

**Peninsula Planning District Commission's
Virtual Sketch Up of Overlapping Regulatory Structure
within the Riparian Areas
of the Middle Peninsula Coastal Zone
(Shenk Parcel- Severn River- Gloucester Virginia)**
Final Report
For the Period Ending
September 2007

**Submitted by
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Director of Regional Planning**

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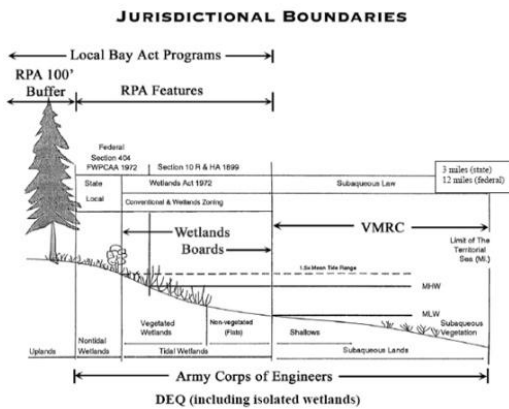


Report on the Virtual Sketch Up of Overlapping Regulatory structure within the Riparian Areas of the Mid Pen CZ October 2007

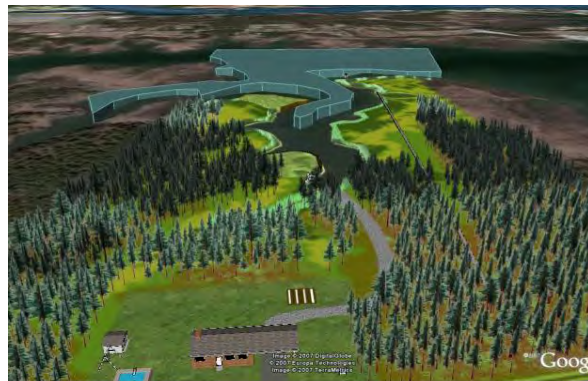
Issue Background

Within the coastal landscape, especially within the area commonly referred to as the riparian zone, multi jurisdictional regulatory overlap exists. Many governmental bodies have jurisdictional claim to areas within the loosely defined riparian zone. Overlapping jurisdiction causes confusion with elected officials, government staff and the general public. It is widely recognized that basic static Planimetric drawings (map1) are used to illustrate jurisdiction are not very complete or effective. For this project, MPPDC staff in partnership with NT Concepts <http://www.ntconcepts.com> used Google Earth and Google Sketch Up to develop an interactive system and method for demonstrating in three-dimensional dynamic illustrations jurisdictional overlap (screen shot map#2) on the coastal landscape/waterscape project site (Shenk Parcel- Severn River, Gloucester County Virginia).

Map#1



Map#2 Screen shot using Google Earth and Google Sketch Up



VMRC (non wetlands) jurisdiction area

Google SketchUp is a GIS compatible product designed to give landscape views and three dimension perspectives that can have jurisdictional coverage “draped” over the landscape. The views can be rotated 360 degrees on all axes, just as Google Earth maps can be tilted and rotated to view landscape features. The value to users lies in the user’s ability to illustrate three-dimensional jurisdictions coverage and the relation to issue at hand. Benefits include better informed elected officials, staff and the general public as to

where jurisdictional zones are and how regulations relate to natural features in several typical Chesapeake Bay marsh/upland areas.

As a tool, Google SketchUp is defined as: “A three-dimensional design and modeling environment that allows users to draw the outlines, or perimeters, of objects in a two-dimensional manner, similar to pencil and paper, already familiar to them. The two-dimensional, planar faces created by a user can then be pushed and pulled by editing tools within the environment to easily and intuitively model three-dimensional volumes and geometries”.

Project Process

Staff from the Middle Peninsula Planning District Commission including the Agency Executive Director as well as staff from the Virginia Coastal Zone Management Program (Project Feasibility Team), issued a Request For Qualifications and received four qualified responses. The Feasibility Team (project product #1) reviewed RFQ responses, interviewed and selected a consulting firm. Each consulting firm proposed various technologies to meet the project goal. NT Concepts <http://www.ntconcepts.com> was awarded the contract and proposed to use Google Earth and Google sketch up as the preferred technology due to its effectiveness at rendering 3d images and web deployment (project product #3- selection of consulting firm).

