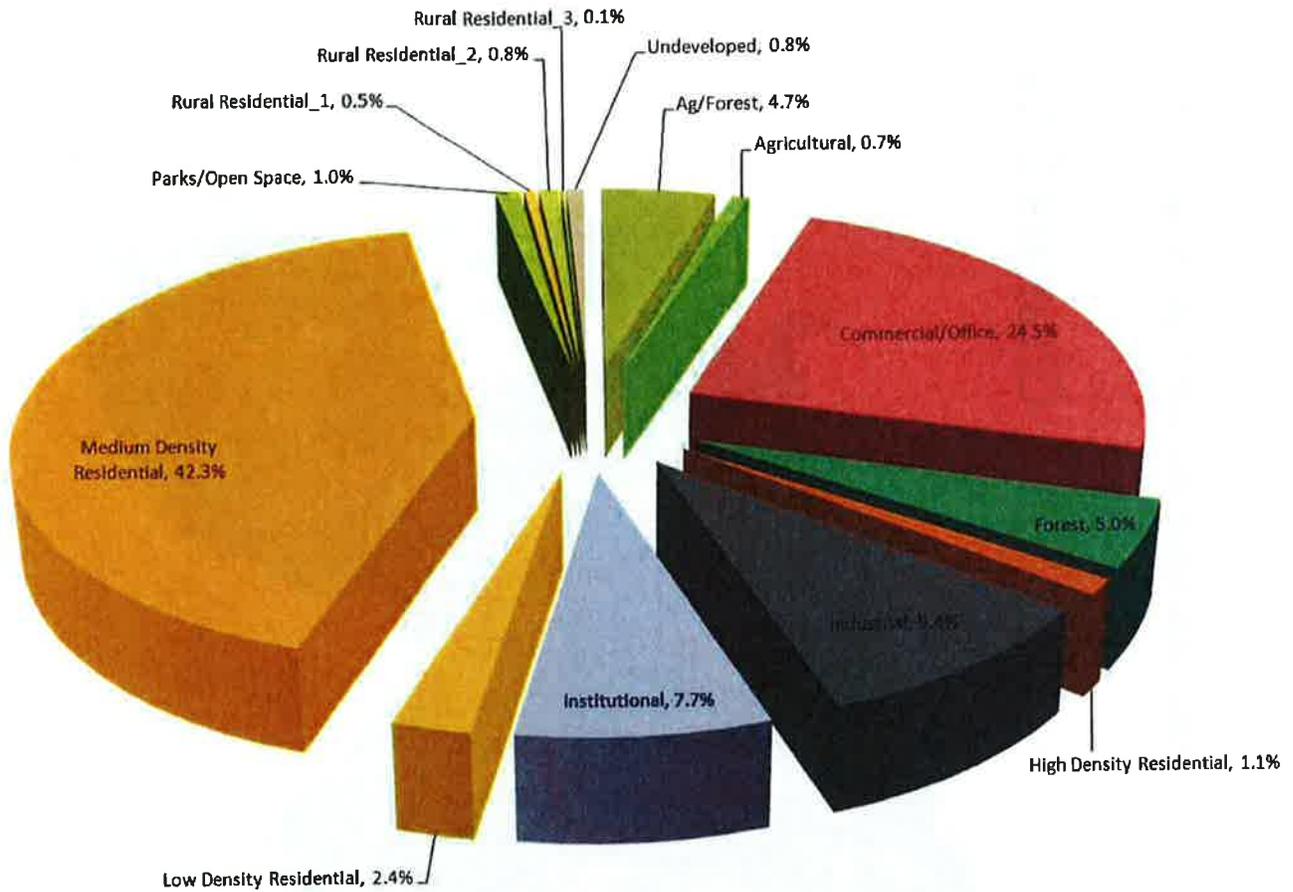
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- Forest
- Park/Open Space
- Commercial/Office
- Institutional
- Mixed Use
- Industrial
- Airport
- Undeveloped
- Water



Ashland - Land Use as % of Total Acreage



Ashland - Land Use as % of Total Acreage

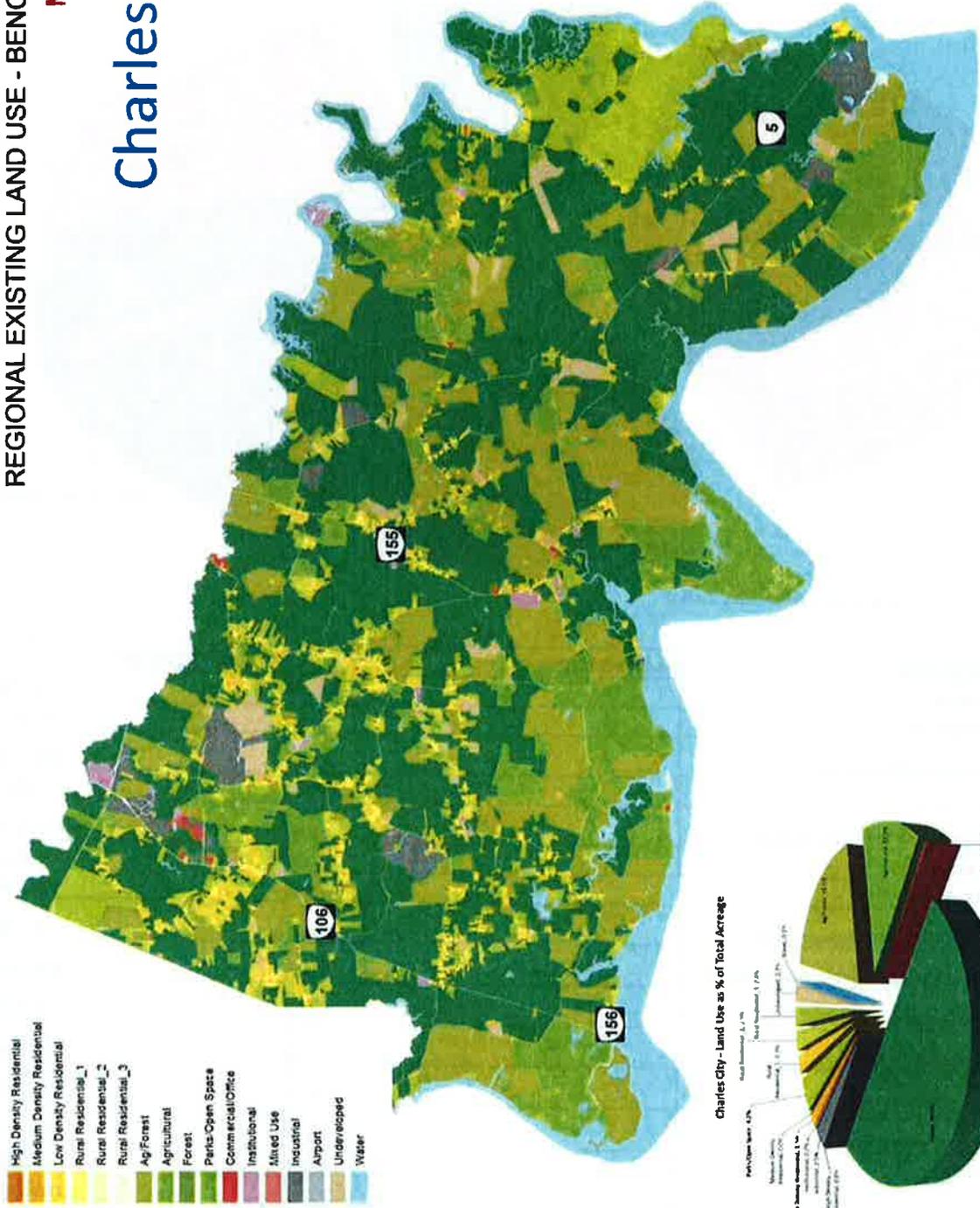


Category	Acreage	% of Total
Ag/Forest	664	4.7%
Agricultural	150	0.7%
Commercial/Office	414	24.5%
Forest	1,036	5.0%
High Density Residential	115	1.1%
Industrial	487	9.4%
Institutional	312	7.7%
Low Density Residential	122	2.4%
Medium Density Residential	542	42.3%
Parks/Open Space	163	1.0%
Rural Residential 1	53	0.5%
Rural Residential 2	62	0.8%
Rural Residential 3	24	0.1%
Undeveloped	145	0.8%
Total	4,289	100.0%

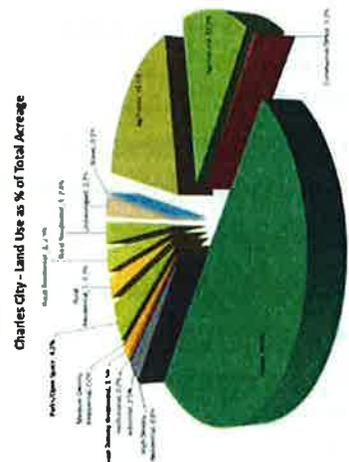


REGIONAL EXISTING LAND USE - BENCHMARK III
 May 2012

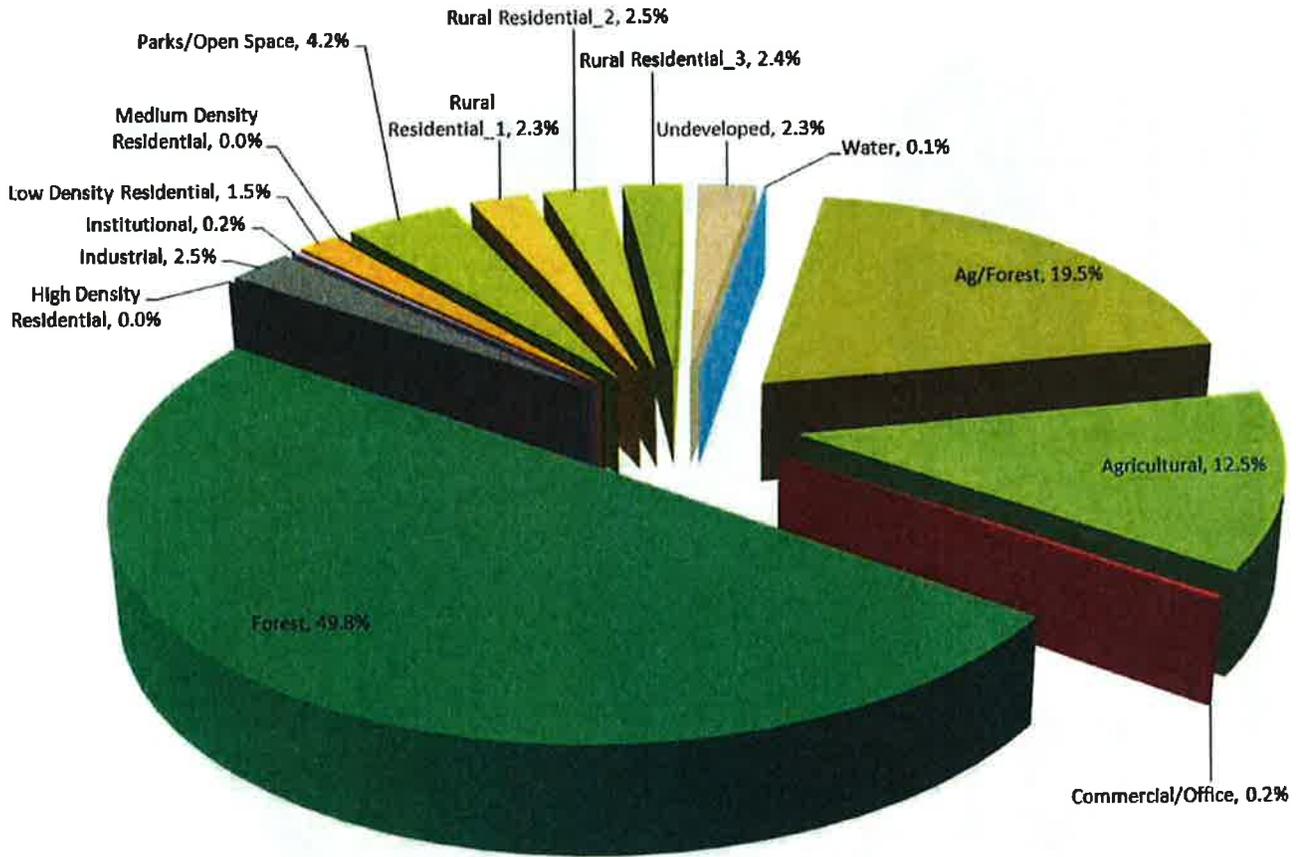
Charles City



- High Density Residential
- Medium Density Residential
- Low Density Residential
- Rural Residential_1
- Rural Residential_2
- Rural Residential_3
- Ag Forest
- Agricultural
- Forest
- Parks/Open Space
- Commercial/Office
- Institutional
- Mixed Use
- Industrial
- Airport
- Under/easped
- Water



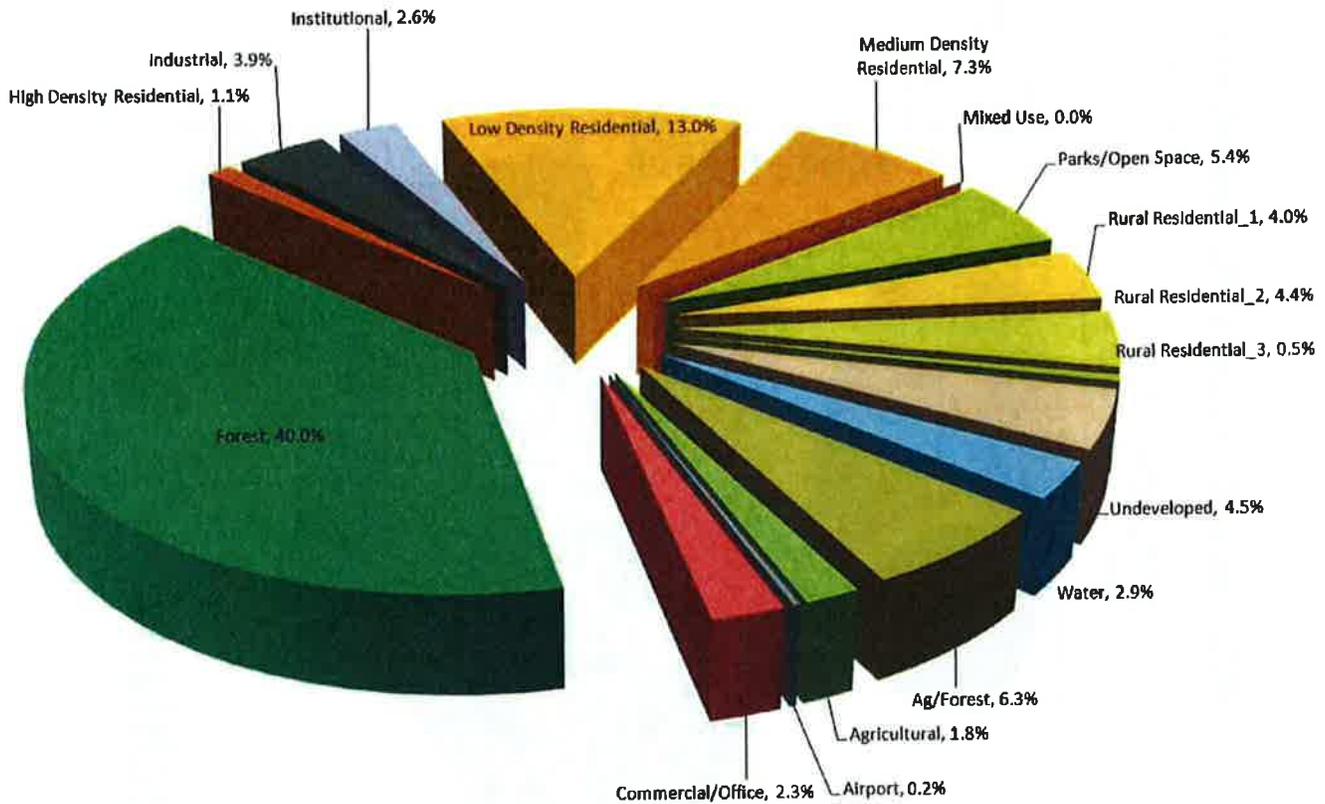
Charles City - Land Use as % of Total Acreage



Category	Acreage	% of Total
Ag/Forest	22,593	19.5%
Agricultural	14,480	12.5%
Commercial/Office	231	0.2%
Forest	57,627	49.8%
High Density Residential	3	0.0%
Industrial	2,923	2.5%
Institutional	254	0.2%
Low Density Residential	1,757	1.5%
Medium Density Residential	32	0.0%
Parks/Open Space	4,887	4.2%
Rural Residential_1	2,665	2.3%
Rural Residential_2	2,875	2.5%
Rural Residential_3	2,742	2.4%
Undeveloped	2,649	2.3%
Water	80	0.1%
Total	115,795	100.0%



Chesterfield - Land Use as % of Total Acreage

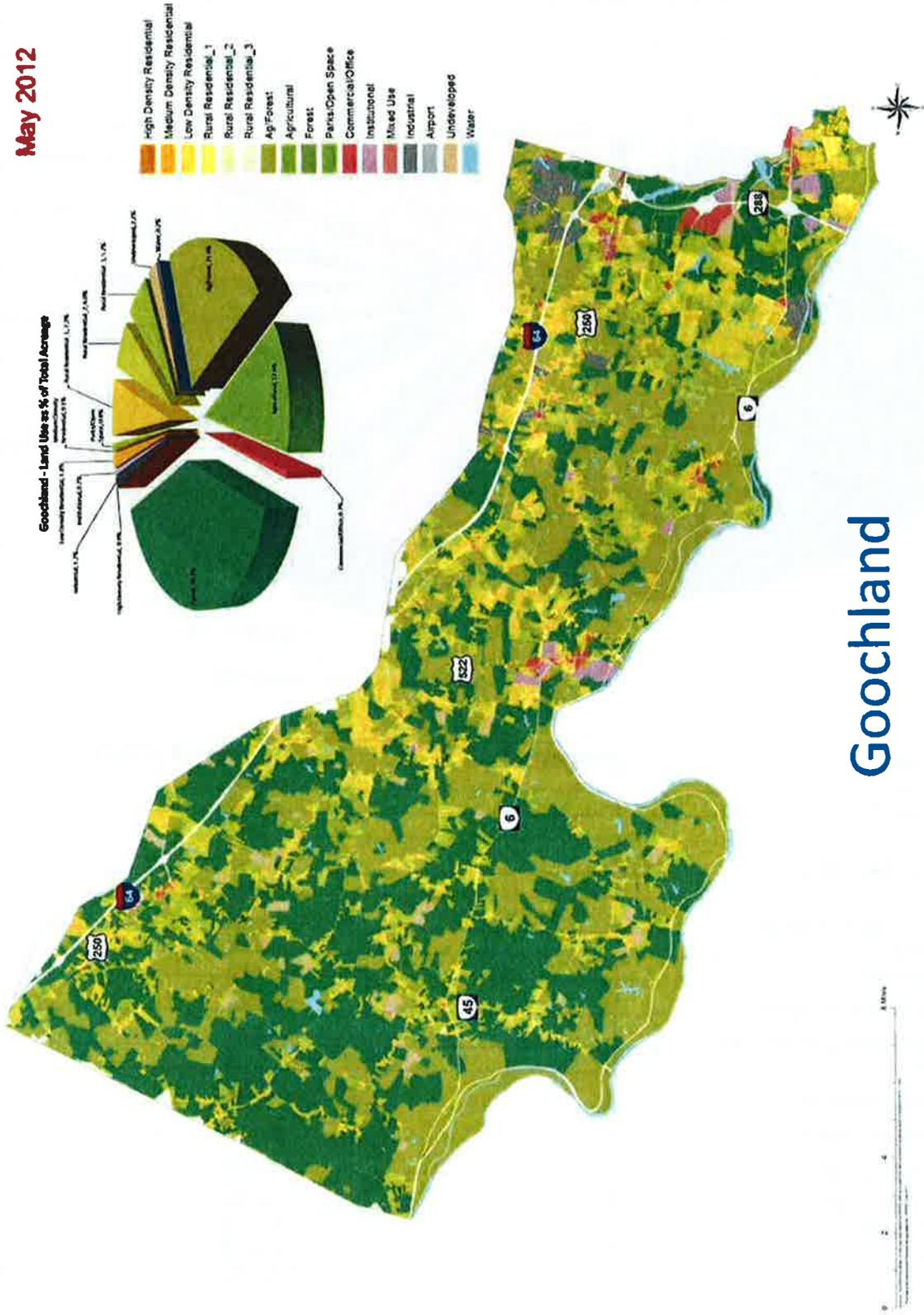


Category	Acreage	% of Total
Ag/Forest	16,607	6.3%
Agricultural	4,604	1.8%
Airport	565	0.2%
Commercial/Office	6,092	2.3%
Forest	104,804	40.0%
High Density Residential	2,880	1.1%
Industrial	10,139	3.9%
Institutional	6,740	2.6%
Low Density Residential	34,028	13.0%
Medium Density Residential	18,984	7.3%
Mixed Use	0	0.0%
Parks/Open Space	14,141	5.4%
Rural Residential 1	10,414	4.0%
Rural Residential 2	11,396	4.4%
Rural Residential 3	1,236	0.5%
Undeveloped	11,675	4.5%
Water	7,528	2.9%
Total	261,836	100.0%



