

**BOARD OF SUPERVISORS
TRANSPORTATION AND LAND USE COMMITTEE
INFORMATION ITEM**

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SUBJECT: Interactive Stream Conditions Map

ELECTION DISTRICT: Countywide

STAFF CONTACTS: David Ward/Glen Rubis/Terrance Wharton (Director),
Department of Building and Development

BACKGROUND:

At the May 17, 2011 Board Business Meeting the Board directed that “*the Department of Building a Development Water Resources Team create a website link on the status of streams and rivers in the County.*” Subsequently, staff from the Department of Building and Development (B&D), Public Information Office, Department of Information Technology, and County Administration met to discuss potential approaches to meet this directive to enhance the dissemination of information on stream conditions from the County to the public via the internet. Staff in B&D Water Resources Team developed an interactive mapping tool to display data on stream conditions and, with the Public Information Office, created a supporting web page. General information on the data content and basic features of the interactive stream conditions mapping tool are provided below.

INFORMATION:

The stream conditions web page (Figure 1) is at www.loudoun.gov/streamconditions and is also accessible as a link through the B&D Environmental/Water Resources Monitoring web pages. The stream conditions web page introduces the reader to the subject of stream conditions in Loudoun County and poses questions (and leads to answers) that users may want to know including:

- Is the stream water in my area healthy enough to play and swim in?
- What does the stream look like?
- Should I eat the fish that I catch in local streams and ponds?

From the web page, the user can access an interactive map that provides site-specific data on stream conditions at many locations in the county.

Data Content

Information presented in the stream conditions interactive map includes biological, physical, and chemical data on streams in Loudoun County. A large portion of these data were collected during the County’s 2009 Stream Assessment Project when the County contracted two environmental consulting firms (Versar, Inc. and BioHabitats, Inc.) that used methods and

procedures approved by the Virginia Department of Environmental Quality (DEQ) and the U. S. EPA. Data components of the Stream Assessment Project included:

- Benthic macroinvertebrates – Insects and other small creatures that live on the stream bottom. A rich and diverse community of these small animals indicates that the stream is generally in good to excellent condition. Conversely, finding only a few macroinvertebrates or only certain types that are tolerant of harsh conditions indicates generally poor stream conditions.
- Water quality – Field measurements such as temperature, pH (how acid or alkaline the water is), and specific conductivity (dependent on the concentration of dissolved solids in the water).
- Physical characteristics of the stream – Channel cross section, amount of sediment on the stream bed, obstructions, water depth and velocity, bank stability, and vegetation on the bank and adjacent to the stream.

Additional data sources include DEQ's water quality assessment program (for benthic macroinvertebrates and water chemistry) to identify streams that do not meet Virginia water quality standards and list the "impaired" stream segments as well as the U. S. Geological Survey stream gauges that record stage (water height) and, using calculations, stream flow.

Interactive Map

Accessed through the stream conditions web page is an interactive map of Loudoun County that provides several map data layers that the user may select (and deselect) including:

- Benthic monitoring from 2009 County stream assessment at 200 locations
- Habitat monitoring from 2009 County stream assessment at 500 locations
- Stream impairments designated by DEQ in 2010
- Ten streamflow gauging stations
- Scenic River designation
- Watershed boundaries

On these data layers are various symbols that the user may select and a popup window will appear showing photographs and hyperlinks to published site reports and, for some data types, real-time site conditions. Additionally, the mapping page offers access to comprehensive reports that may be downloaded as well as the source GIS files. Users may access information for a specific property by typing in the property address (number and street) and the map will zoom to that general location where the user may then select nearby site symbols for stream condition data.

To help improve the mapping tool, users may provide feedback/suggestions through a link on the mapping page.

Staff is prepared to provide a brief demonstration of the stream conditions web page and interactive map.

Figure 1. Screen shot of stream conditions web page (www.loudoun.gov/streamconditions).

Stream Conditions in Loudoun County http://www.loudoun.gov/Default.aspx?tabid=3777

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Department of Building and Development

Natural, Environmental, and Cultural Resources

Stream Conditions

The condition, or health, of our streams is important to everyone, as well as the wildlife and aquatic community that live in or nearby the streams. Stream conditions are evaluated through assessments of the environmental conditions by monitoring the types of organisms living in the stream; chemical and biological quality of the stream water; and stream habitat and ecological conditions. Assessments are designed to evaluate stream conditions relative to a designated water use type (for example, swimming or eating fish that you catch). If a section of a stream does not meet the water use criteria, the state of Virginia designates the section to be included in the list of impaired streams indicating that the pollutants are too great. The stream is then "listed" by EPA per section 303(d) of the 1972 Clean Water Act.

Find Out More About the Stream Conditions Near You

You can learn about stream conditions and find out answers to questions such as:

- Is the stream water in my area healthy enough to play and swim in?
- What does the stream look like?
- Should I eat the fish that I catch in local streams and ponds?

To find answers to these questions and more, click [here](#) or on the image below. It will take you to an interactive map where you can enter your street address and explore the stream conditions where you live. If symbols on the map indicate that stream monitoring was done nearby, click on the symbols to view photos and download the complete report.

Layers

Stream Assessment

- Good
- Fair
- Poor
- Very Poor

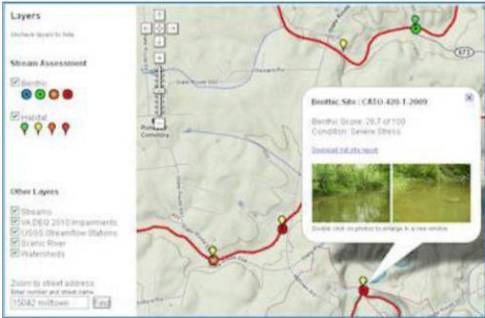
Other Layers

- Streamflow
- VA DEQ 2010 Impairments
- USGS Streamflow Stations
- Streamflow
- Watersheds

Zoom to street address

Enter name and address

100x2 mapview



Click the image above to launch an interactive map.

Water Resources Monitoring Program
Current & Recent Hydrologic Conditions

Department of Building & Development
1 Harrison Street, S.E.
Mailstop #60
Leesburg, VA 20175
[Directions](#)
Phone: 703-777-0220
bad@loudoun.gov

Engineering Hotline:
703-777-0116

Erosion & Sediment Control Issues:
703-777-0116

Zoning Questions:
703-777-0118

Additional background information about stream conditions may be found on the [Loudoun Watershed Watch](#) website. You can learn more about how Virginia determines designated water uses, how stream conditions are assessed, what an impairment is and what a TMDL is, and why that is important to know.

Loudoun County Government
P.O. Box 7000 • Leesburg VA 20177
703-777-0100
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Figure 2. Screen shot of example from interactive mapping web page.