The Feasibility Team and NT Concepts recognized that Coastal Zone Management (CZM) within Virginia is an extremely complex activity. Virginia's CZM Program includes everything from wetlands laws to public access to sustainable economic development. Virginia's network of natural resource agencies shares responsibility for implementing Virginia's coastal resources management laws and policies. Feasibility Team and NT Concept staff utilized the Coastal Policy Team (CPT) as points of contact to determine regulatory jurisdiction as it relates to each agency responsibility on the project site (Shenk Parcel). The CPT, whose members represent the Virginia CZM Program's key partners, provides a forum for discussion and resolution of cross-cutting coastal resource management issues). The CPT served to meet the grant requirement of Establishing a Jurisdictional Overlap Team (project product #2). Seventeen types of jurisdiction were identified for the project site (others might exist).

Project consultants, NT Concepts <http://www.ntconcepts.com> utilizing Google Earth and Google Sketch up, rendered 3-Dimensional dynamic landscape and jurisdictional areas on the Shenk Parcel. Jurisdictional coverage's were provided by CPT members in accordance with agency responsibilities.

Technology

This project utilizes Google Earth and Google Sketch up to render 3-Dimensional dynamic landscape and jurisdictional areas. Jurisdictions are user activated or “clicked” and overlain as a transparent 3-Dimensional regulatory “blanket” atop the topography. Users can add and delete man made uses and click URL's to learn more about associated

regulations. Views can be rotated 360 degrees on all axes, just as Google Earth maps can be tilted and rotated to view landscape features. The value to users lies in the user's ability to illustrate three-dimensional jurisdictions coverage and the relation topographic and manmade uses. Benefits include better informed elected officials, staff and the general public as to where jurisdictional zones are and how regulations relate to natural features in typical Chesapeake Bay marsh/upland area. The project web file is a 7 megabyte KMZ file executable using Google Earth.

Project Status

Currently, the tool resides on <http://www.ntconcepts.com/mppdc/> and will be transferred to www.mppdc.com by project final close out. Project product #4 described as "3D Digital Illustration and Deployment to Regulatory Entities" is described by the following screen shot directly from the project website and project tool. The tool is set for final deployment and is scheduled to be reviewed by local planners and PDC Commission in November 2007.

Middle Peninsula Planning District Commission - Virginia Coastal Program Technical Assistance - Mozilla Firefox

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http://www.ntconcepts.com/mppdc/

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Middle Peninsula Planning District Commission

HOME PDC INFO PROJECTS GOVERNMENT GIS/DATA

Overlapping Regulatory Structure of the Middle Peninsula Coastal Zone

[Represented Jurisdictional Agencies](#) [Download and Usage Instructions](#)

Overview:

The Middle Peninsula Planning District Commission's Coastal Technical Assistance Program, with funding from the Virginia Coastal Zone Management Program and with cooperation from relevant government agencies and bodies, developed this pilot project for educational purposes to assist the general public, local and state governments with understanding the regulatory schema within the riparian area.

Within the coastal landscape, especially within the area commonly referred to as the riparian zone, multi jurisdictional regulatory overlap exists. Many governmental bodies have jurisdictional claim to areas within the loosely defined riparian zone. Overlapping jurisdiction can cause confusion with elected officials, government staff and the general public. Due to the complex regulatory schema within the riparian zone, planimetric drawings (basic cartoon line drawings) of multi jurisdictional overlap areas are limited for planning, education and policy development.

This project utilizes Google Earth and Google Sketch up to render 3-Dimensional dynamic landscape and jurisdictional areas. Jurisdictions are user activated or "clicked" and overlain as a transparent 3-Dimensional regulatory "blanket" atop the topography. Users can add and delete man made uses and click URL's to learn more about associated regulations. Views can be rotated 360 degrees on all axes, just as Google Earth maps can be tilted and rotated to view landscape features. The value to users lies in the user's ability to illustrate three-dimensional jurisdictions coverage and the relation topographic and manmade uses. Benefits include better informed elected officials, staff and the general public as to where jurisdictional zones are and how regulations relate to natural features in typical Chesapeake Bay marsh/upland area.