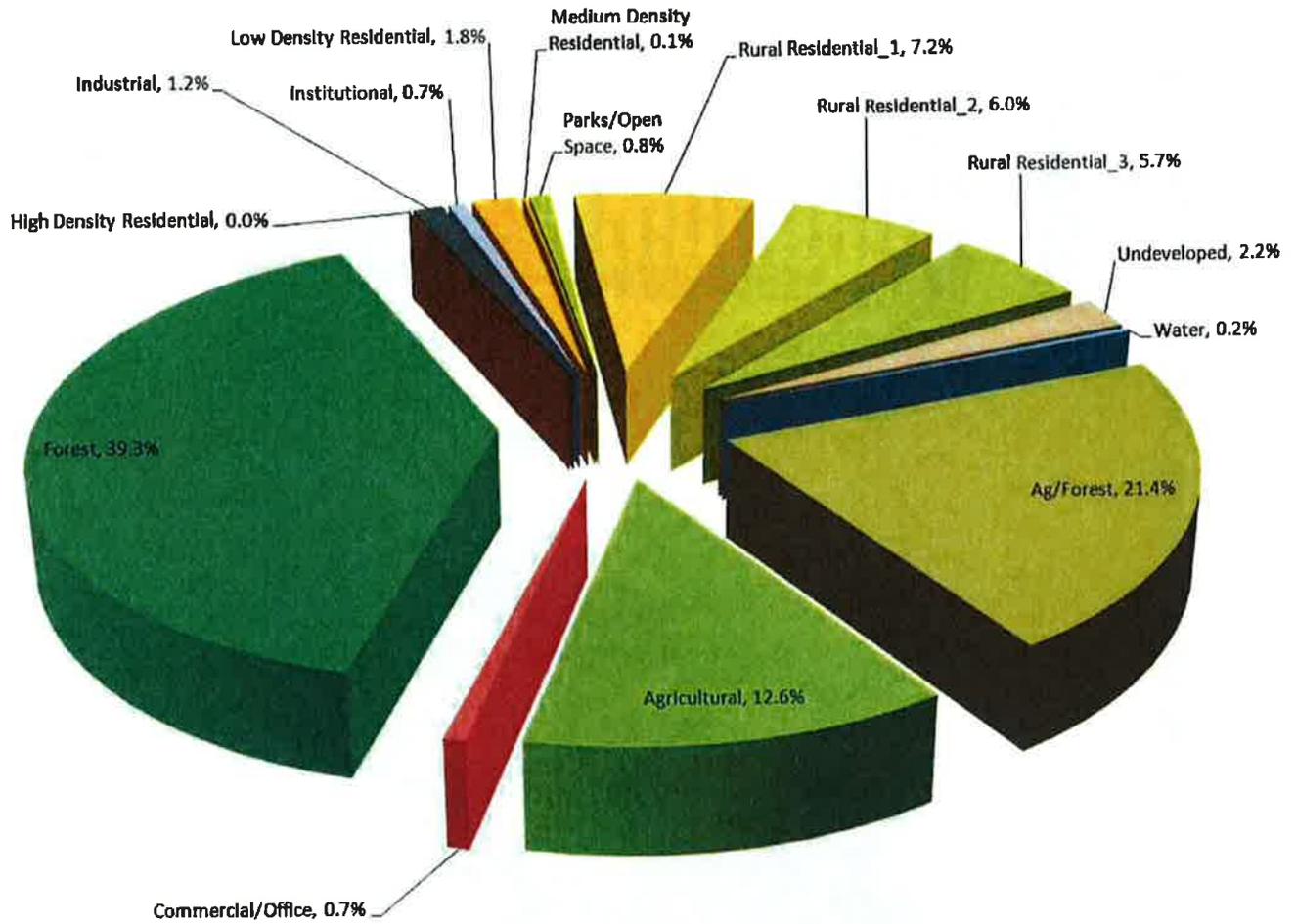
REGIONAL EXISTING LAND USE - BENCHMARK III

May 2012



Goochland

Goochland - Land Use as % of Total Acreage



Category	Acreage	% of Total
Ag/Forest	38,249	21.4%
Agricultural	22,574	12.6%
Commercial/Office	1,200	0.7%
Forest	70,226	39.3%
High Density Residential	44	0.0%
Industrial	2,223	1.2%
Institutional	1,182	0.7%
Low Density Residential	3,248	1.8%
Medium Density Residential	257	0.1%
Parks/Open Space	1,418	0.8%
Rural Residential_1	12,926	7.2%
Rural Residential_2	10,726	6.0%
Rural Residential_3	10,196	5.7%
Undeveloped	4,012	2.2%
Water	437	0.2%
Total	178,919	100.0%

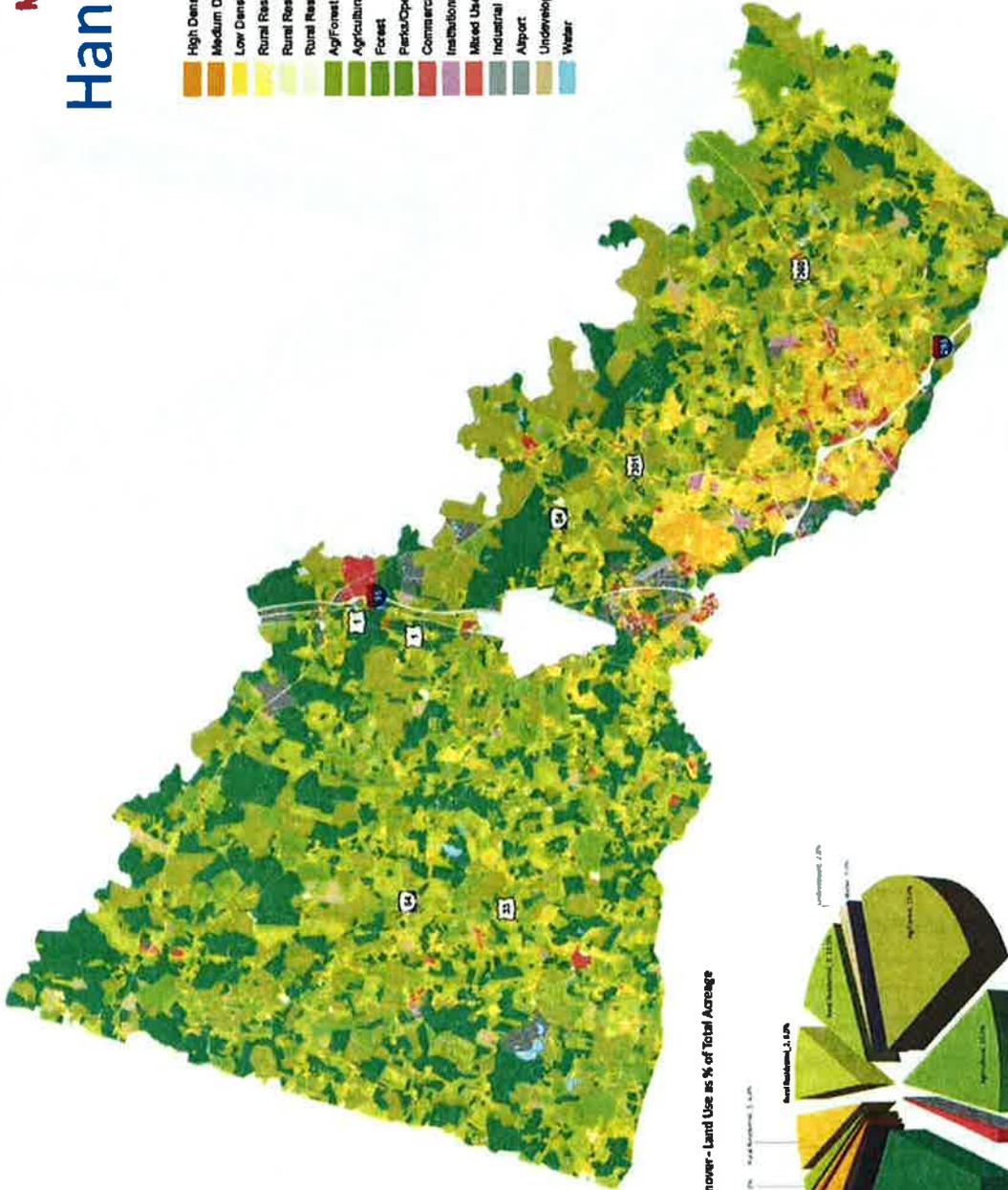


REGIONAL EXISTING LAND USE - BENCHMARK III

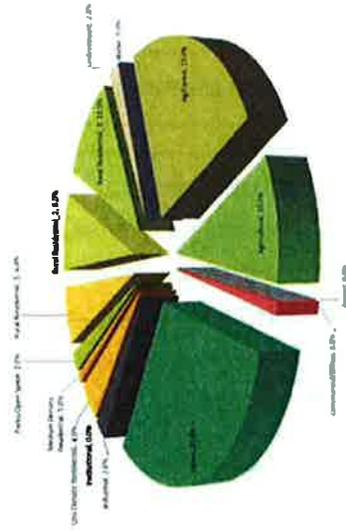
May 2012

Hanover

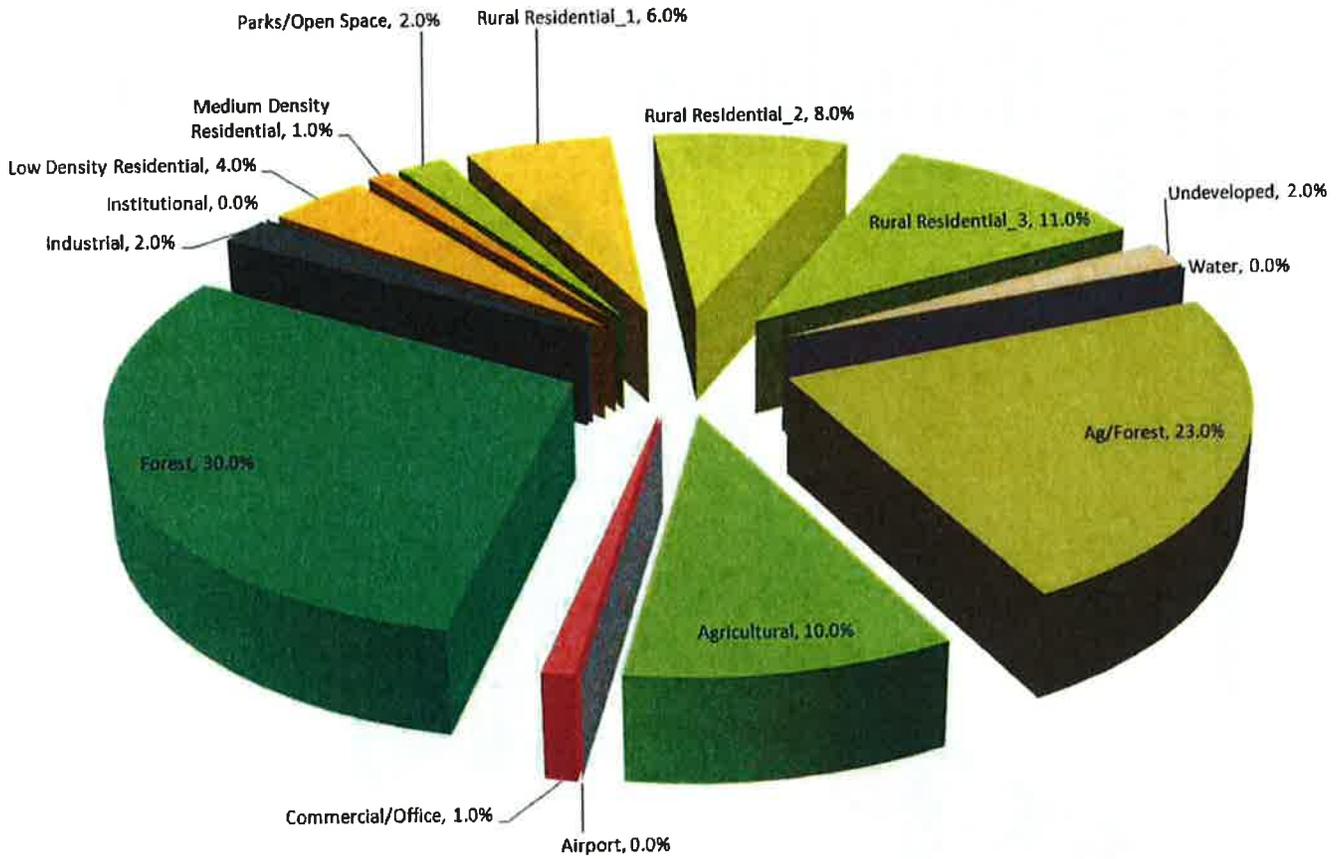
- High Density Residential
- Medium Density Residential
- Low Density Residential
- Rural Residential_1
- Rural Residential_2
- Rural Residential_3
- AgForest
- Agricultural
- Forest
- Park/Open Space
- Commercial/Office
- Institutional
- Mixed Use
- Industrial
- Airport
- Undeveloped
- Water



Hanover - Land Use as % of Total Acreage



Hanover - Land Use as % of Total Acreage



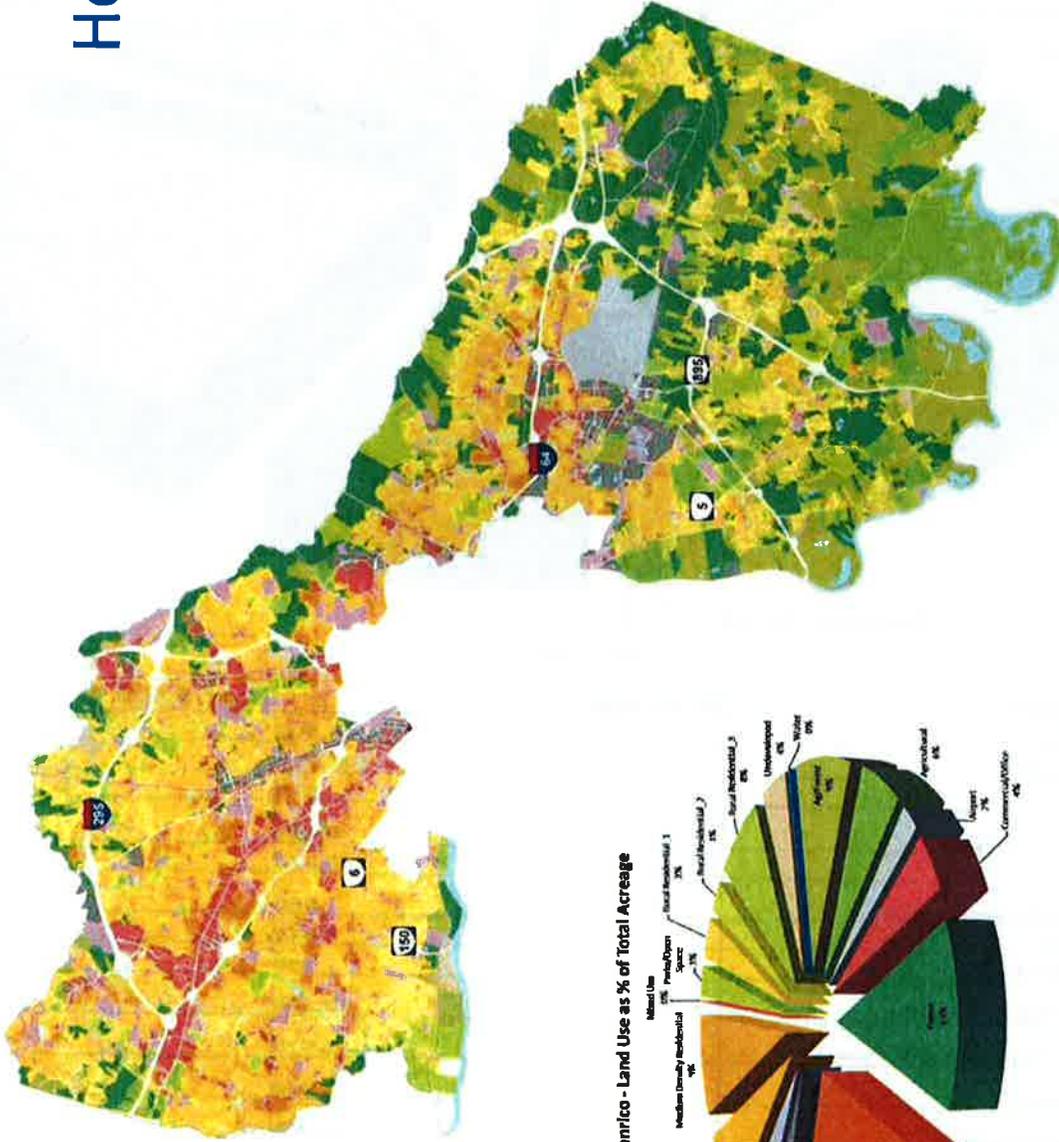
Category	Acreage	% of Total
Ag/Forest	67,309	23.0%
Agricultural	29,543	10.0%
Airport	179	0.0%
Commercial/Office	3,298	1.0%
Forest	85,278	30.0%
High Density Residential	380	0.0%
Industrial	5,912	2.0%
Institutional	940	0.0%
Low Density Residential	12,565	4.0%
Medium Density Residential	2,929	1.0%
Parks/Open Space	4,908	2.0%
Rural Residential 1	16,009	6.0%
Rural Residential 2	22,018	8.0%
Rural Residential 3	31,333	11.0%
Undeveloped	4,785	2.0%
Water	392	0.0%
Total	287,777	100.0%



