

A Better Way to Grow: Water Quality and Land Use

Background

- Many of our water resources still do not meet Federal and State water quality standards.
- There are multiple sources of pollution: municipal and industrial wastewater treatment plants, agriculture, and runoff from development. We've focused most of the clean-up efforts on the first two sources. But pollution from development is significant and growing.
- The patterns of development contribute to the water quality problem. The issue is SPRAWL:
 - Sprawl spreads development over large areas.
 - Sprawl pattern requires extensive system of roads and parking
 - Higher amounts of impervious surfaces result in high amounts of polluted runoff.
- What are the alternatives to Sprawl? Watershed Management Planning, "Smart Growth" Patterns, Preservation of "Green Infrastructure", Better Site Design / Low Impact Development

Watershed Management Planning (WMP)

- Tool for local governments to plan growth areas while considering water quality impacts of growth.
- Growth = development → imperviousness → stream degradation
- Strategy:
 - Concentrate growth in a limited number of watersheds, those already impacted. Focus pollution controls and clean-up here.
 - Limit growth in healthy watersheds.
 - Maintain basic green infrastructure throughout.
 - Apply better site design / low impact development techniques.

Smart Growth

- Compact development is focused in and around existing towns and cities.
- New development utilizes existing utilities and infrastructure to the extent possible. Infrastructure is expanded when appropriate within designated urban growth boundaries.
- Development is limited in rural and natural areas outside growth boundaries.
- Environmentally sensitive areas are protected.
- Within growth areas:
 - Uses are mixed to allow residents to live, work, shop and recreate within their neighborhoods.
 - Facilities are provided to promote walking, bicycling and transit over auto use.
 - Infill development and redevelopment are favored over outward growth.
 - Land planning and urban design create a sense of community and an attractive place to live.

Green Infrastructure

- Purpose: protection and maintenance of critical environmentally sensitive areas
- Applied throughout the landscape – in town and in rural areas
- Involves protecting: streams, wetlands, floodplains, riparian forest buffers, steep slopes
- Uses natural processes to protect water quality

Better Site Design / Low Impact Development

- Addresses development at the site level (as opposed to watershed or community level)
- Layout of buildings, roads, parking, open spaces is designed to protect water quality through reductions in impervious surfaces and utilization of natural processes for water cleansing.
- Includes standard and innovative methods to improve stormwater runoff quality.

Sources of Information on A Better Way to Grow:

Water Quality of Virginia's Streams

- Virginia Department of Environmental Quality (DEQ) water programs home page, www.deq.virginia.gov/water/
- Virginia DEQ Water Quality Assessment Report, www.deq.virginia.gov/wqa/ir2004.html
- Virginia DEQ TMDL program, www.deq.virginia.gov/tmdl/homepage.html
- Virginia Department of Conservation and Recreation information on nonpoint source (runoff) pollution, www.dcr.virginia.gov/sw/nps.htm

Watershed Management Planning

- Virginia Department of Conservation and Recreation, *A Community Water Quality Approach: Local Watershed Management Planning in Virginia*, www.dcr.virginia.gov/sw/
- Center for Watershed Protection, www.cwp.org/index.htm
- Fairfax County Stream Protection Strategy, www.co.fairfax.va.us/dpwes/environmental/sps_main.htm
- Fairfax County Watershed Management, www.co.fairfax.va.us/dpwes/watersheds
- Henrico County Watershed Management, ns1.co.henrico.va.us/works/newdpwwweb/stream_assessment.htm
- Albemarle County, Watershed Management, www.albemarle.org/departments.asp?department=planning&relpage=5720

Smart Growth

- *Better Models for Development in the Shenandoah Valley*, Valley Conservation Council, 17 Barristers Row, Staunton, VA 24401, 540-886-3541, www.valleyconservation.org
- *Better Models for Development in Virginia*, The Conservation Fund, 1800 North Kent Street, Suite 1120, Arlington, VA 22209, 703-525-6300, www.conservationfund.org/?article=2011
- American Planning Association Smart Growth Reader, www.planning.org/sgreader
- Chesapeake Bay Foundation, www.savethebay.org/land/landuse/smartgrowth/index.html
- Smart Growth Tools, www.smartgrowthtools.org
- Smart Growth Alliance, www.washington.uli.org/sga/

Green Infrastructure

- *Stream Corridor Protection Strategy for Local Governments*, University of Virginia, www.virginia.edu/ien/publications.htm.
- Virginia Cooperative Extension, *Science Behind Riparian Forest Buffers*, www.ext.vt.edu/pubs/forestry/420-151/420-151.html
- Loudoun County Comprehensive Plan, Green Infrastructure, www.loudoun.gov/planning/
- USDA Forest Service, Green Infrastructure, www.greeninfrastructure.net
- The Conservation Fund, Green Infrastructure, www.conservationfund.org/?article=2153

Better Site Design / Low Impact Development (LID)

- Northern Shenandoah Valley Regional Commission, LID Manual, 540-636-8800
- Better Site Design Manual, www.cblad.virginia.gov/publica.cfm#bsd.
- Center for Watershed Protection, www.cwp.org/index.htm
- Low Impact Development(LID) Center, www.lowimpactdevelopment.org