This project was funded by the Virginia Coastal Zone Management Program at the Department of Environmental Quality through grant number NA04NOS4190060 Task 83.07 of the National Oceanic and Atmospheric Administration, Office of Ocean and Coastal Resource Management under the Coastal Zone Management Act of 1972, as amended. This project was conducted as part of the Coastal Nonpoint Source Pollution Control Program in partnership with the Department of Conservation and Recreation. Next Tier Concepts, a Virginia Corporation and a Google Enterprise Professional Partner, provided the technical and 3D modeling support for this successful pilot.

The views expressed herein are those of the authors and do not necessarily reflect the views of NOAA or any of its subagencies or DEQ.

Virginia Coastal Zone Management Program

NOAA

Screen Shot showing project Jurisdictional Agencies and URL links back to each agencies enabling legislation.

Represented Jurisdictional Agencies:

- **Local Government: Gloucester County, Virginia:**
 - **Zoning Authority**
 - Gloucester County Code: C-2 Zoning District: Bayside Conservation District
(This link will take you to MuniCode in order to view Gloucester County Code. Please see Appendix B (Zoning Ordinance), Article 4, Section 4-3.)
- **Virginia Department of Conservation and Recreation's Chesapeake Bay Local Assistance Division:**
 - **Resource Management Areas**
 - **Resource Protection Areas**
- **Federal Emergency Management Agency 5100710038B Project Area ID FLOOD INSURANCE RATE MAP (FIRM)**
- **United States Army Corp of Engineers:**
 - **Section 404 Wetlands**
- **Virginia Department of Environmental Quality:**
 - **Water Protection Permit Program**
 - **Impacts to Wetlands**
 - **Water withdrawals and preservation of instream flow...**
 - **62.1-44.15C23 Wetland and stream mitigation bank**
<http://leg1.state.va.us/cgi-bin/legp504.exe?000+cod+62.1-44.15C20> and
<http://leg1.state.va.us/cgi-bin/legp504.exe?000+cod+62.1-44.15C21> and
<http://leg1.state.va.us/cgi-bin/legp504.exe?000+cod+62.1-44.15C22> and
<http://leg1.state.va.us/cgi-bin/legp504.exe?000+cod+62.1-44.15C23>
 - **Agency 25 - STATE WATER CONTROL BOARD** <http://leg1.state.va.us/000/reg/TOC09025.HTM#C0660>:
CHAPTER 660 VIRGINIA WATER PROTECTION GENERAL PERMIT FOR IMPACTS LESS THAN ONE-HALF OF AN ACRE, CHAPTER 670 VIRGINIA WATER PROTECTION GENERAL PERMIT FOR FACILITIES AND ACTIVITIES OF UTILITY AND PUBLIC SERVICE COMPANIES REGULATED BY THE FEDERAL ENERGY REGULATORY COMMISSION OR THE STATE CORPORATION COMMISSION AND OTHER UTILITY LINE, CHAPTER 680 VIRGINIA WATER PROTECTION GENERAL PERMIT FOR LINEAR TRANSPORTATION PROJECTS, CHAPTER 690 VIRGINIA WATER PROTECTION GENERAL PERMIT FOR IMPACTS FROM DEVELOPMENT AND CERTAIN MINING ACTIVITIES
- **Virginia Department of Game and Inland Fisheries**
 - **29.1-344** Stationary blinds on shore and in the public waters for owners of riparian rights
<http://leg1.state.va.us/cgi-bin/legp504.exe?000+cod+29.1-344>
 - **4VAC15-260** Game: Waterfowl and Waterfowl Blinds, and certain sections of Title 29.1
<http://leg1.state.va.us/000/reg/TOC04015.HTM#C0260>
Chapter 260 GAME: WATERFOWL AND WATERFOWL BLINDS
Section 10 "Floating blind" and "stationary blind" defined
Section 20 Determining depth of water for purpose of licensing blinds to persons other than riparian owners
Section 30 Violation of federal law or regulation pertaining to migratory game birds
Section 40 Distance between floating blind and stationary blind
- **Virginia Department of Health's Division of On-Site Sewer and Water Services:**
 - **Private Well Regulations**
 - **Sewage Handling and Disposal Regulations**
 - **Setbacks see Table 4.2**
- **Virginia Department of Health's Division of Shellfish Sanitation: Fisheries and Habitat of the Tidal Waters**
(Please see sections §§28.2-803 through 28.2-808, §32.1-20, and §9-6.14-4.1 B16 of the Code of Virginia)
- **Virginia Marine Resources Commission Title 28.2 - FISHERIES AND HABITAT OF THE TIDAL WATERS Chapter 12 - Submerged Lands**
- **Gloucester County Wetlands Board**
(This link will take you to the municode website where you can view the Gloucester County Code. Please see Chapter 20: Wetlands Zoning Ordinance.)