REGIONAL EXISTING LAND USE - BENCHMARK III

May 2012

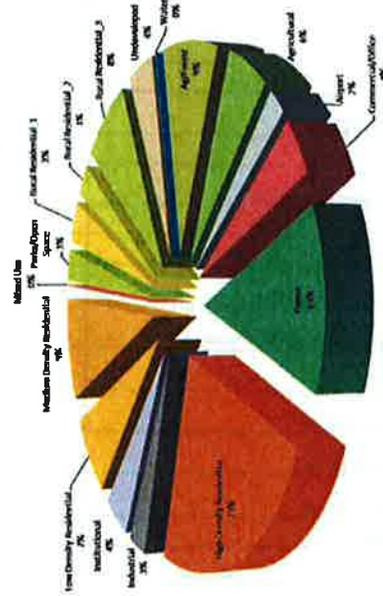
Henrico



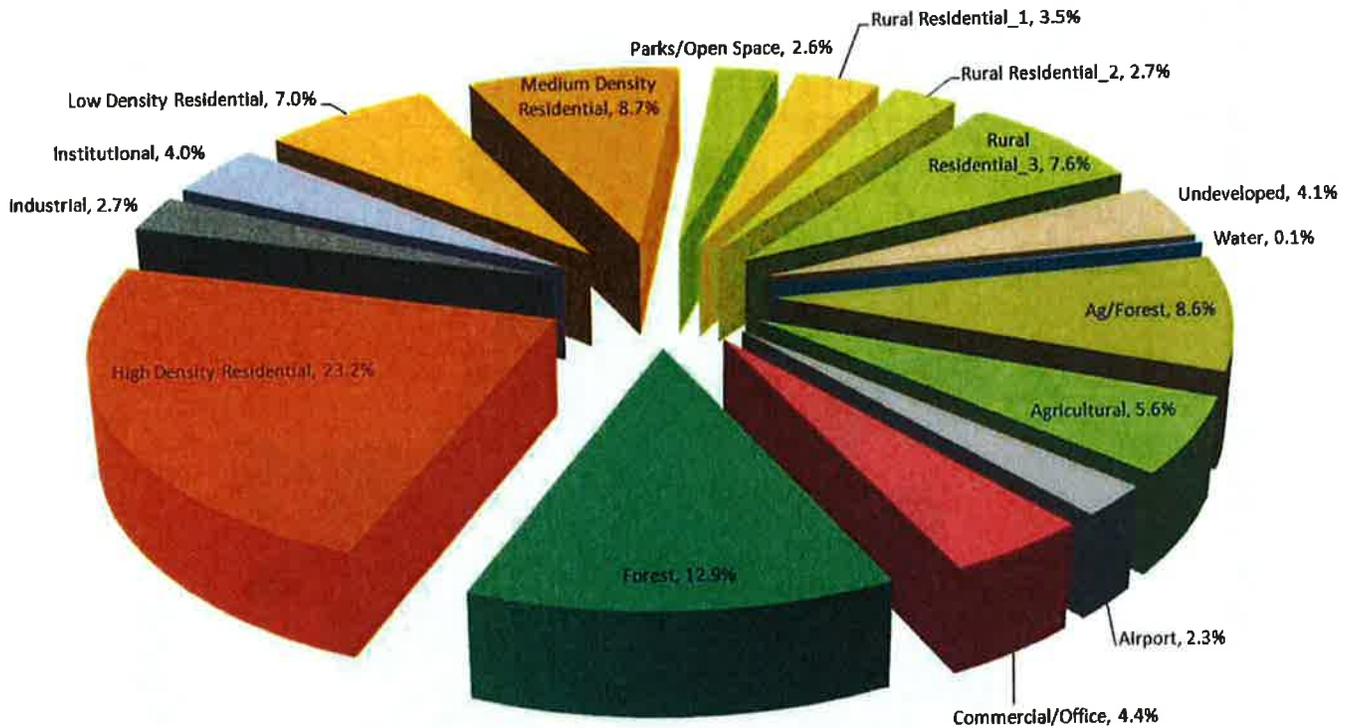
- High Density Residential
- Medium Density Residential
- Low Density Residential
- Rural Residential_1
- Rural Residential_2
- Rural Residential_3
- Ag/Forest
- Agricultural
- Forest
- Parks/Open Space
- Commercial/Office
- Institutional
- Mixed Use
- Industrial
- Airport
- Undeveloped
- Water



Henrico - Land Use as % of Total Acreage



Henrico - Land Use as % of Total Acreage



Category	Acreage	% of Total
Ag/Forest	17,171	8.6%
Agricultural	11,092	5.6%
Airport	4,610	2.3%
Commercial/Office	8,702	4.4%
Forest	25,776	12.9%
High Density Residential	46,339	23.2%
Industrial	5,353	2.7%
Institutional	7,955	4.0%
Low Density Residential	13,848	6.9%
Medium Density Residential	17,357	8.7%
Mixed Use	218	0.1%
Parks/Open Space	5,275	2.6%
Rural Residential_1	6,920	3.5%
Rural Residential_2	5,324	2.7%
Rural Residential_3	15,146	7.6%
Undeveloped	8,232	4.1%
Water	237	0.1%
Total	199,554	100.0%

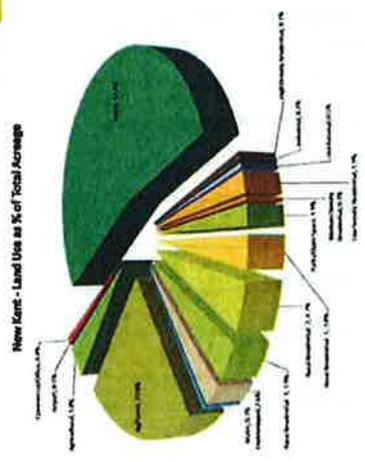


REGIONAL EXISTING LAND USE - BENCHMARK III

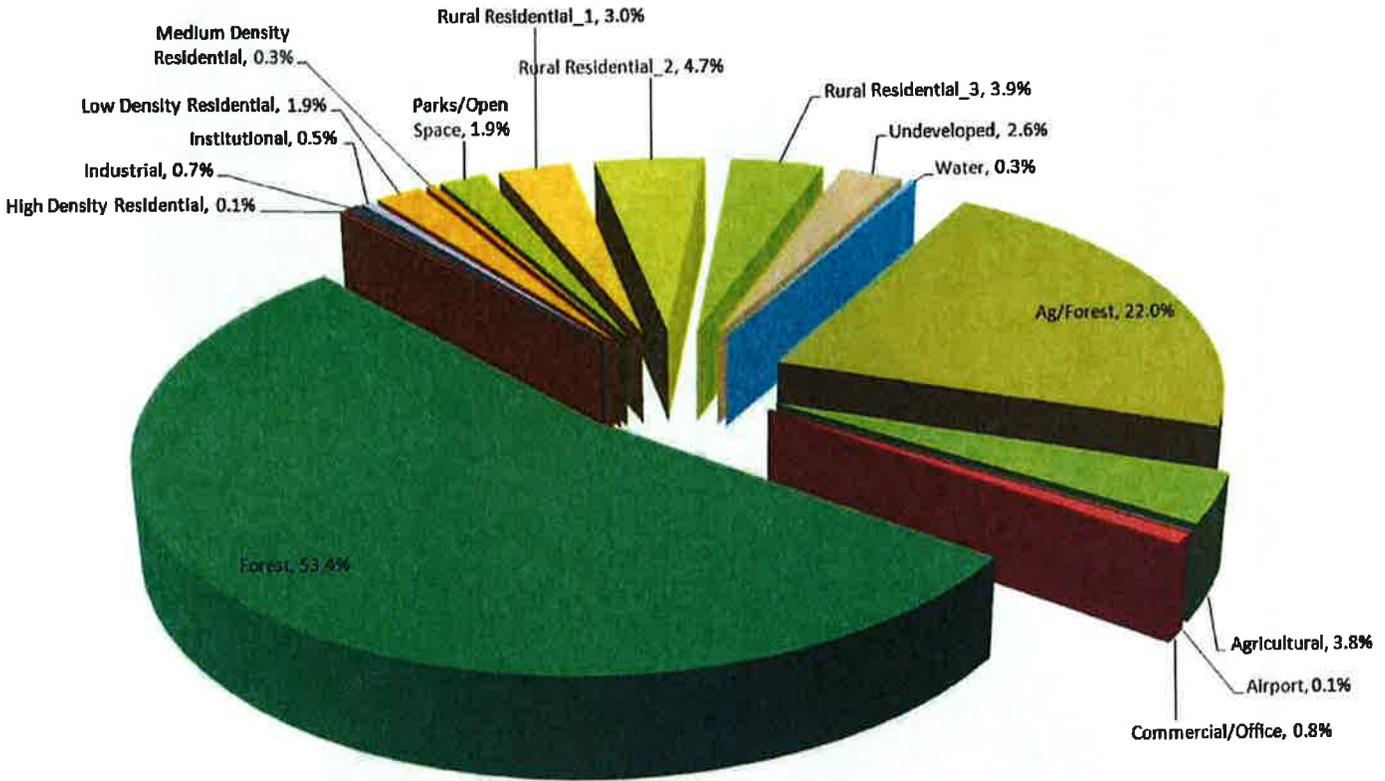
May 2012



New Kent



New Kent - Land Use as % of Total Acreage



Category	Acreage	% of Total
Ag/Forest	28,635	22.0%
Agricultural	4,970	3.8%
Airport	136	0.1%
Commercial/Office	1,015	0.8%
Forest	69,340	53.4%
High Density Residential	117	0.1%
Industrial	946	0.7%
Institutional	599	0.5%
Low Density Residential	2,537	1.9%
Medium Density Residential	442	0.3%
Parks/Open Space	2,536	1.9%
Rural Residential_1	3,968	3.0%
Rural Residential_2	6,085	4.7%
Rural Residential_3	5,038	3.9%
Undeveloped	3,385	2.6%
Water	371	0.3%
Total	130,120	100.0%

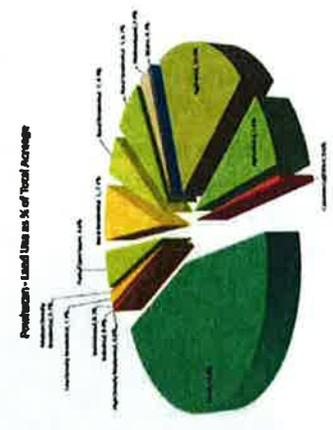
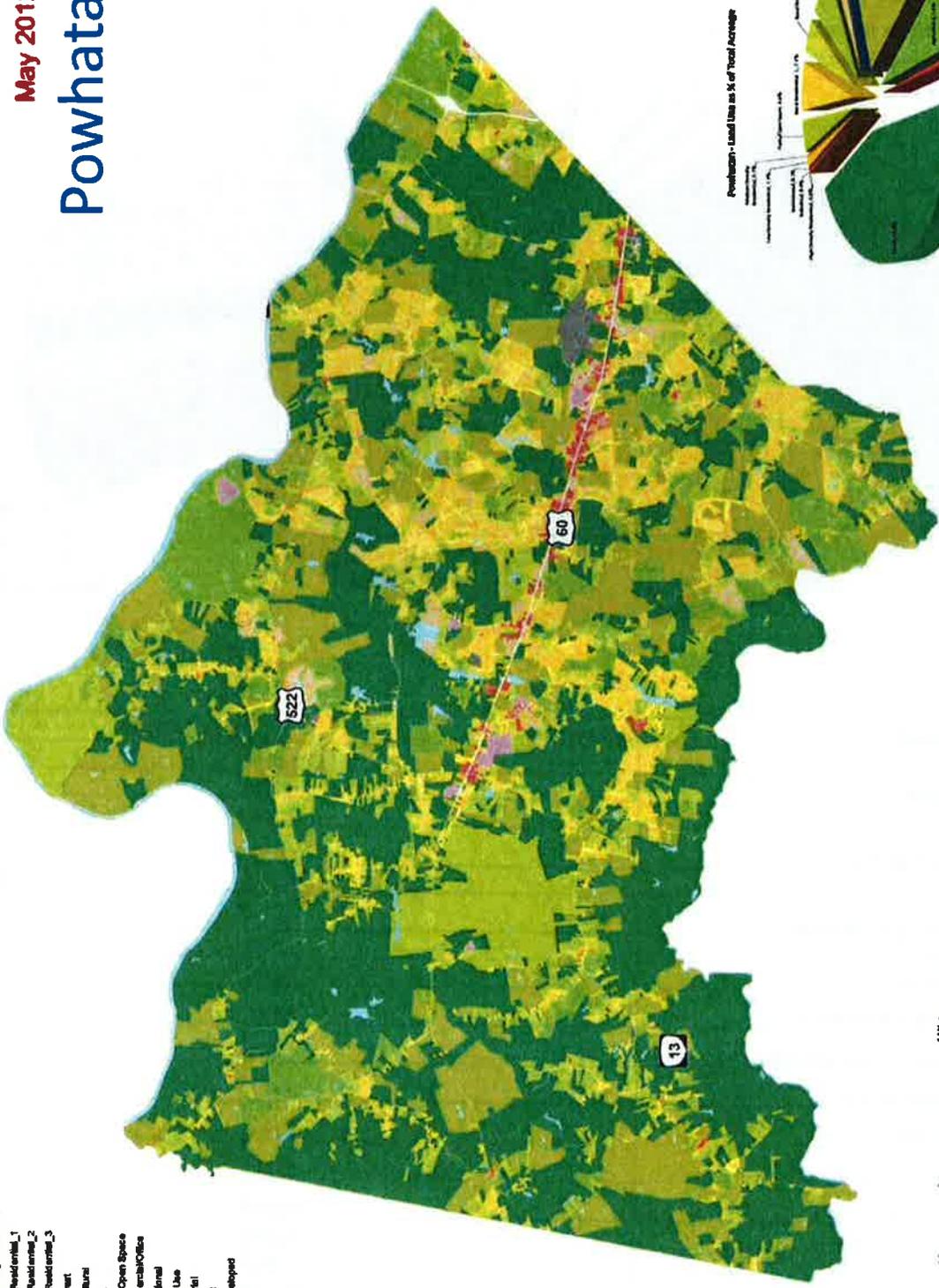


REGIONAL EXISTING LAND USE - BENCHMARK III

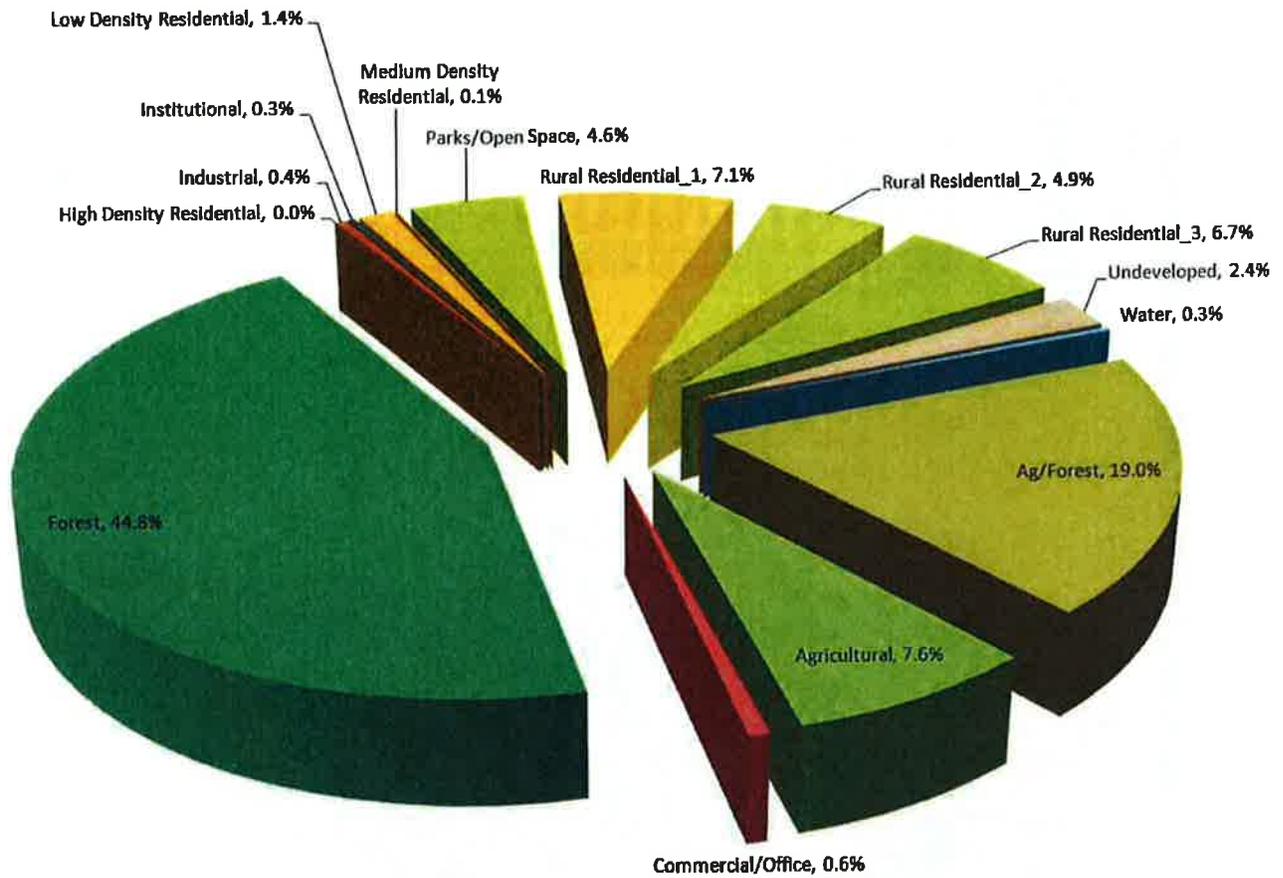
May 2012

Powhatan

- High Density Residential
- Medium Density Residential
- Low Density Residential
- Rural Residential_1
- Rural Residential_2
- Rural Residential_3
- Ag/Forest
- Agriculture
- Forest
- Park/Open Space
- Commercial/Office
- Institutional
- Mixed Use
- Industrial
- Airport
- Undeveloped
- Water