Download Instructions:

Download and install Google Earth (Free). Google Earth combines the power of Google Search with satellite imagery, maps, terrain and 3D buildings to put the world's geographic information at your fingertips.

[Download Google Earth \(Free\)](#)

Screen Shot showing project down load instructions

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http://www.nrcconcepts.com/mppdc/

Getting Started Latest Headlines

Download Instructions:

Download and install Google Earth (Free). Google Earth combines the power of Google Search with satellite imagery, maps, terrain and 3D buildings to put the world's geographic information at your fingertips.

Click [here](#) to open a network link KML file in Google Earth. OR, you can [download](#) the entire project (7MB). Depending on your network connection, the time it takes for these files to load may vary, so please be patient.

[Download Google Earth \(Free\)](#)

[Download MPPDC Network Link](#)

Usage Instructions:

Places

- My Places
 - Overlapping Regulatory Structure of the Middle Peninsula Coastal Zone
 - Program Overview
 - Represented Jurisdictional Agencies
 - Local Government: Gloucester County, Virginia
 - Virginia Department of Conservation and Recreation Bay Local Assistance Division
 - Federal Emergency Management Agency's Flood
 - Shore and Surrounding Parcels
 - United States Army Corps of Engineers Section 40
 - Virginia Department of Environmental Quality
 - Virginia Department of Game and Inland Fisheries
 - Usage Examples
 - Asphalt Parking Area
 - Boat Hooring
 - Bulkhead Above Mean High Water
 - Bulkhead Line
 - Crabbing Peeler Pound
 - Duck Blind
 - Grass Swale
 - Gravel Driveway
 - Ground Cover
 - House
 - Onsite Waste Water Disposal System
 - Oyster Floats
 - Per

Click the **Program Overview** link for a brief introduction to this pilot program.

Click the checkbox next to a **Represented Jurisdictional Agency** name to turn on and off their regulatory overlap layer. Click the agency name link to view additional information.

Click the plus sign next to **Usage Examples**, and double-click any layer to "fly to" its location to see how it falls within the regulatory zones.

To return to an overhead view, simply double-click any agency name.

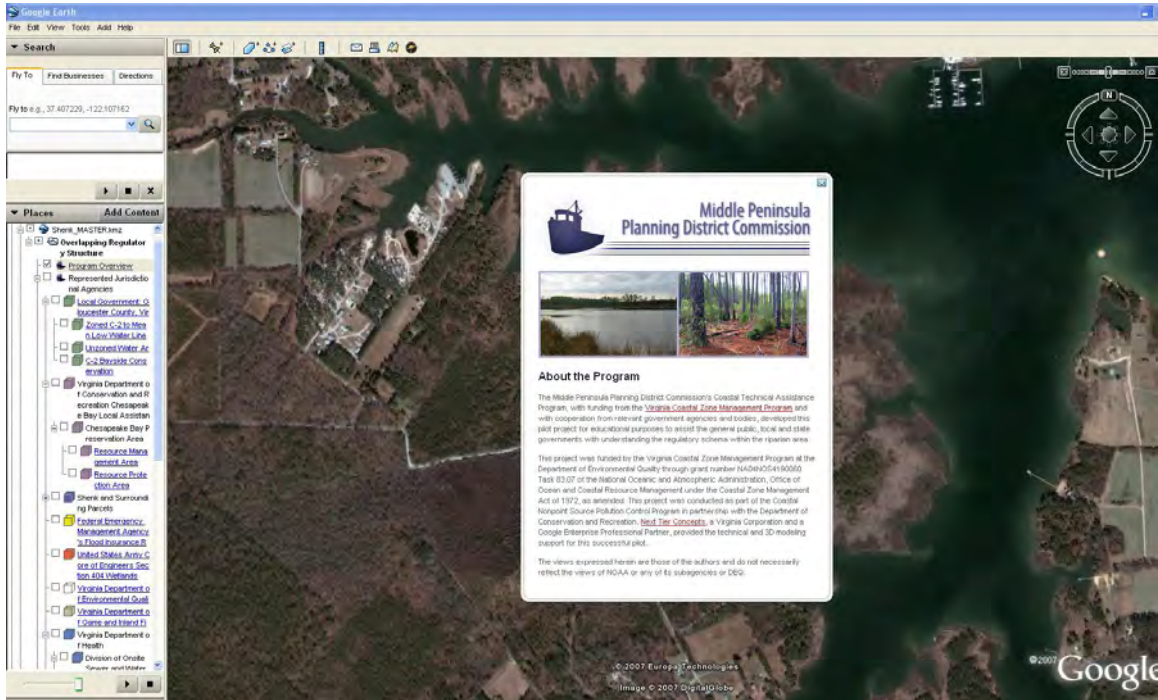
Contact:

Is your agency interested in being a part of this exciting pilot project? Please contact Lewis Lawrence for details.