Powhatan - Land Use as % of Total Acreage



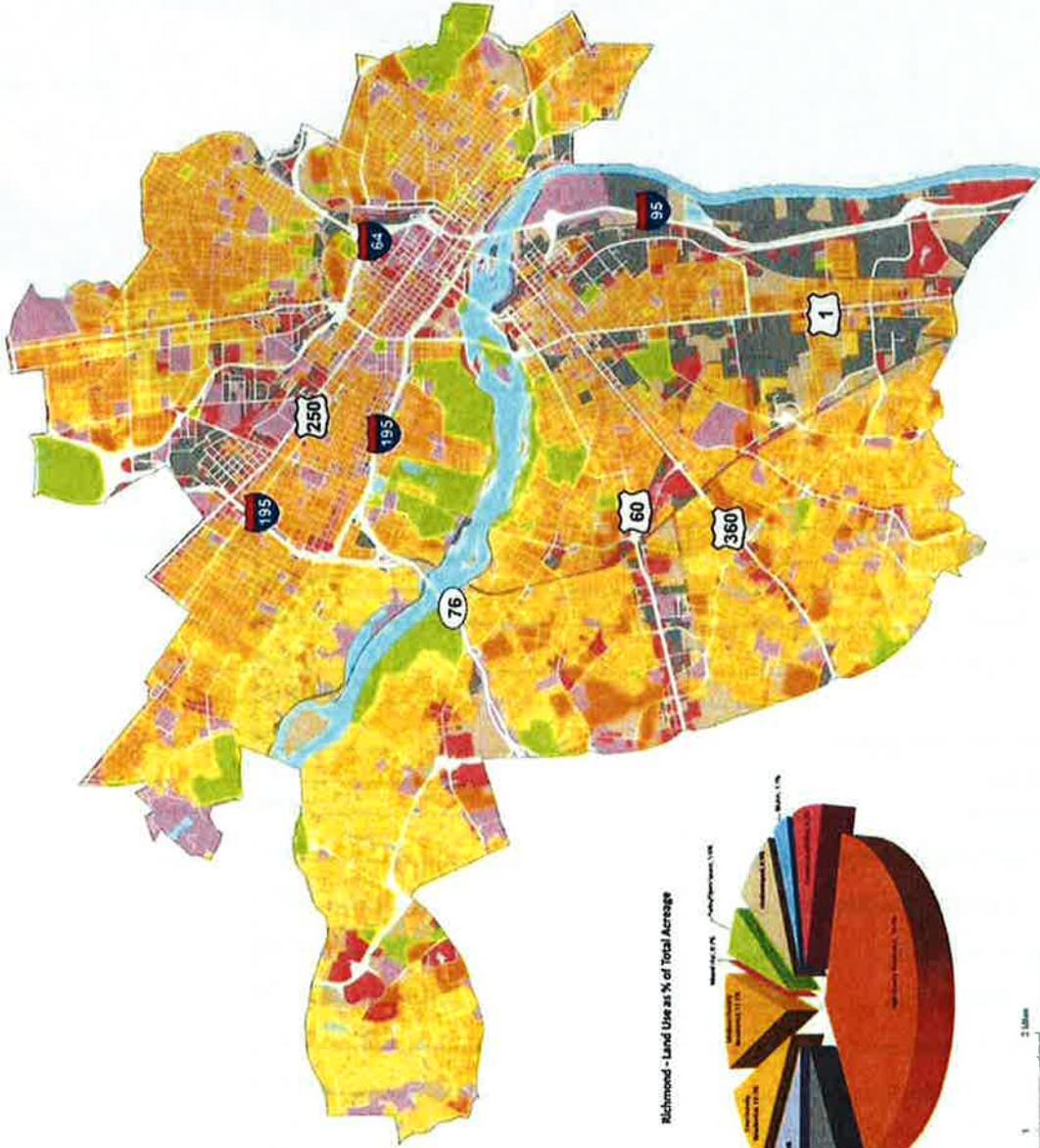
Category	Acreage	% of Total
Ag/Forest	31,523	19.0%
Agricultural	12,559	7.6%
Commercial/Office	1,054	0.6%
Forest	74,513	44.8%
High Density Residential	5	0.0%
Industrial	647	0.4%
Institutional	481	0.3%
Low Density Residential	2,258	1.4%
Medium Density Residential	116	0.1%
Parks/Open Space	7,612	4.6%
Rural Residential 1	11,737	7.1%
Rural Residential 2	8,132	4.9%
Rural Residential 3	11,102	6.7%
Undeveloped	4,034	2.4%
Water	435	0.3%
Total	166,209	100.0%



REGIONAL EXISTING LAND USE - BENCHMARK III

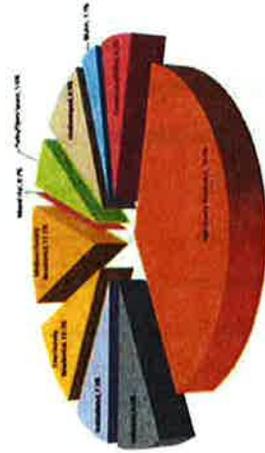
May 2012

Richmond

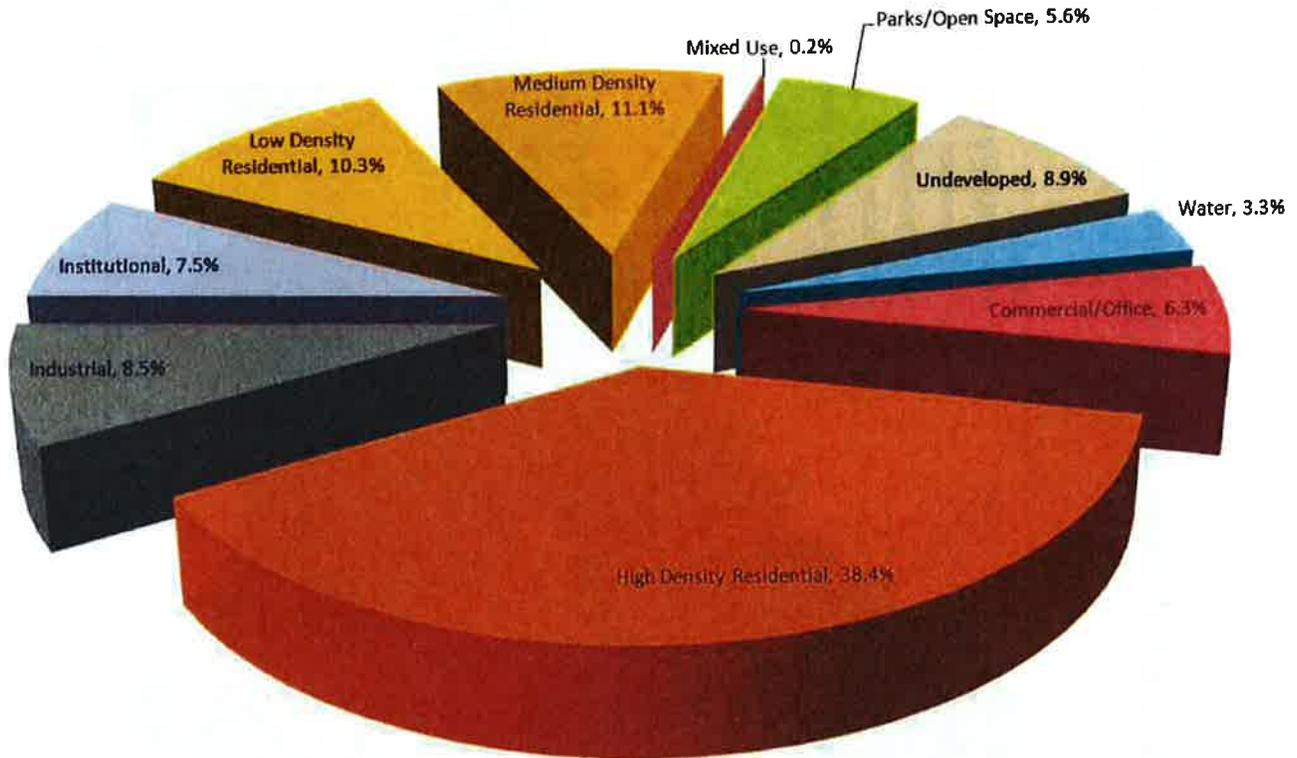


- High Density Residential
- Medium Density Residential
- Low Density Residential
- Rural Residential_1
- Rural Residential_2
- Rural Residential_3
- Ag/Forest
- Agricultural
- Forest
- Parks/Open Space
- Commercial/Office
- Institutional
- Mixed Use
- Industrial
- Airport
- Undeveloped
- Water

Richmond - Land Use as % of Total Acreage



Richmond - Land Use as % of Total Acreage



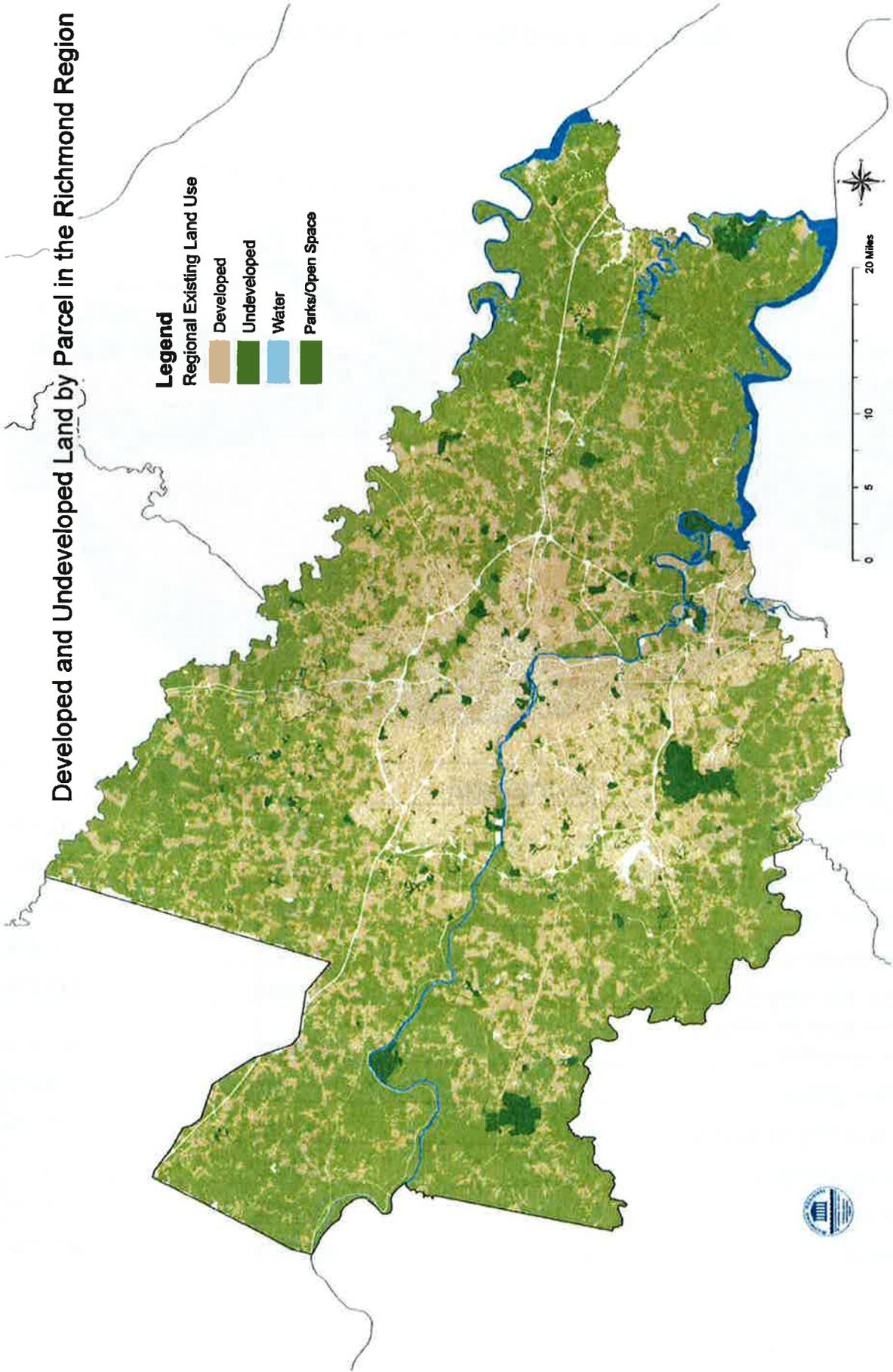
Category	Acreage	% of Total
Commercial/Office	2,796	6.3%
High Density Residential	17,149	38.4%
Industrial	3,779	8.5%
Institutional	3,339	7.5%
Low Density Residential	4,608	10.3%
Medium Density Residential	4,975	11.1%
Mixed Use	70	0.2%
Parks/Open Space	2,489	5.6%
Undeveloped	3,972	8.9%
Water	1,453	3.3%
Total	44,629	100.0%



Developed and Undeveloped Land by Parcel in the Richmond Region

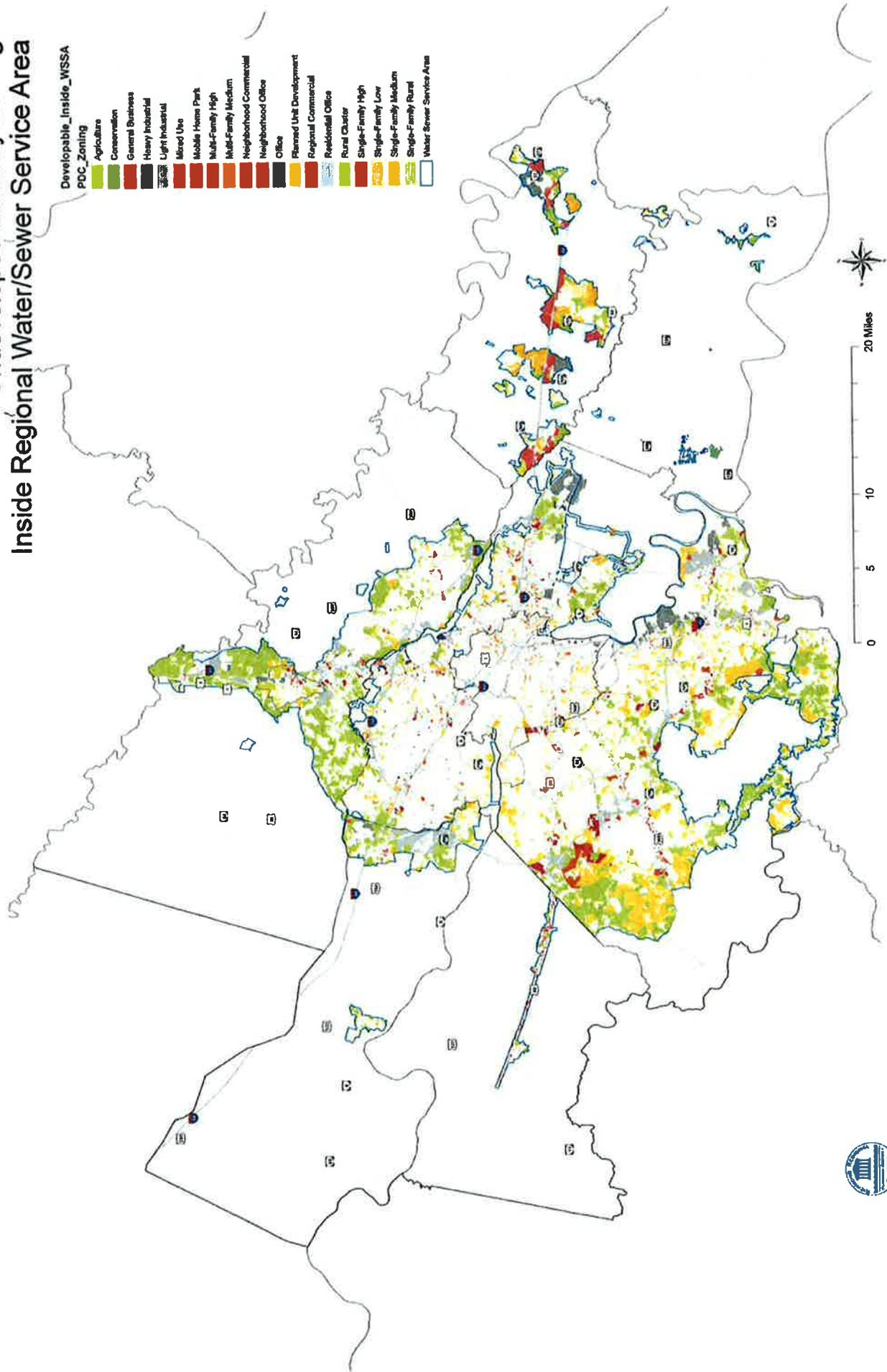
Legend
Regional Existing Land Use

- Developed
- Undeveloped
- Water
- Parks/Open Space

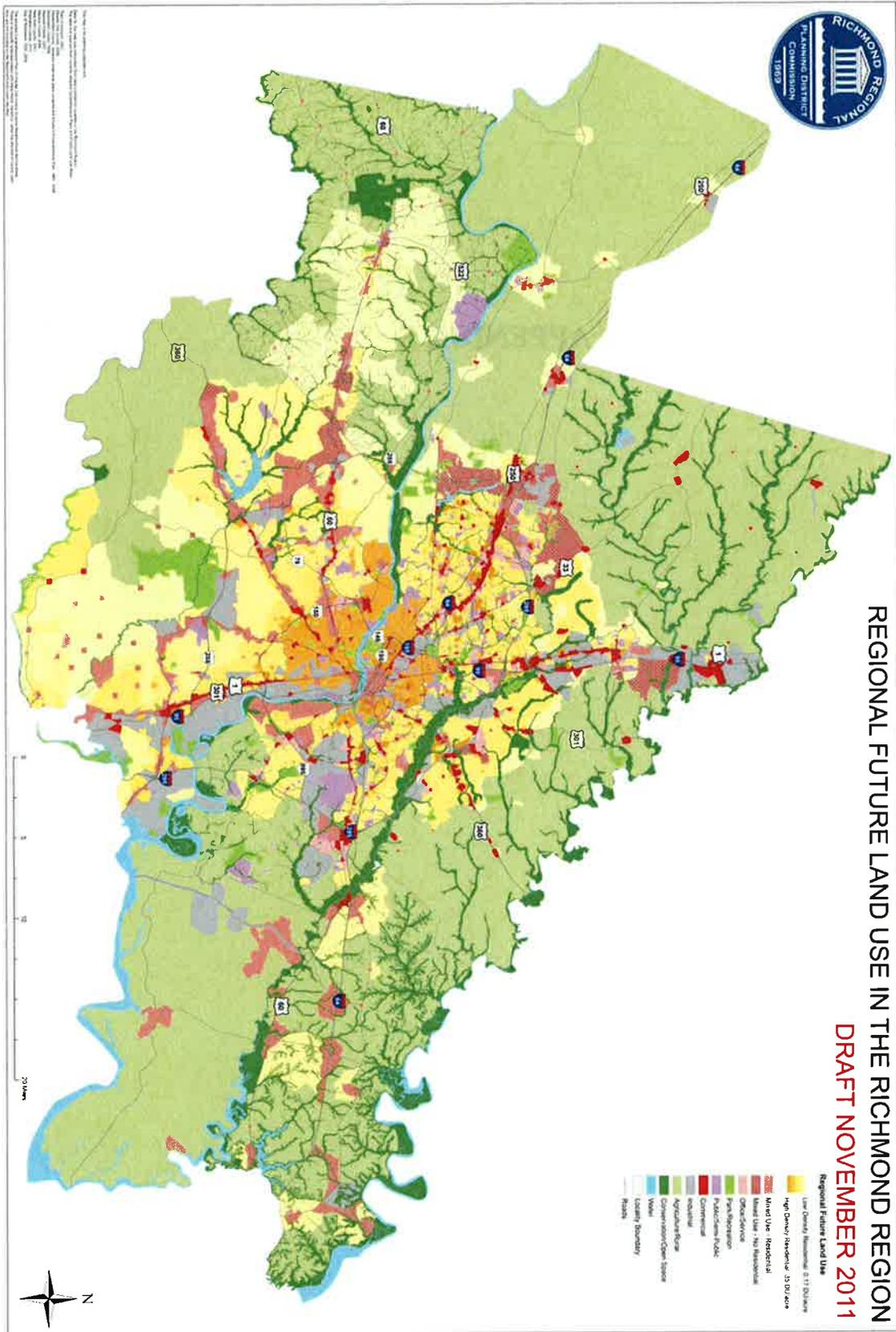


Undeveloped Land by Zoning Inside Regional Water/Sewer Service Area

- Developable_Inside_WSSA
PDC_Zoning
- Agiculture
 - Conservation
 - General Business
 - Heavy Industrial
 - Light Industrial
 - Mixed Use
 - Mobile Home Park
 - Multi-Family High
 - Multi-Family Medium
 - Neighborhood Commercial
 - Neighborhood Office
 - Office
 - Planned Unit Development
 - Regional Commercial
 - Recreational Office
 - Rural Cluster
 - Single-Family High
 - Single-Family Low
 - Single-Family Medium
 - Single-Family Rural
 - Water Sewer Service Area



APPENDIX D



APPENDIX E

Inventory
of
Bridges Receiving
Recreational Use
October, 1997

I. An Interagency Agreement among VDOT, VDGIF, and VDCR to consider public access to the waters of the commonwealth when road improvements and/or bridge replacement projects are planned, has been in place for over a decade. The purpose of the agreement was to ensure that recreational use of the free flowing streams is continued once a road is planned for improvement or a bridge is replaced when these projects cross a stream with known recreational use. Much of the use of Virginia's streams originates from VDOT right of way, most often at bridge crossings. For many years, people have been parking along the roadside and bank fishing, or launching canoes and small Jon boats to fish their favorite stream segment. For a variety of reasons, many of these traditional informal access points have been lost to public use in recent years. Roadway and bridge design, the use of more guardrails, and restricted rights of way are but some of the reasons for lost recreational opportunities. In early 1997, the VDOT Environmental Engineer asked if a priority list of bridges could be prepared that would assist VDOT in their deliberations related to water access at road crossings.

II. This list of streams and road crossings is intended only as a partial inventory of locations on the waters of the commonwealth where some recreational activity is known to occur. It is designed to be one of the tools that planners can use to determine the appropriate locations for including access points when future road improvements and/or bridge replacements occur. It is not all inclusive, but a first priority listing of those streams known to receive recreational use and the bridge crossings within the affected reaches. This inventory should identify where over 90% of the activity occurs and should enable decision makers to ensure that those stream crossings (and parallel segments) are designed so as to not preclude safe roadside parking by people who use the nearby streams.

III. The methodology used to arrive at this listing consisted of reviewing the available canoeing guides*. One or more of the guides listed the runnable upper limits of the streams they describe. This bridge or access point established the upper reaches of recreational use for this Inventory only. The down stream bridges were then listed ones receiving recreational use. It is realized that the Inventory may be dated in some instances. The Guides are at least ten years old and major storm events and recent bridge construction may have altered the situation that existed when they were published.

The 1992 Inland Water Access Inventory* was consulted to determine if DGIF or other agencies operated ramps, boat slides or other access points on a given stream. Since all streams were researched on a county by county basis, some bridges will be listed in more than one locality when the stream is also a county line. There are three areas that weren't considered in this listing.

A. The stocked trout streams, for the most part were omitted from this Inventory. The DGIF Trout Stocking Plan should be the guiding document in determining the cold water streams that receive recreational use by trout fishermen. The Trout Stocking Plan may identify designated road-side parking areas normally used by trout fishermen.

B. In the tidal reaches, especially in the larger estuaries, there was not consistent information available. The major bridge crossing were listed, and in some cases, those roads that terminate at the waters edge were included. There are, however, hundreds of dead end roads that end at the waters edge that receive some use by bank fishermen or crabbers. Available information sometimes identified them as landings and sometimes there was no indication of public access. Many of these designated "landings" are remnants of the system of "steam boat landings" operated by VDOT until the early 1950s. The use in the tidal reaches is less likely to be for boating than on the inland streams. Most boating activity is accommodated at public or private ramps and marinas. The bank fishing and crabbing activity is probably attributed locals who do not own boats. Most of the tidal guts crossed by secondary roads are likely to have people fishing from the bridges during major fish runs (IE. striped bass season) and when crabs are plentiful.

C. The major Cities of southeastern Virginia were not included in the inventory. Although demand for access to water is probably higher than in any other region of the state, development pressures and adjacent land use may have already eliminated many of the opportunities for public access to the shoreline. Any highway construction affecting the waterways of southeastern Virginia should be evaluated to determine if there is existing use pressure and opportunities to provide limited safe parking at these sites.

IV. The demand for water based recreation is among the more popular activities in the commonwealth. VDOT, by virtue of its role as the transportation agency plays a part in meeting this statewide demand for fishing, canoeing, and other water based recreation. VDOT's part of this process is to provide safe parking areas near the bridges, or leaving the old right of way after the completion of a bridge replacement for a public water access point. By considering the publics desire to use the waters around bridge crossings, VDOT will make a vital contribution toward meeting the statewide demand for these recreational pursuits.

* References:

Virginia White Water by Ed Burn
Virginia White Water by H. Roger Corbett
Canoeing White Water River Guide by Randy Carter
Blue Ridge Voyages, Vol. 1,2, & 3 by Corbett and Mataria
Inland Water Access Inventory compiled by DCR and DGIF

Maps from: **Virginia White Water** by H. Roger Corbett

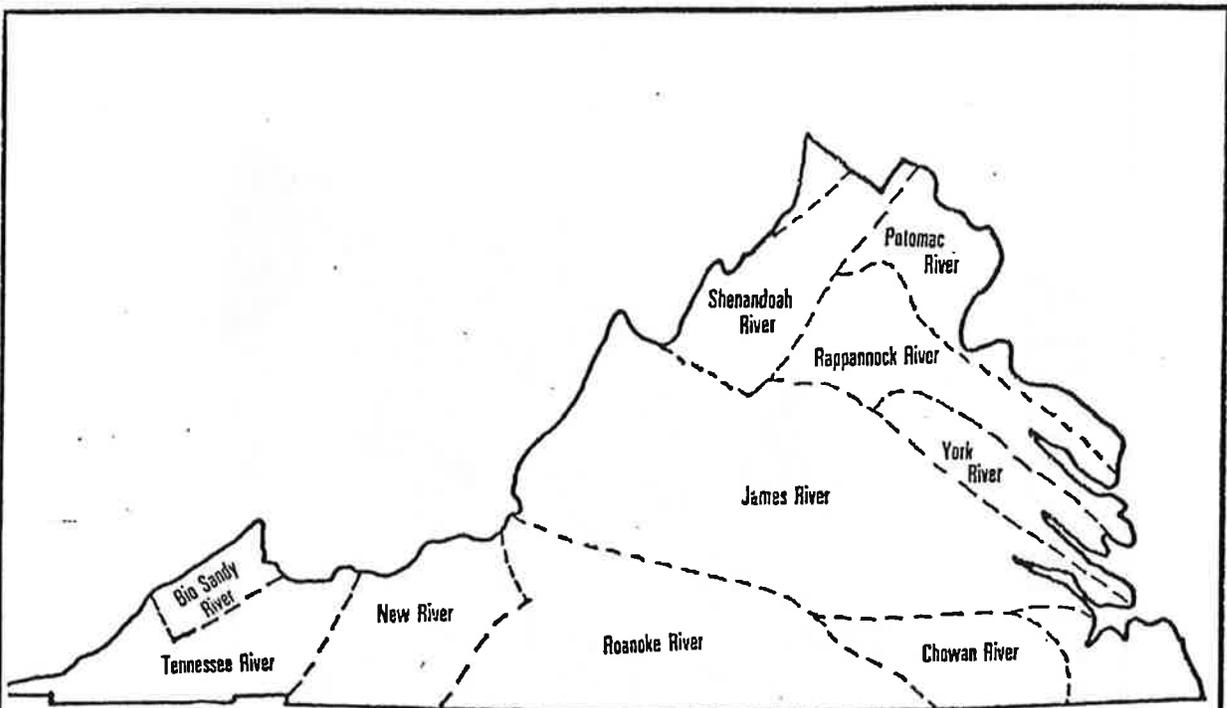


Figure 1. Virginia River Watersheds

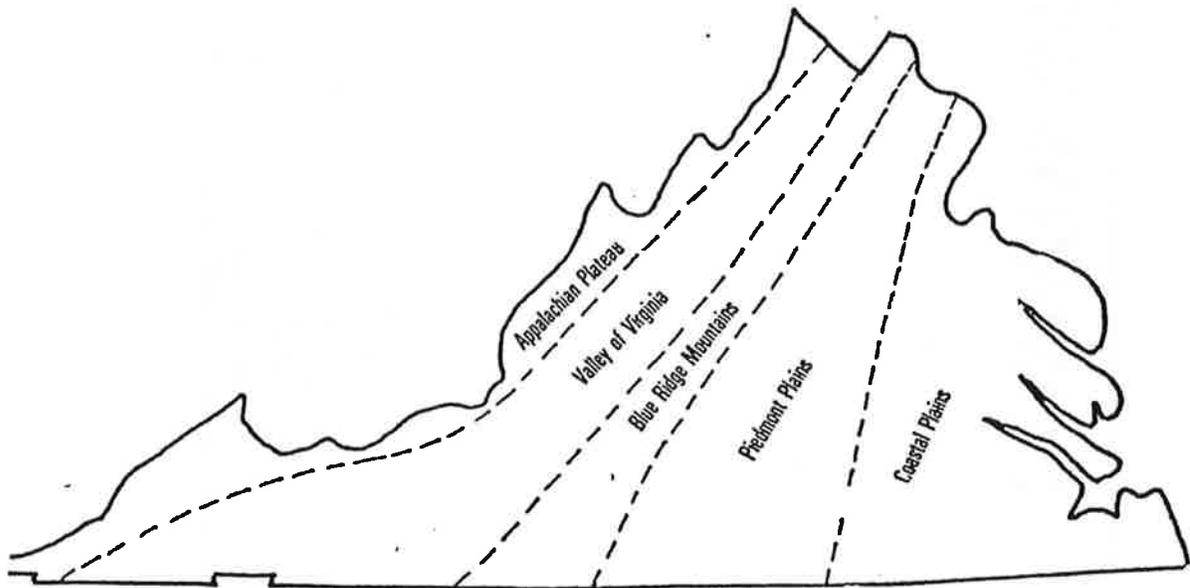
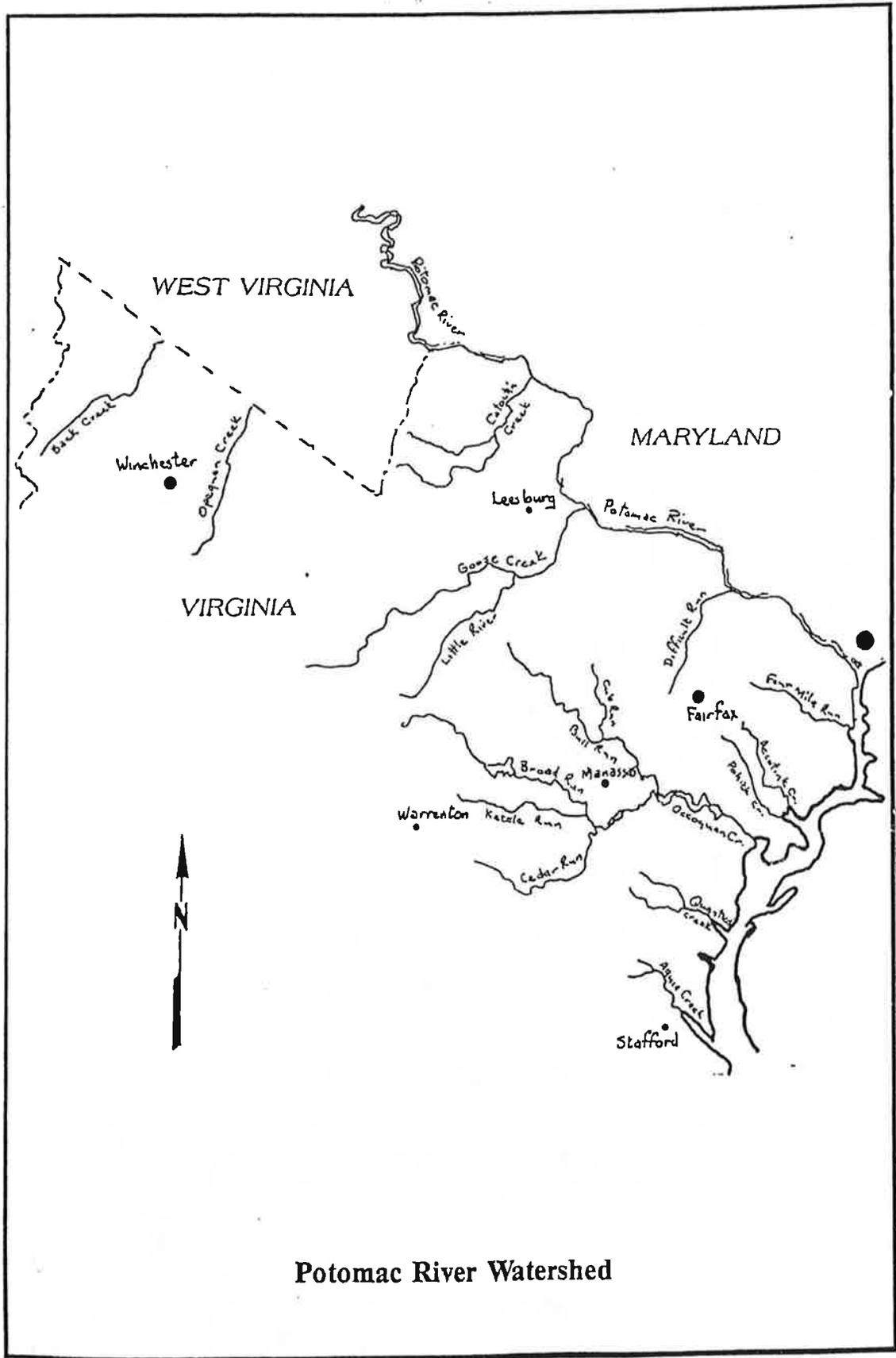


Figure 2. Virginia Geographic Regions



WEST VIRGINIA

MARYLAND

VIRGINIA

Winchester

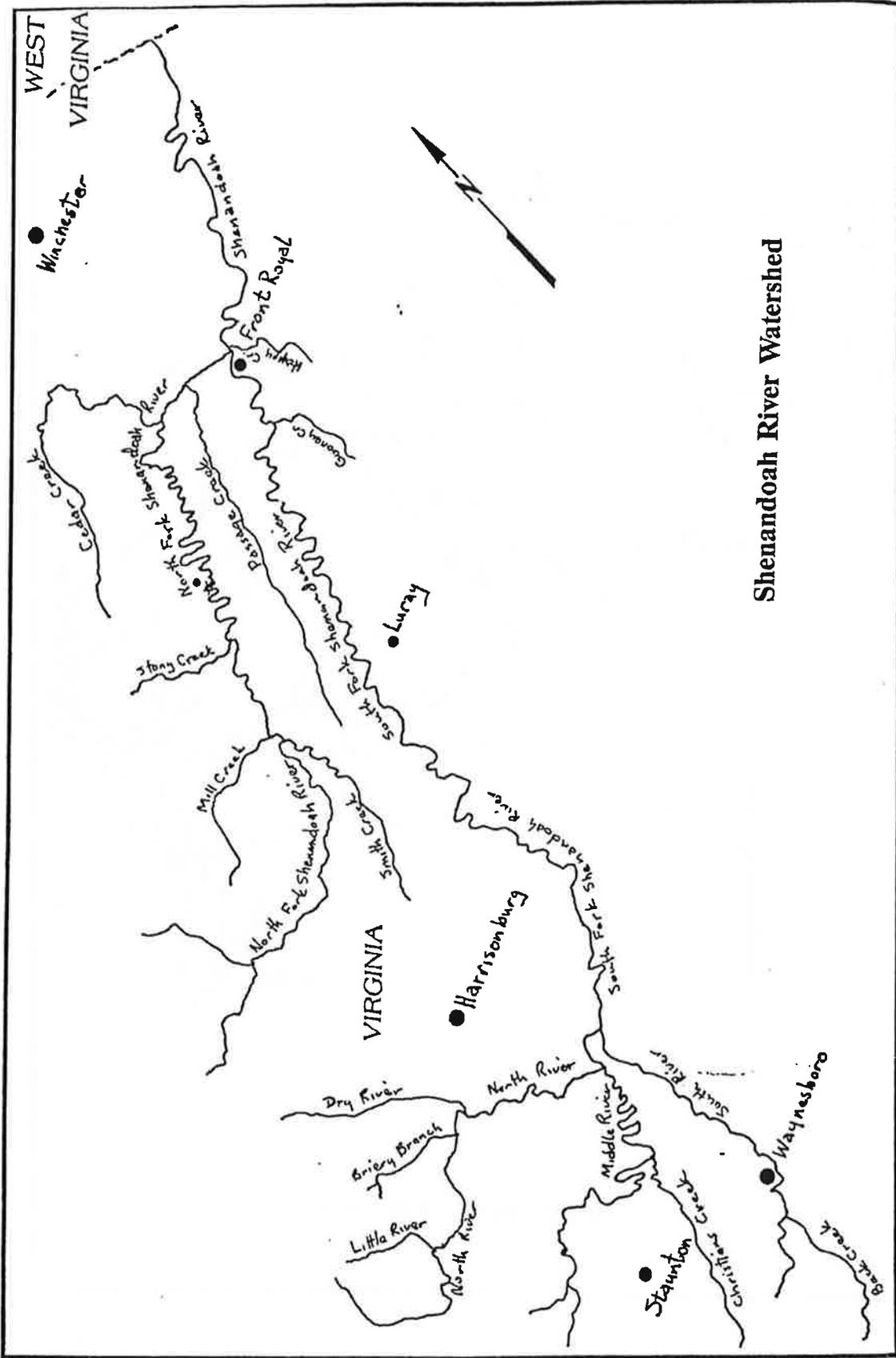
Leesburg

Fairfax

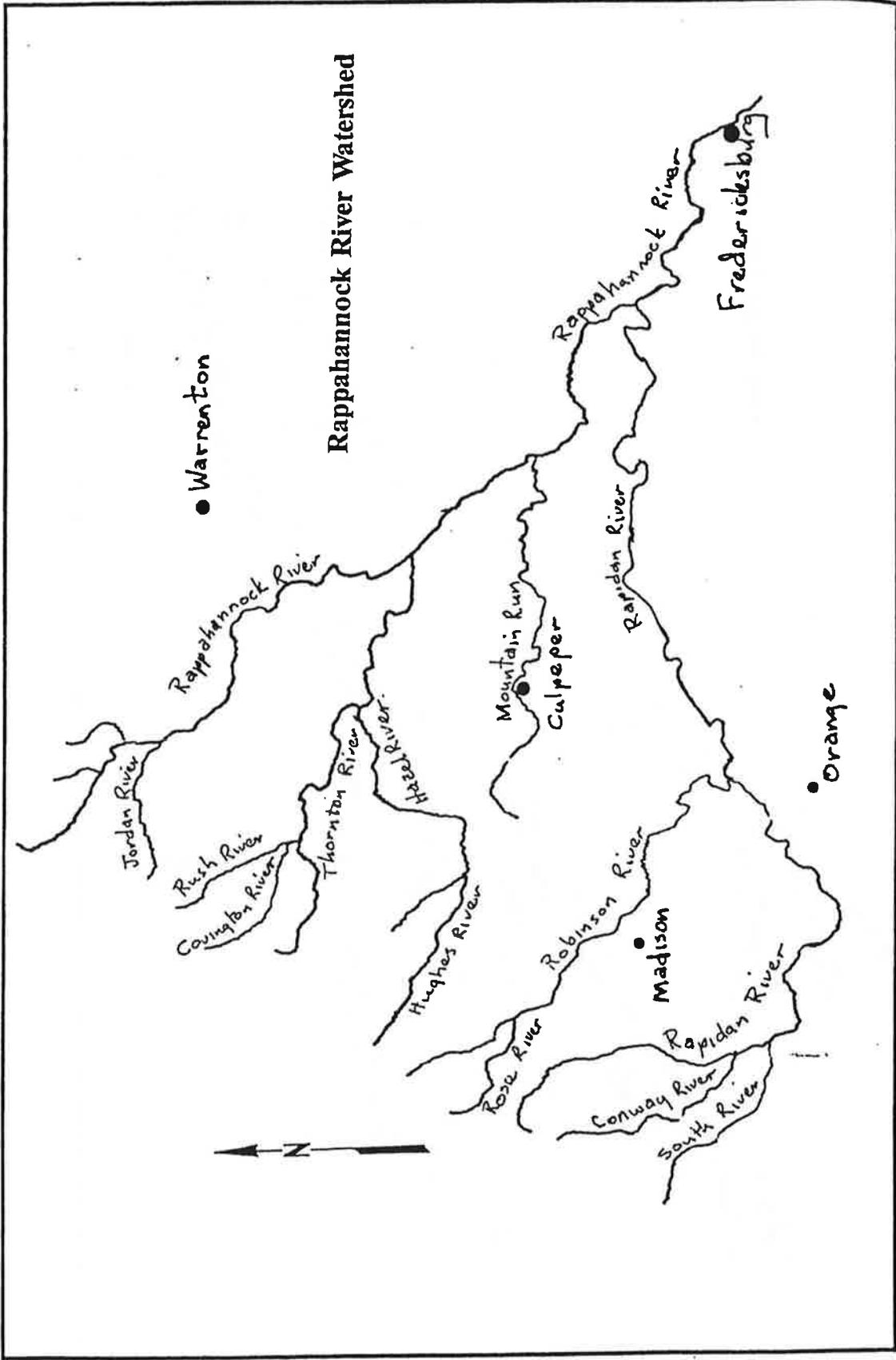
Warrenton

Stafford

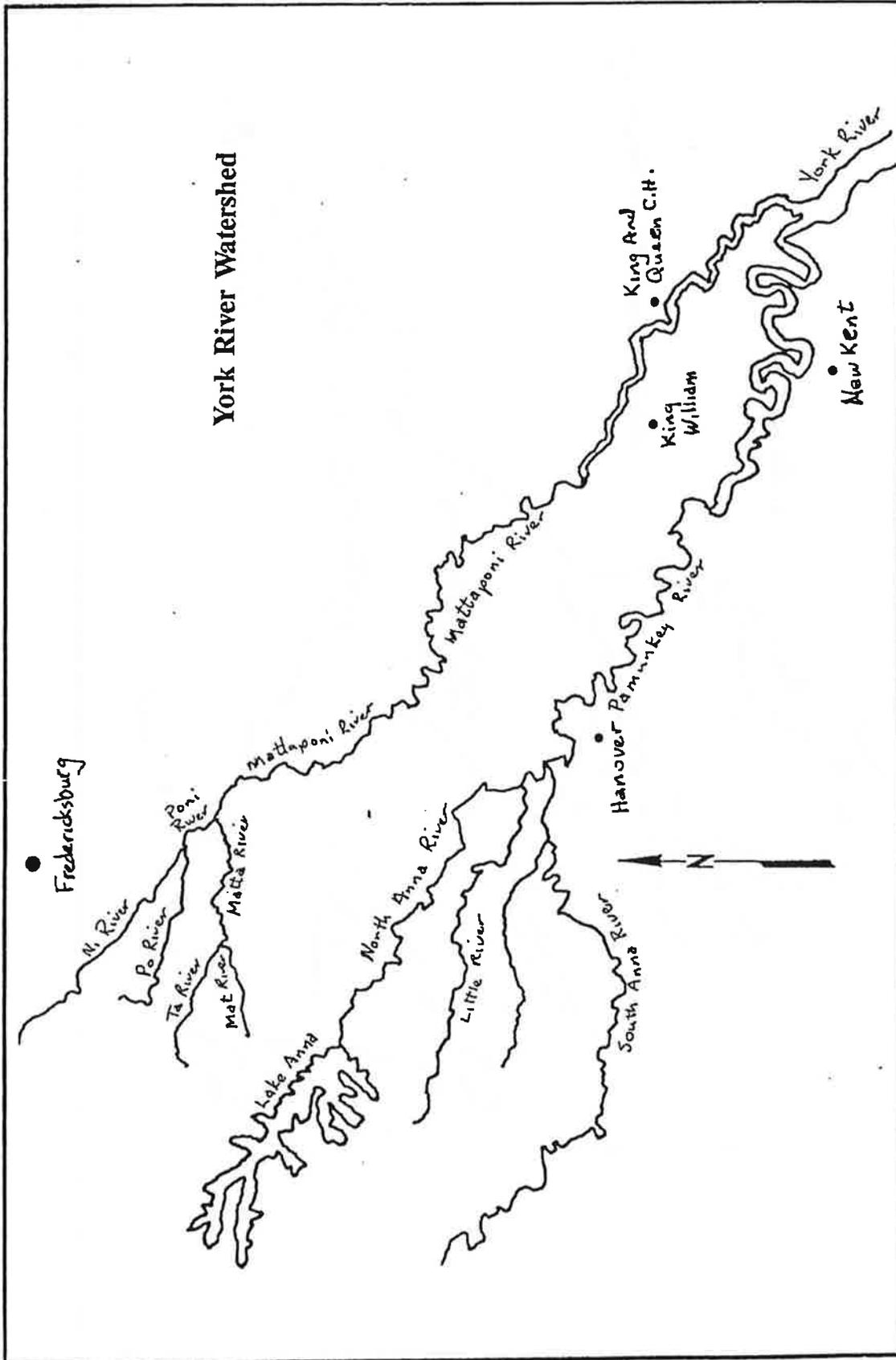
Potomac River Watershed



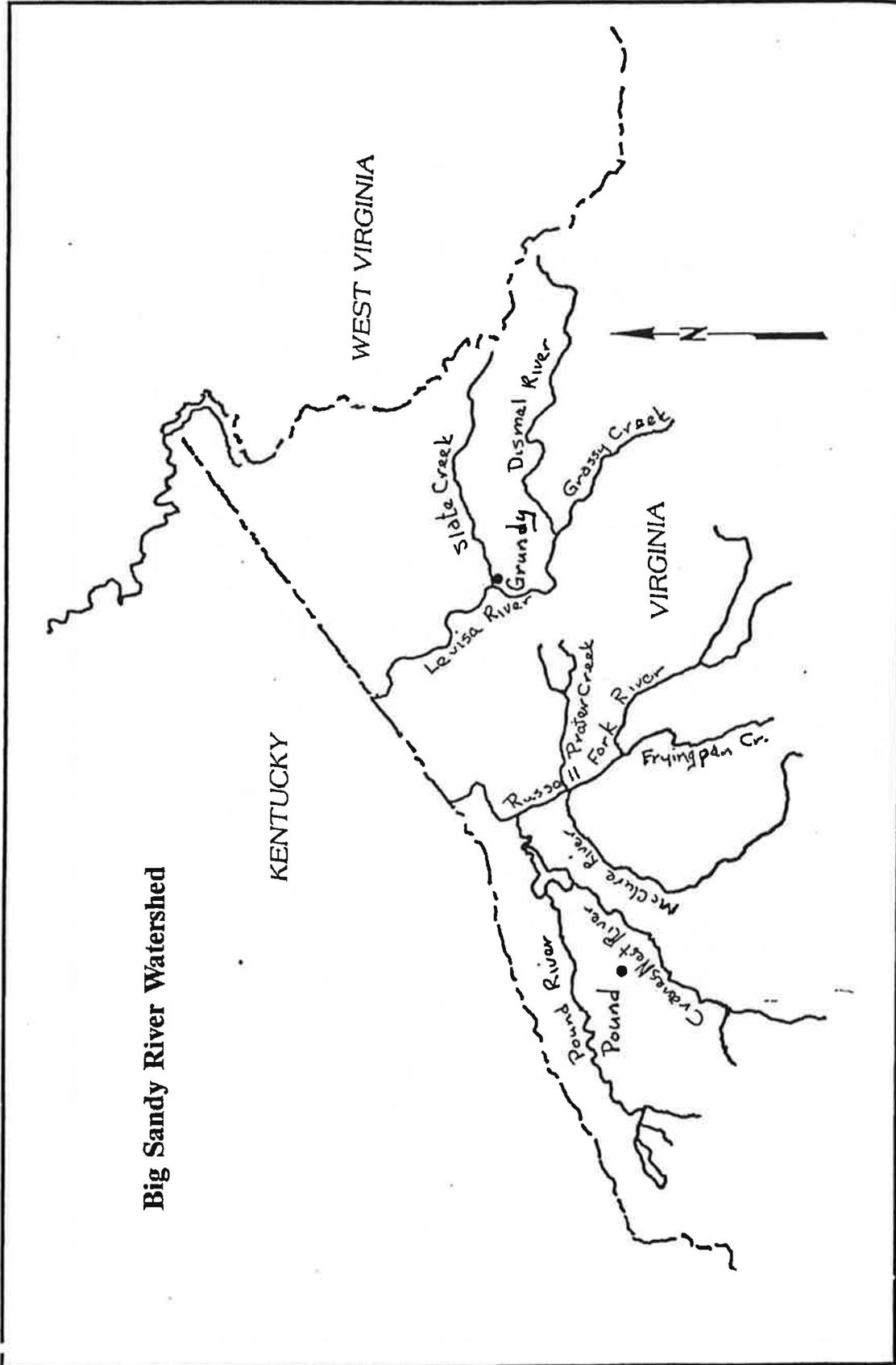
Shenandoah River Watershed



York River Watershed



Big Sandy River Watershed



WEST VIRGINIA

VIRGINIA

KENTUCKY

Slate Creek

Grundy Dismal River

Grassly Creek

Lousa River

Russel II Fork River

Proctor Creek

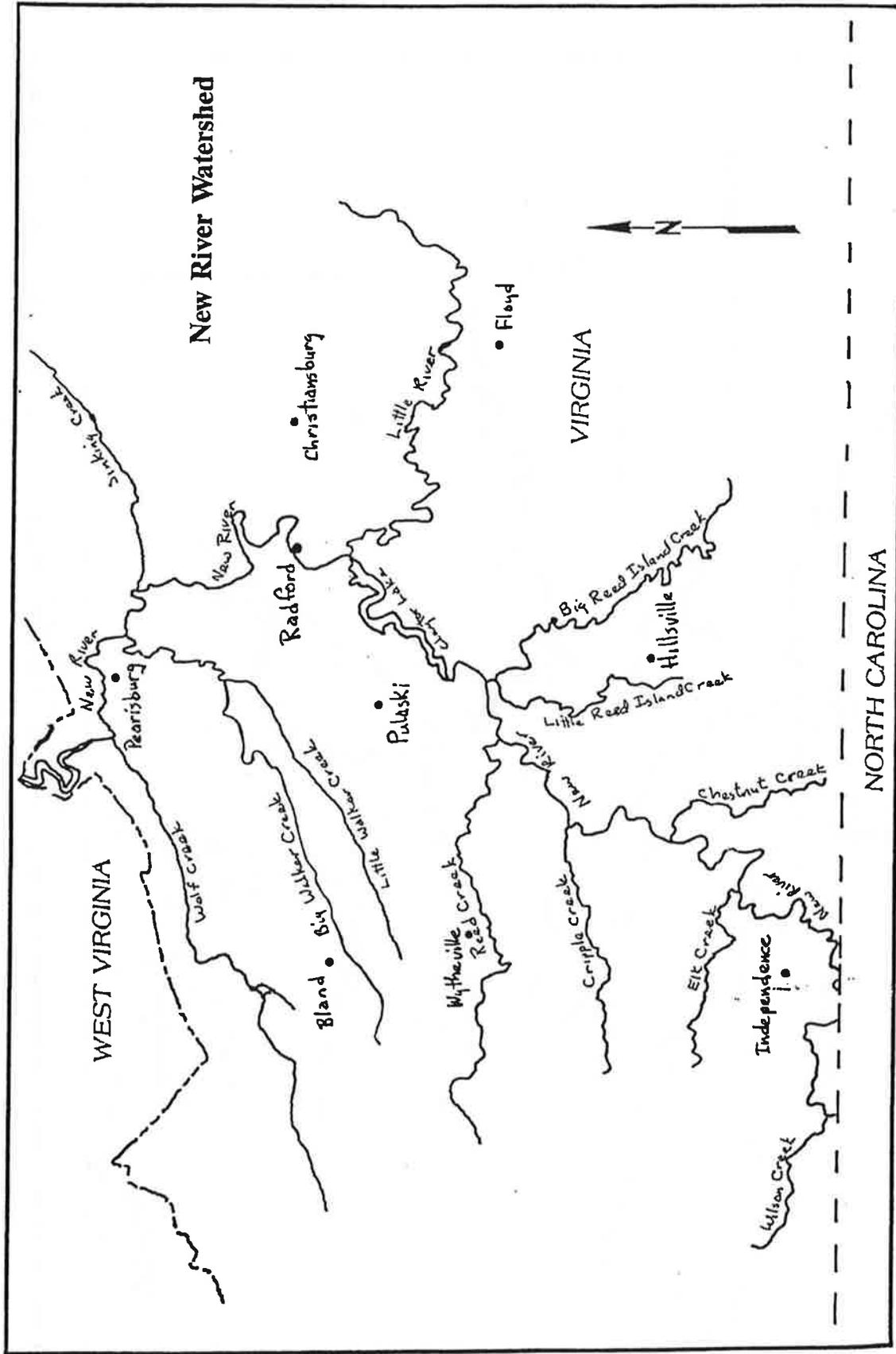
Fryingspan Cr.

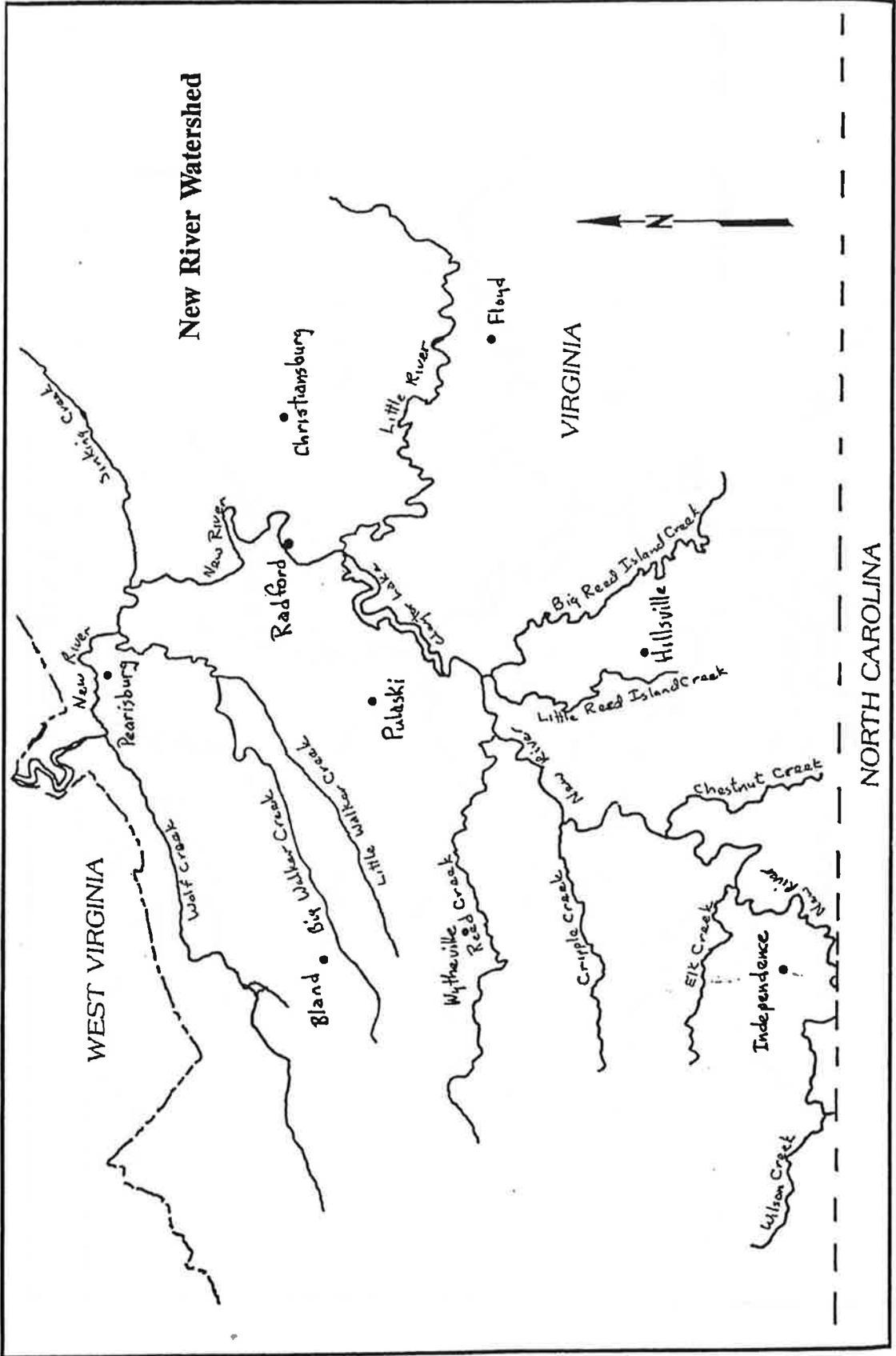
McClure River

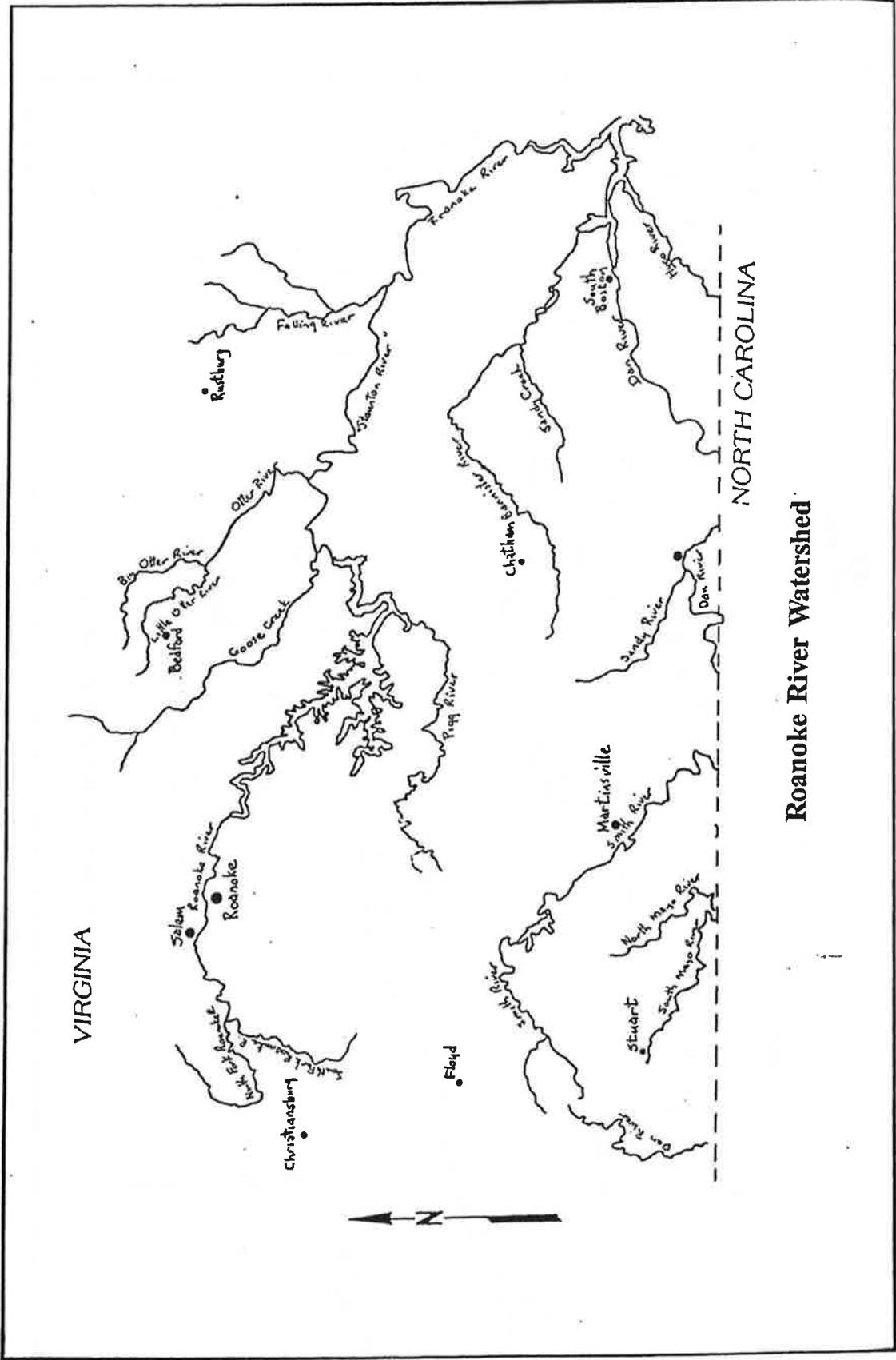
Cranesholt River

Round River

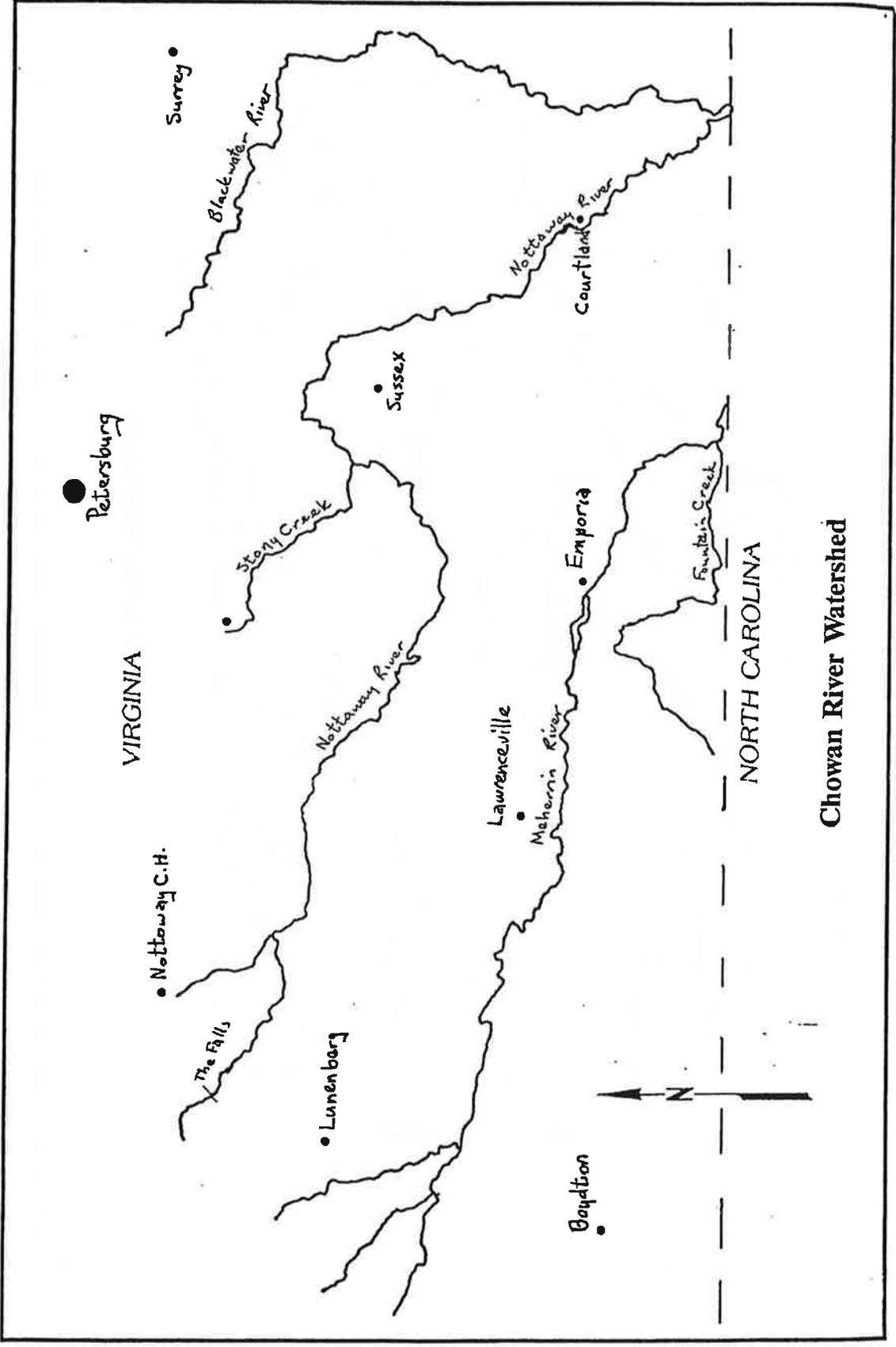
Pound



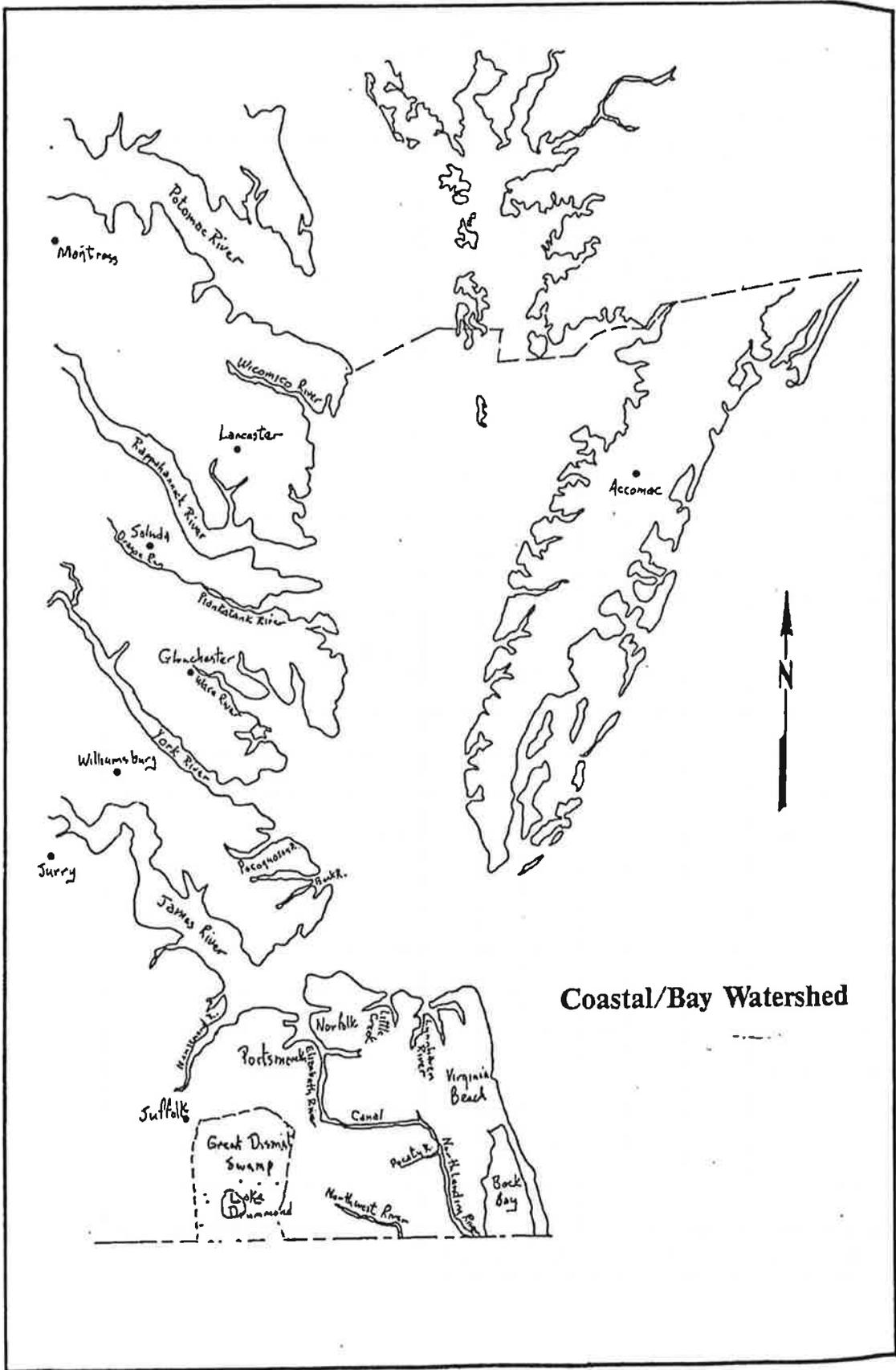




Roanoke River Watershed



Chowan River Watershed



**PUBLIC RECREATIONAL USE
AT BRIDGE CROSSINGS**

Page 1 of 2 C0. <u>Hanover County</u> Date <u>10/97</u> Stream Name	RTE OR BR. NO.	I N F O R M A L V D O T	D G I F	O T H E R P U B	P V T F E E	L I S T / B O O K	COMMENTS fill in as appropriate to describe use
North Anna River	658	X				X	
North Anna River	738	X				X	
North Anna River	603	X				X	
North Anna River	601				X	X	
North Anna River	1	(X)	(X)	(X)		X	VDOT, DGIF & County maintain public access point.
North Anna River	731	X					
North Anna River	30	X					
Little River	601	X					upstream putin
Little River	685	X					
Little River	688	X					
Little River	1	X					takeout at Route 1 Wayside
Little River	689	X					
New Found River	685	X				X	
New Found River	667	X				X	
South Anna River	617	X					
South Anna River	611	X					
South Anna River	673	X					
South Anna River	675	X					
South Anna River	33	(X)	(X)	(X)			VDOT, DGIF & County maintain access point.
South Anna River	657	X					
South Anna River	54		(X)	X			DGIF & County maintain access adjacent to bridge.
South Anna River	686	X					

X IN COLUMNS AS APPROPRIATE (X) = SHOWN IN IWAS IF UNKNOWN, LEAVE BLANK
 IWAS= Inland Water Access Study, 1994 Compiled by Va DCR and Va DGIF
 LIST/ BOOK= Listed in one of the canoeing guide books that describe Virginia's rivers

**PUBLIC RECREATIONAL USE
AT BRIDGE CROSSINGS**

CO. <u>Henrico County</u> Date <u>10/97</u> Stream Name	RTE OR BR. NO.	I N F O R M A L V D O T	D G I F	O T H E R P U B	P V T F E E	L I S T / B O O K	COMMENTS fill in as appropriate to describe use
James River	150			X			Bank fishing, canoeing, swimming
James River	147			X			Bank fishing, canoeing, swimming
James River	76						Bank fishing, canoeing, swimming
James River	161						Bank fishing, canoeing, swimming
James River	1/301			X			Bank fishing, canoeing, swimming
James River	360			X			Bank fishing, canoeing, swimming
James River	-		(X)				Osborne Turnpike ramp
James River	-		(X)				Deep Bottom Ramp
Chickahominy River	624	X					
Chickahominy River	33	X					
Chickahominy River	625	X					
Chickahominy River	626	X					
Chickahominy River	1	X					
Chickahominy River	623	X					
Chickahominy River	2/301	X					
Chickahominy River	627	X					
Chickahominy River	360	X					
Chickahominy River	615	X					
Chickahominy River	156	X					
Chickahominy River	156	X					
Chickahominy River	360	X					

X IN COLUMNS AS APPROPRIATE (X) = SHOWN IN IWAS IF UNKNOWN, LEAVE BLANK
 IWAS= Inland Water Access Study, 1994 Compiled by Va DCR and Va DGIF
 LIST/BOOK= Listed in one of the canoeing guide books that describe Virginia's rivers

APPENDIX F

Virginia Department of Conservation and Recreation

Inventory of Bridges Receiving Recreational Use
GIS Data Layer Construction Project
Dated June 10, 2011

By: Derrick Gregory, GIS Technician & VCU Graduate Student

Under the supervision of: Jennifer Wampler, Trails and Greenways, Planning and Recreational Resources, VA DCR

I. Introduction.

This project was undertaken by Derrick D. Gregory, a since graduated student from VCU's L. Douglas Wilder School of Government and Public Affairs in the Geographic Information Systems (GIS) certificate program. Over the course of several months, Derrick conducted extensive data entry and editing to produce the product that DCR can now use for the Virginia Outdoors Plan or any further analysis that DCR, VDOT (Virginia Department of Transportation) and DGIF (Department of Game and Inland Fisheries) conduct with respect to public recreational water access.

II. Background.

Taken from the original Inventory document, dated Oct. 1997 and paraphrased to update.

An Interagency Agreement among VDOT, VDGIF, and VDCR to consider public access to the waters of the commonwealth when road improvements and/or bridge replacement projects are planned was in place for over a decade when the original study was conducted. The original purpose of the agreement was to ensure that recreational use of the free flowing streams is continued once a road is planned for improvement or a bridge is replaced when these projects cross a stream with known recreational use. The list of streams and road crossings was intended only as a partial inventory of locations on the waters of the commonwealth where some recreational activity is known to occur. The inventory identified key activity areas and enabled decision makers at all involved organizations to ensure that these stream crossings are designed so as not to preclude safe roadside parking by people who use the nearby streams.

The initial study used canoeing guides as a method of locating these access points. At the time of the study, the guides were listed as at least ten years old, and many of these points were dated even at the time of the Oct. 1997 publishing.

The 1992 Inland Water Access Inventory was consulted to determine if DGIF or other agencies operated ramps, boat slides or other access points on a given stream. Bridges are listed in more than one locality if a county line falls on a body of water, except in cases where a proper DGIF or other formalized landing is nearby. Three areas were excluded for purposes of project scale: stocked trout streams, tidal reaches (especially in larger estuaries), and the major Independent Cities of Southeastern Virginia (i.e., Hampton Roads).

The demand for water-based recreation is among the more popular activities in the commonwealth. VDOT, by virtue of its role as the transportation agency plays a part in meeting this statewide demand for fishing, canoeing, and other water based recreation. VDOT's part of this process was to provide safe parking areas near the bridges, or leaving the old right-of-way after the completion of a bridge replacement for a public water access point. By considering the public's desire to use the waters around bridge crossings, VDOT will make a vital contribution toward meeting the statewide demand for these recreational pursuits.

References:

Virginia White Water by Ed Burn

Virginia White Water by H. Roger Corbett

Canoeing White Water River Guide by Randy Carter

Blue Ridge Voyages, Vol. 1, 2, & 3 by Corbett and Mataria

Inland Water Access Inventory compiled by DCR and DGIF

III. Methodology.

By using GIS, project teams are able to manage data spatially, dynamically, and with the efficiency that a software environment can provide. Creating a GIS database allows project managers and technicians to quickly and efficiently store, manage, and recall data with flexibility and ease.

For this project, a geodatabase was assembled consisting of all the counties, streams, water bodies, current roads, and DGIF access points in the commonwealth of Virginia. Then, a new point layer was created to populate the data from the Inventory document. This file was designated as "Pub_Rec_Use." Starting alphabetically with the counties and then independent cities, each locality was scanned for its correlating area, using the Route number listed in the index. Using the Editor tool in ESRI ArcMap, each point was hand-selected according to the listing in the inventory and was "snapped" to the associated road.

Correct and incorrect entries were labeled as such on the original inventory document. Comments were added as necessary. Each type of access point was listed as an Informal VDOT, DGIF, Other Public, or Private Fee. Each point was also additionally indexed as possibly being listed in one of the mentioned canoe guides that describe Virginia's rivers and/or shown in the Inland Water Access Study (IWAS) compiled by DCR and DGIF. A binary system was used (0 = no and 1 = yes) to record each point's designation. After all points were compiled, the corresponding Planning District Commission was added to further expand the data for use in the Virginia Outdoors Plan. Then, latitude and longitude coordinates were added for GPS reference. Finally, metadata was added to describe for cross-referencing and informative purposes.

IV. Findings, Errors, and Corrections

There are, as the project team has determined, a total of 1,118 access points in the final shapefile. This includes all the points left over from the initial data input and the analysis portion of the project. Several counties had many more points than others, and are more accessible as a whole than other localities. Counties in the Shenandoah Valley and the Piedmont areas had the highest numbers of access points due to the number of bridges and relative ease of access. Areas around the Chesapeake Bay, the Hampton Roads metro area, and the Eastern Shore saw a comparatively low number of points, along with sections of Southwest Virginia. Tidal estuaries were excluded for the most part because of difficulty in identification of all potential access points. The large area in Southwest Virginia with no access points, however, was potentially because of neglect in comprehensive data input in this region.

Numerous errors and incorrect entries were discovered, and the project team cataloged them accordingly in the appendix. Areal imagery from Google Maps were used to pinpoint any small embankment for parking, namely if a point was listed as paralleling a river. Since these mentioned roads can parallel the associated stream for several miles, this method was necessary to find the correct access point location. In the case of bridges spanning a river that separated 2 counties, both ends of the bridge were listed as potential access points and as having safe parking. The only time this rule was ignored, however, is if a bridge was near a more “formal” access point, such as a DGIF landing, another kind of public landing, or a “private fee” site such as a marina. Points were also deleted if they happened to be located on private property, such as a home, business, or railroad running adjacent to the stream.

Errors came from mislabeled roads and streams, incorrect route numbers, and mislabeled formal access points such as DGIF landings. Several points were deleted as either being completely incorrect (wrong route name), a duplicate entry of another point, or merged with an adjacent point for proximity reasons. The datedness of the data and inaccuracy in the cataloging process was most likely the reason for these deleted entries.

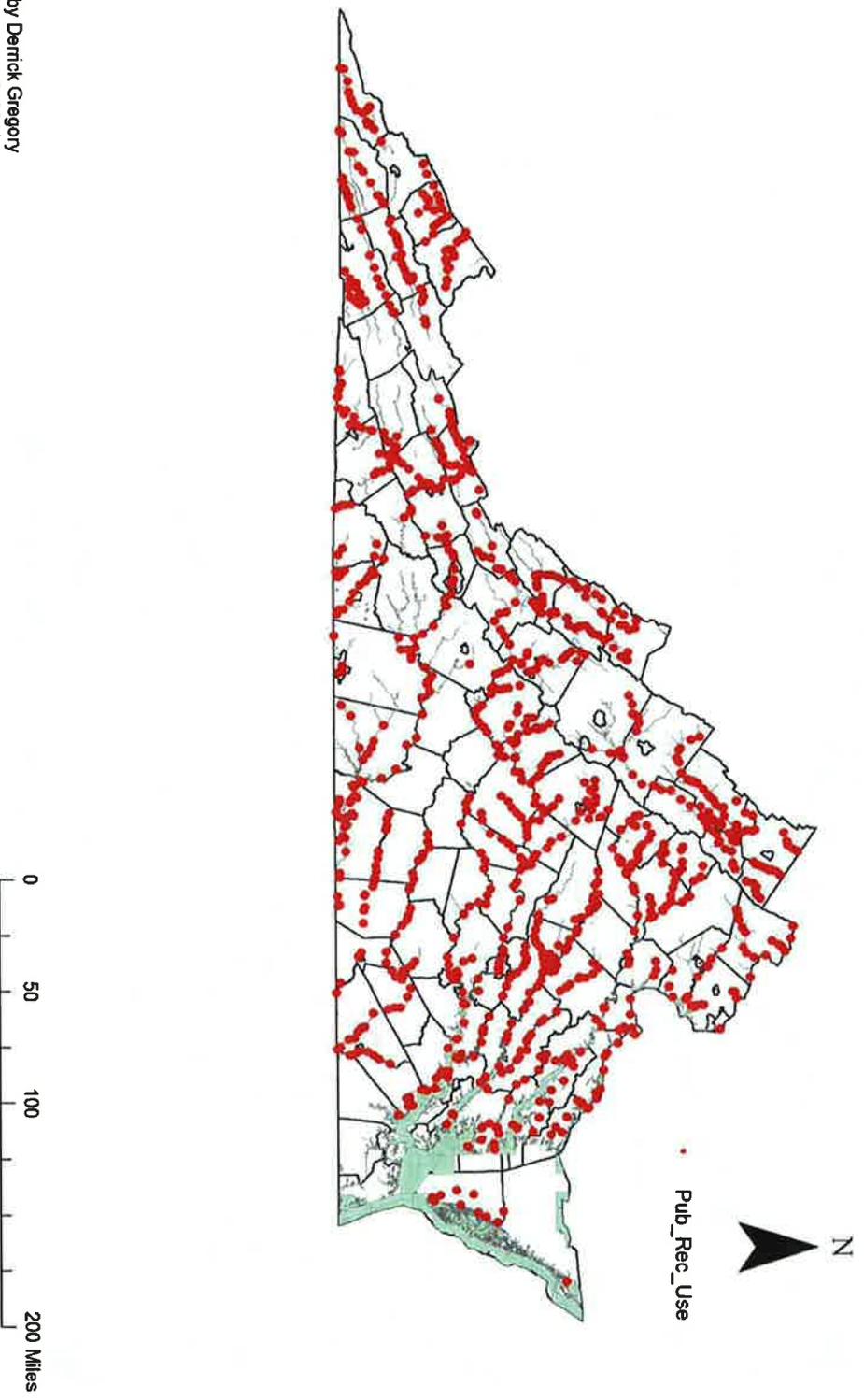
There were two stipulations that some points had that could not be indexed - having steamboat landings or certain reservoir access points. The counties of Essex, Gloucester, Middlesex, Northumberland, Richmond and Westmoreland all have steamboat landings that could be potentially listed as future access points, but for the time constraints and the purposes of the project, were not further analyzed. Reservoir access to Smith Mountain Lake in Franklin, Philpott Reservoir in Patrick, and Lake Anna in Spotsylvania and Louisa counties also had open-ended stipulations about additional access points, and these were also left for future analysis.

V. Conclusions.

The original Inventory of Bridges Receiving Recreational Use study was formulated for planning purposes between VDOT, VDCR, and VDGIF in recreation and maintaining water access. Keeping Virginia's streams, lakes, and waterways open to the citizens of the commonwealth is the responsibility and the duty of these agencies and the state government. New GIS technology is allowing studies such as these to stay current and allow for multiple sources of new information to be added and distributed among interested parties. Through more interactive methods of offering internship opportunities to students, the Virginia Department of Conservation and Recreation is able to provide education to students with prospective careers in land use planning, transportation planning, recreation planning, public policy, and geospatial science. Finally, it is the wish and intention of the project team to see the data used to its highest and best use.

InVENTORY OF BRIDGES RECEIVING RECREATIONAL USE

GIS DATA LAYER CONSTRUCTION PROJECT



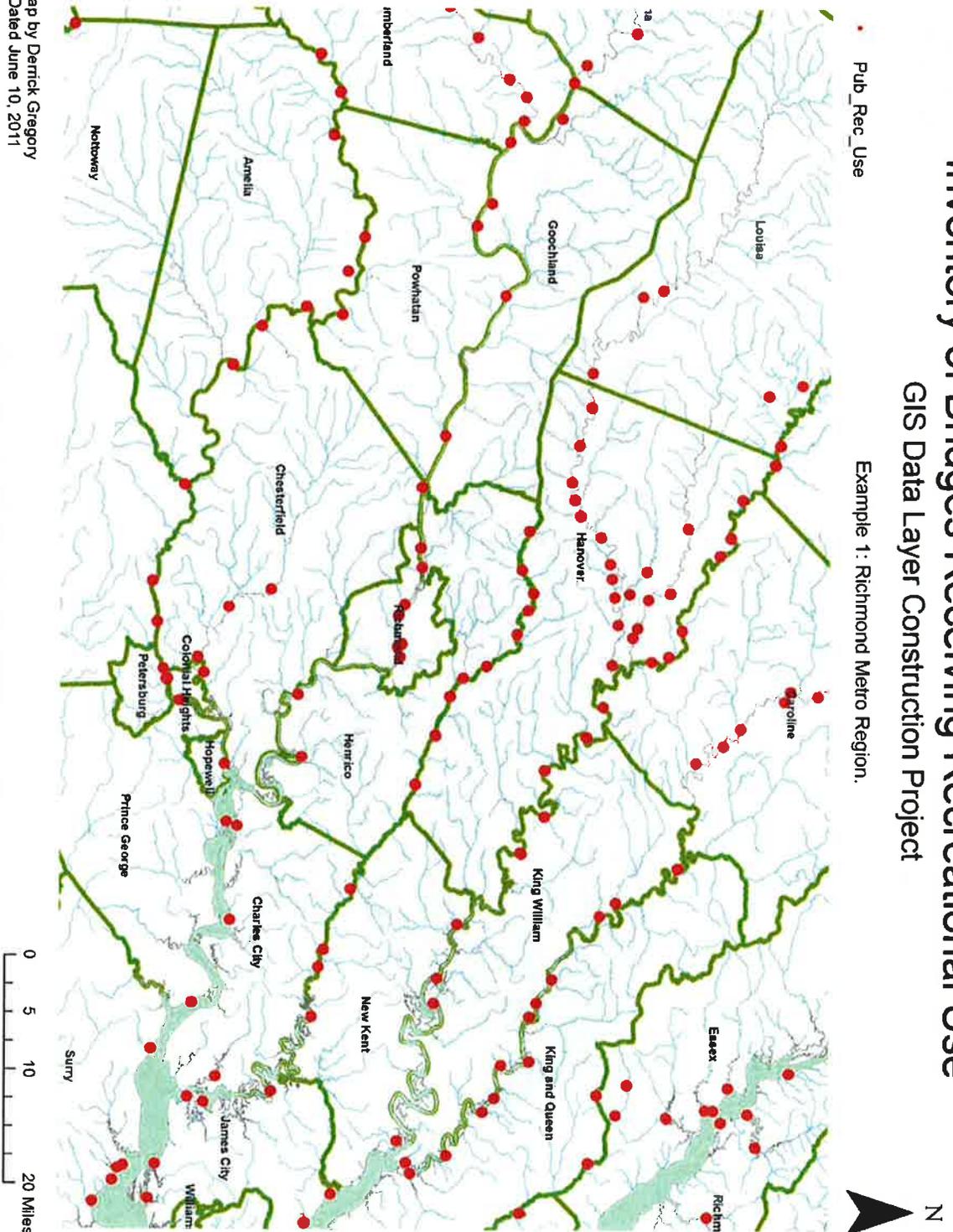
Map by Derrick Gregory
Dated June 10, 2011

Inventory of Bridges Receiving Recreational Use

GIS Data Layer Construction Project

• Pub_Rec_Use

Example 1: Richmond Metro Region.



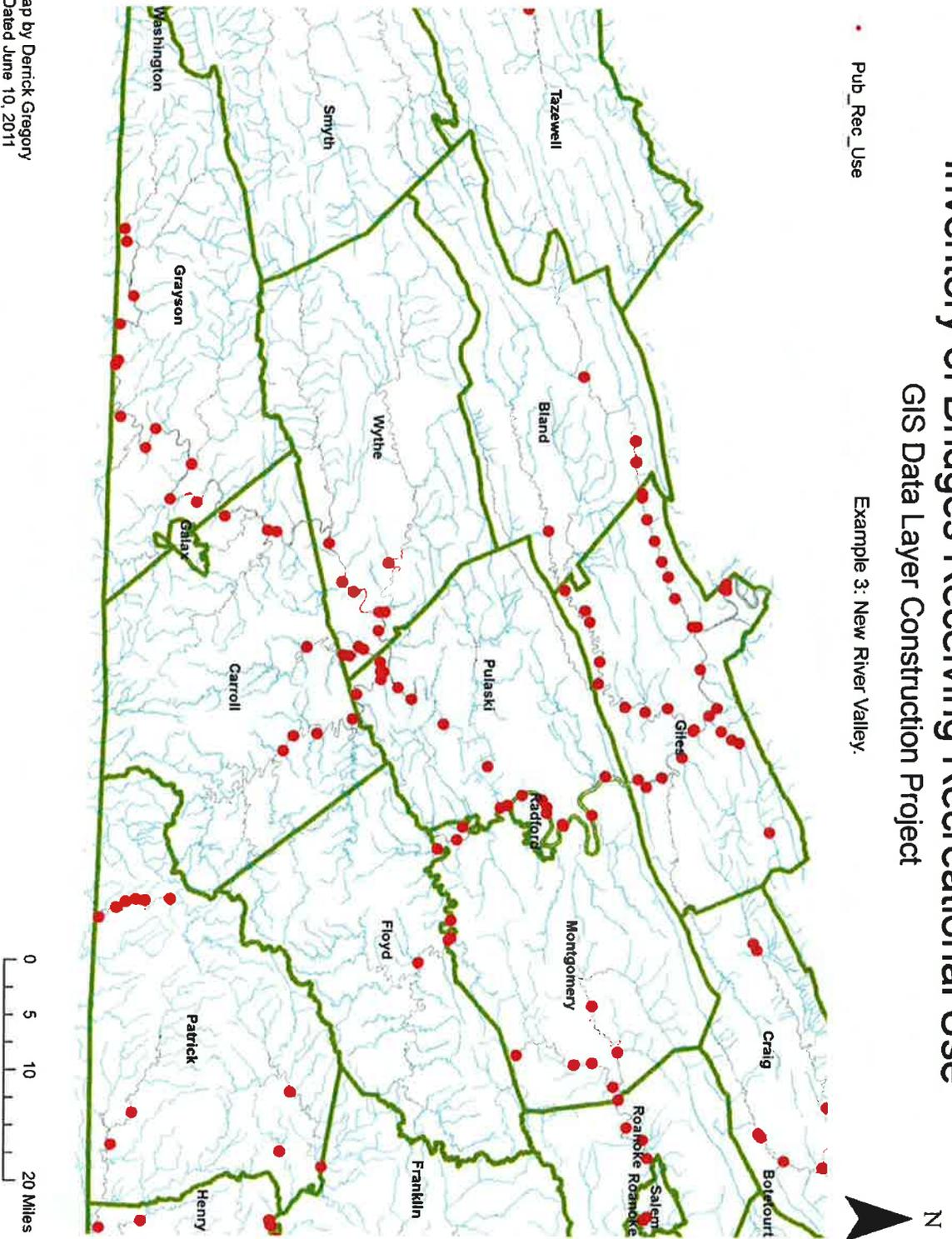
Map by Derrick Gregory
Dated June 10, 2011

InVENTORY OF BRIDGES RECEIVING RECREATIONAL USE

GIS DATA LAYER CONSTRUCTION PROJECT

• Pub_Rec_Use

Example 3: New River Valley



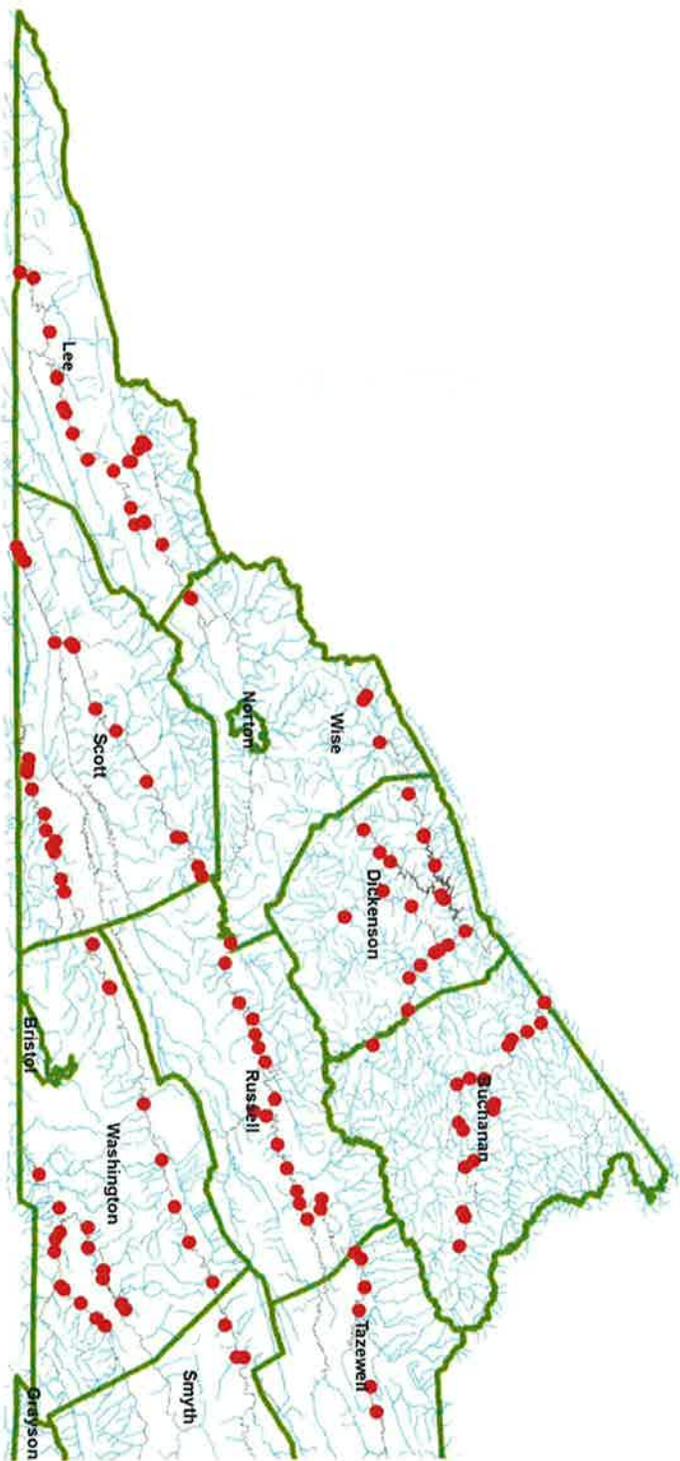
Map by Derrick Gregory
Dated June 10, 2011

Inventory of Bridges Receiving Recreational Use

GIS Data Layer Construction Project

• Pub_Rec_Use

Example 4: Virginia Panhandle.



Map by Derrick Gregory
Dated June 10, 2011

APPENDIX G

Richmond Regional PDC Technical Assistance FINAL REPORT

FFY11

Rivers of the Richmond Region 2012 Distribution	
Organization	# Delivered
RRPDC	100
MWV	50
Partnership for Smarter Growth	600
NAACP	600
RRPDC	50
Charles City Co. Parks & Recreation	100
RRPDC	50
Ron's Auto in Charles City ¹	300
RRPDC—Board members	93
Richmond Metropolitan Convention and Visitors Bureau	6,000
Capital Regional Collaborative	50
New Kent County Visitors Center	600
Charles City County	1,800
Chesterfield Planning	10
University of Richmond	1,800
Randolph Macon	1,200
J. Sargeant Reynolds	3,000
VCU	3,000
SportsBackers	6,000
BB&T (CRC memberG	6
Falls of the James--Sierra Club	100
James River Association	100
James River Advisory Council	100
Chesterfield Parks & Recreation	100
Goochland Parks & Recreation	100
Hanover Parks & Recreation	100
Henrico Recreation & Parks	100
Powhatan Parks & Recreation	100
Richmond Parks & Recreation	100
Friends of the Lower Appomattox River	100
James River Outdoor Coalition	100
Mattaponi & Pamunkey Rivers Association	100
Henricopolis Soil & Water Conservation District	50
Ishinomaki Japan ²	10
Coastal Zone Meeting	5
Hopewell City Marina	20
CRC James River Working Group	50
26,744	

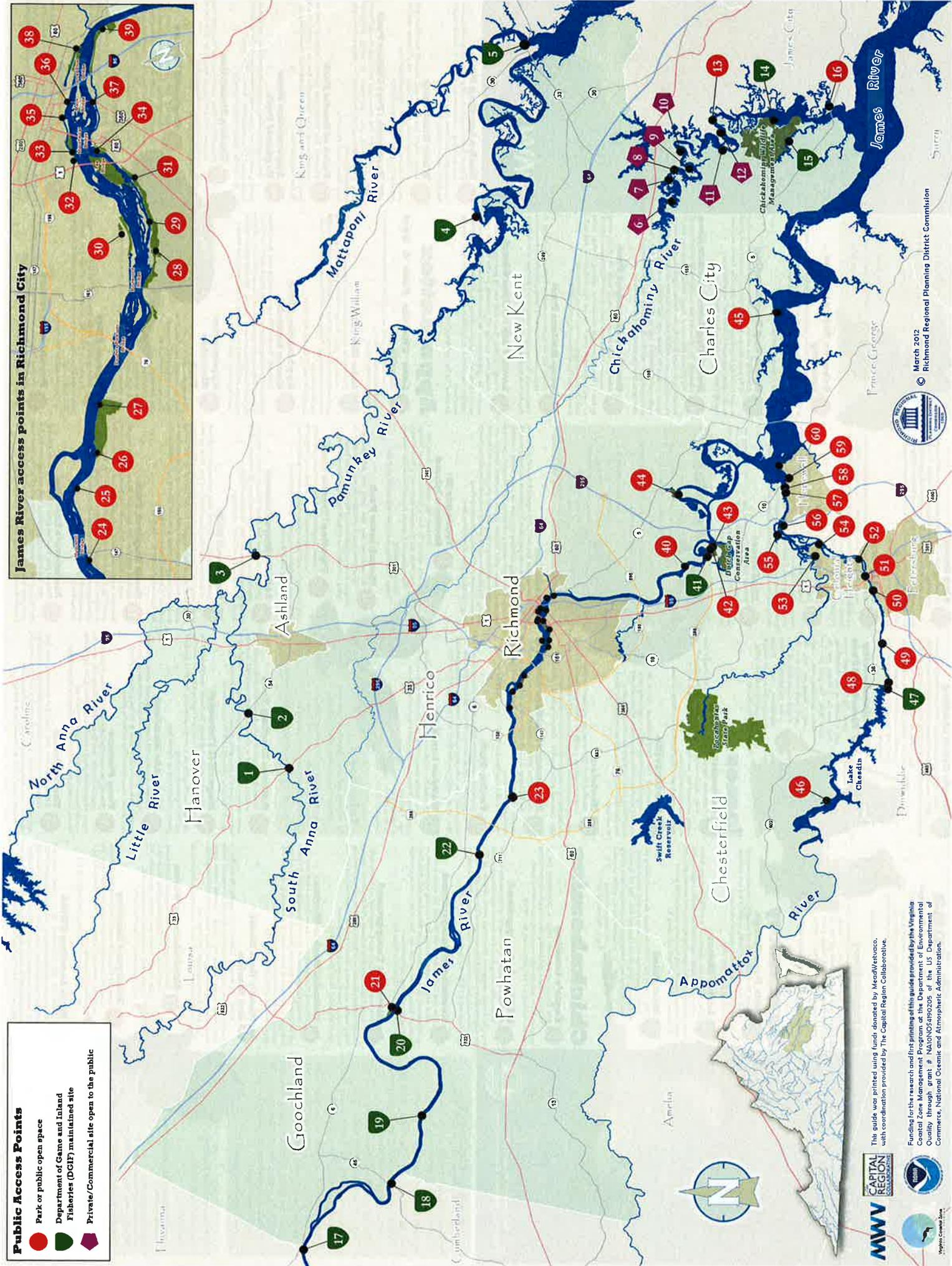
¹ Distributed as part of their annual Good Friday mud bog event which typically has 2,000 attendees

² Sent to Ishinomaki Japan as part of a gift bag from Richmond businesses/organizations

APPENDIX H

Public Access Points

- Park or public open space
- Department of Game and Inland Fisheries (DGIF) maintained site
- Private/Commercial site open to the public



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March 2012
Richmond Regional Planning District Commission