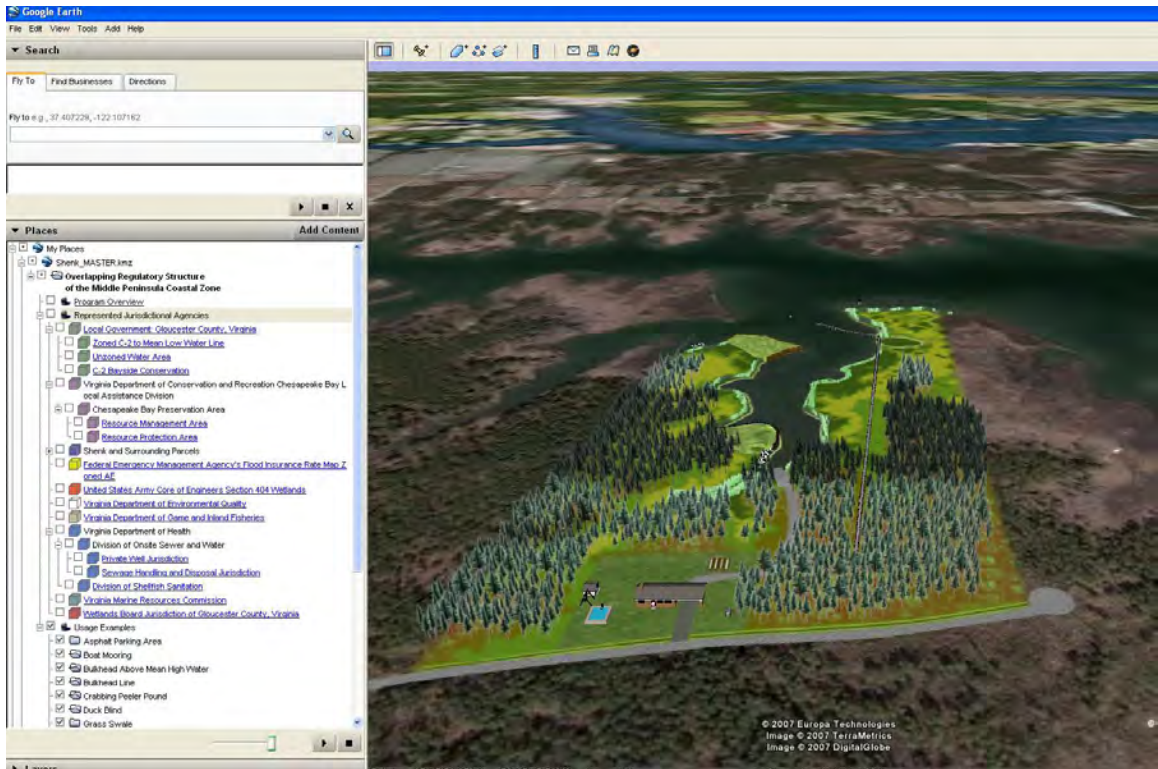
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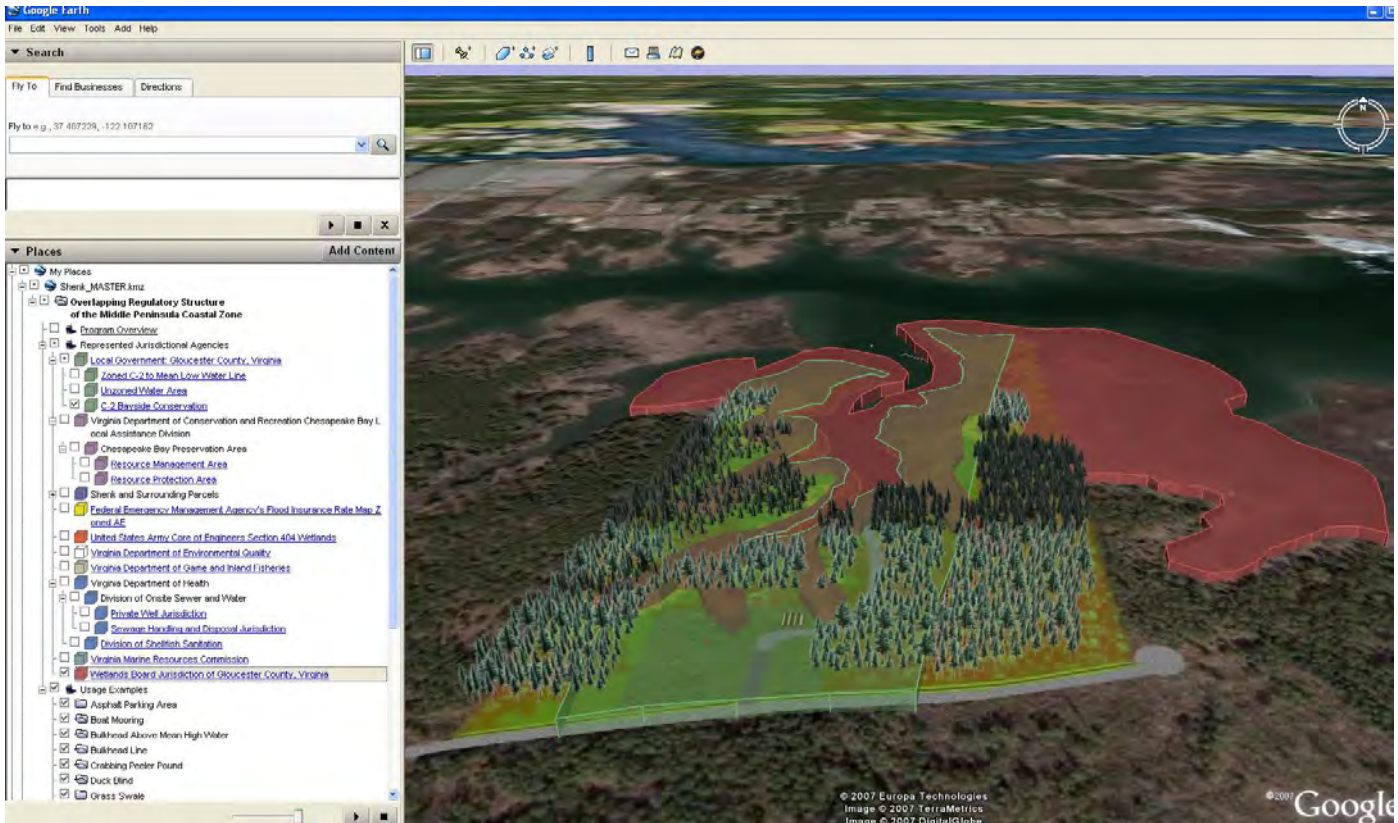
Screen Shot showing project background information from Google earth



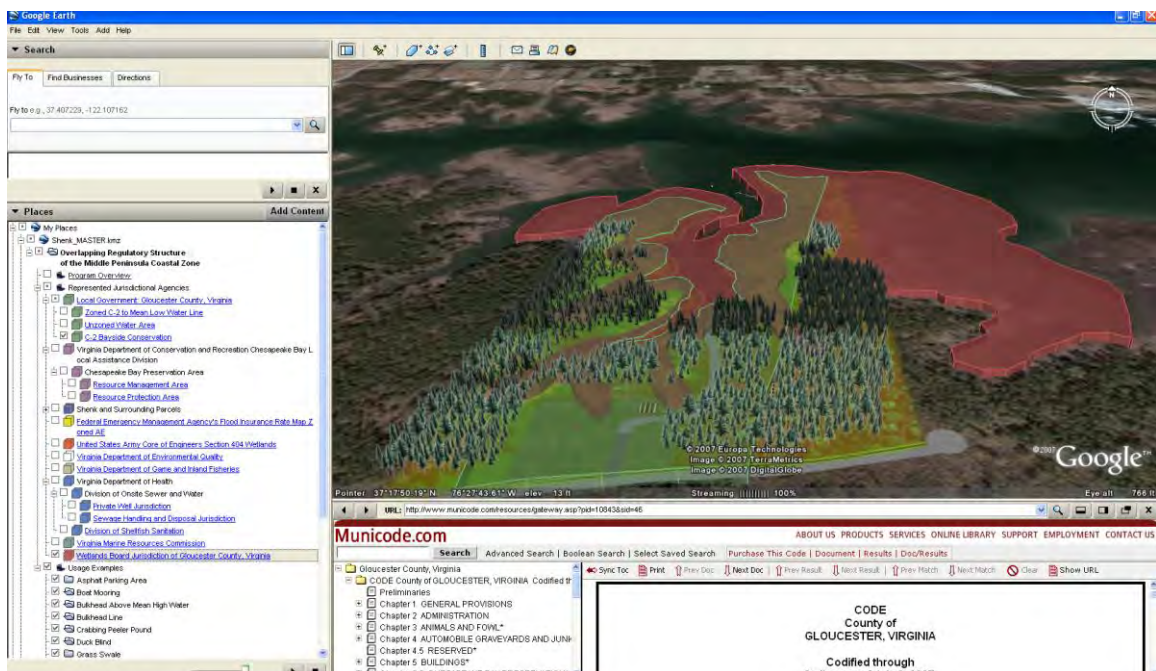
Screen shot showing clickable jurisdictions and uses



Screen Shot showing Gloucester local zoning and Wetlands board jurisdiction overlap



Screen Shot Wetlands board jurisdiction overlap and URL web site information about wetlands board jurisdiction. In this example, wetlands board jurisdiction has been codified by Gloucester County and a URL link takes the user to MUNI Code and launches a web window to Muni code for.



Screen shot showing Chesapeake Bay Act- Resource Protection Area (RPA) and URL link to the regulations for RPA area

The screenshot displays the Google Earth interface. The main view shows a 3D satellite image of a forested area with a Resource Protection Area (RPA) highlighted in purple. The RPA follows a stream and surrounding land. The left sidebar shows a 'Places' list with various regulatory and administrative items, including 'Chesapeake Bay Preservation Area' and 'Resource Management Area'. The bottom of the window contains a text box with the following text:

9VAC10-20-80. Resource Protection Areas.

A. At a minimum, Resource Protection Areas shall consist of lands adjacent to water bodies with perennial flow that have an intrinsic water quality value due to the ecological and biological processes they perform or are sensitive to impacts which may cause significant degradation to the quality of state waters. In their natural condition, these lands provide for the removal, reduction or assimilation of sediments, nutrients and potentially harmful or toxic substances in runoff entering the bay and its tributaries, and minimize the adverse effects of human activities on state waters and aquatic resources.

B. The Resource Protection Area shall include: