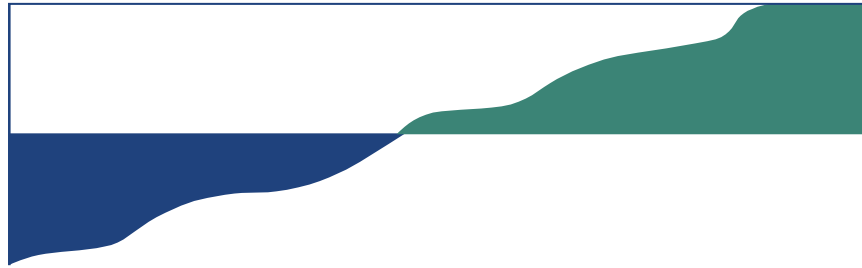


# EPA Watershed Events



A Bulletin on Sustaining Water Resources and Ecosystems

## *In This Issue...*

This issue of *Watershed Events* focuses on smart growth—an emerging concept that promotes better stewardship of land and water resources to make our communities more livable and sustainable. In addition, as you will discover from the following articles, economic growth and environmental quality has proved to be mutually compatible goals. In regards to smart growth, Governor Kitzhaber of Oregon perhaps said it best—“**Growth is a double edged sword. Handled right, it can offer a path to a bright and prosperous future. Handled wrong, it will slice to shreds everything that makes living here worthwhile.**”

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## Smart Growth and the Watershed Approach: What's the Connection?

### Common Principles

Both Smart Growth and the Watershed Approach have three basic principles in common:

- *Place* - focus is on geographic areas;
- *Partnerships* - people of various interests take action together;
- *Problem Solving* - comprehensive plans are developed to implement appropriate solutions.

### Common Agenda

Preventing or mitigating negative effects of unmanaged growth is clearly a mandate of smart growth and emerging as a driving force for the watershed approach. Development activities, especially uncontrolled sprawl, create impervious surfaces within watersheds which:

- Increase runoff of nonpoint source pollution and sedimentation of streams;
- Increase stormwater runoff and faster and higher flood peaks;
- Increase scour and erosion of streambanks;
- Reduce recharge to ground water and lower stream base flow; and
- Destroy wildlife habitats.

All of these degrade the physical, chemical, and biological integrity of our streams, rivers, lakes, wetlands, and estuaries.

### Common Sense

The concept of smart growth is starting to build momentum all over the country and has good bipartisan support. The Watershed Approach has seen similar success. EPA's Office of Water estimates that there are more than 4,000 locally based organizations across the nation that are actively involved in protecting and restoring the water resources and ecological integrity of their watershed. In their endeavors to protect water resources, many of these groups can bring a common sense approach to promoting and implementing smart growth and their expertise and commitment to action should be utilized to improve the quality of life for all the citizens in the community.

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“Water is the most critical resource issue of our lifetime, and our children's lifetime. The health of our waters is the principal measure of how we live on the land.”

*Luna Leopold*

**Watershed Events**

John McShane, Editor  
U.S. Environmental Protection  
Agency

**This Issue's Contributors**

Patrice Carroll, Philadelphia Urban  
Resources Partnership  
Jessica Cogan, U.S. Environmental  
Protection Agency  
Warren Flint, University of Virginia  
John Frece, State of Maryland  
Abby Friedman, National Association  
of Counties  
Heather Holland, Center for Water-  
shed Protection  
Richard Klein, Community and  
Environmental Defense Services  
Janet Pawlukiewicz, U.S. Environ-  
mental Protection Agency  
Michael Pawlukiewicz, Urban Land  
Institute  
Edward Thompson, Jr., American  
Farmland Trust  
John Tippet, Friends of the  
Rappahannock  
Paul Wentworth, U.S. Environmental  
Protection Agency

*Watershed Events* provides informa-  
tion to professionals and others  
interested in the development and  
implementation of the watershed  
approach and in achieving water-  
shed goals. The watershed ap-  
proach focuses on mitigating the  
primary threats to ecosystem and  
human health and involving stake-  
holders to take action in an inte-  
grated, holistic manner. Please  
direct any questions or comments to:

John McShane  
Office of Wetlands, Oceans, and  
Watersheds  
U.S. EPA  
401 M Street, SW (4501F)  
Washington, DC 20460  
(202) 260-0409  
mcshane.john@epa.gov

To be added to the *Watershed  
Events* mailing list, send your name  
and address to:

Melissa Bowen  
Tetra Tech, Inc.  
10306 Eaton Place, Suite 340  
Fairfax, VA 22030  
bowenme@tetrattech-ffx.com

**What is Smart Growth?**

What are the key principles and  
characteristics of smart growth? How  
can smart growth be recognized? What  
are the details of the smart  
growth approach that can be tested in  
the day-to-day experience of planning  
and implementing policies as well as  
of designing and developing projects?  
Answers to these questions have  
begun to emerge over the past few  
years.

**Key Principles**

First, it must be understood smart  
growth is local, built up from the  
grassroots level. Second, smart  
growth must begin with the assump-  
tion that there will be growth. There  
have been times when no-growth  
advocates have successfully opposed  
development, only to see it leapfrog  
into places that are even less appropri-  
ate. The lesson learned is not to stop  
growth, but to accommodate it in  
ways that make sense and preserve  
the community, protect the environ-  
ment, and enhance  
economic vitality.

Third, collaboration is a  
cornerstone of smart  
growth. Smart growth  
seeks to identify a  
common ground where  
developers, environ-  
mentalists, public  
officials, citizens, and  
financiers all can find ways to accom-  
modate growth that is acceptable to  
all parties.

**Characteristics of Smart Growth**

It has been said that smart growth is  
happening in a community when:

- Development is economically viable  
and preserves open space, natural  
resources, and habitats for indig-  
enous species.
- There is certainty and predictability  
in the development process, and

development projects that enhance  
the economy, the community, and  
the environment receive expedited  
approval.

- Existing infrastructure is maintained  
and enhanced but expanded when  
appropriate to serve existing and  
new residents.
- There is a mutually beneficial  
collaboration among the commu-  
nity, the nonprofit sector, and the  
public and private sectors. Rede-  
velopment is actively pursued,  
including infill residential develop-  
ment, the reuse of brownfields, and  
the recycling of obsolete buildings.
- Compact development is focused on  
existing commercial centers, new  
town centers, and existing or  
planned transportation facilities.  
Land planning and urban design  
create a sense of community and  
ensure the ease of movement and  
safety of residents.
- Development is limited in the most  
hazardous, ecologically significant  
areas.

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“...all property in this country is held under an implied  
obligation that the owner's use of it shall not be  
injurious to the community.”

*The United States Supreme Court, 1887*

**Barriers to Smart Growth**

Many public officials, citizens, and  
environmental groups have discovered  
that the way to get well-designed  
projects built in the places that make  
sense is to do everything possible to  
make them economically successful.  
Projects that are the most sensitive to  
the environment and to community  
values should be given priority and  
should not be subject to costly delays  
and conditions.

Unfortunately, in today's world, smart  
growth is often the path of greatest

resistance and cost to the developer. Infrastructure and housing policies are designed to enable and reinforce prevailing development patterns. Equally important, however, smart growth is, in many instances, simply illegal. For example, current zoning practices often require unnecessarily wide streets, large setbacks, and large lot sizes; forbid mixing retail and commercial with residential uses; and require excessive supplies of parking. In short, the barriers to smart growth can be numerous and can originate in many different places.

Falling Barriers

Because smart growth fosters collaboration and agreement among policy makers and practitioners in the development sector, barriers are beginning to fall and smart growth is getting easier. Here are a few examples of the practical application of smart growth principles:

- Communities have reworked their design standards to allow streets that are narrower, more pedestrian friendly, and that generate less rainfall runoff.
- Local governments working with town planners and architects have

adopted alternative zoning overlays that permit a greater mix of uses, lower parking minimums, smaller setbacks, as well as facilitating the permitting process.

- Federal policies encourage deconcentrating low-income public housing or rehabbing old projects into community-centered housing. New programs offer incentives to mix higher proportions of market-rate housing into new projects, some using traditional neighborhood design (TND) principles.
- In Maryland, a redevelopment project is planned for Silver Spring, a suburb of Washington, D.C. Rather than prohibiting building in the suburban fringe, the state of Maryland provides incentives in the form of grants to build infrastructure in downtown Silver Spring. These grants not only enable redevelopment to work economically but also make Silver Spring as attractive to developers as fringe areas where land is less expensive. (See article on Maryland's smart growth initiative.)
- In San Diego County, California, environmentalists, developers, and government agencies have put aside

battling over each development project as it is proposed. A Natural Communities Conservation Plan (NCCP) has been adopted that identifies specific habitat areas for permanent protection in addition to areas for "as-of-right" development. Sustainable preservation areas will protect endangered species, as well as entire ecosystems and will still be able to accommodate the growth needs of the community.

When a development is profitable, when it leverages or enhances existing public investment, and when it maintains or improves environmental quality, a consensus can be sustained among the many stakeholders who affect development decisions. This can lead to a regulatory, permitting, and financing path of least resistance for smart growth practices. Local government, environmentalists, and real estate developers together can make smart growth development work, not only on the ground but also on the balance sheet.

This article is adapted from a longer version by Michael Pawlukiewicz that first appeared in Urban Land Magazine, June 1998. For more information on smart growth, visit the Urban Land Institute's website at [www.uli.org](http://www.uli.org) or [www.smartgrowth.org](http://www.smartgrowth.org).



1) For years, channelizing streams and draining the land for development or agricultural activities was common practice in many areas of the country. Indeed, federal programs often promoted and funded these projects to get water off the land as quickly as possible, even though this frequently destroyed the biological integrity of streams and wetlands. 2) Today, many streams are being degraded by the increased runoff from upstream developments [see stream hydrograph on page 8]; here, extensive bank erosion, an increasing problem in rapidly growing suburban areas, has exposed a sewer line. 3) Some communities have embraced smart growth and have taken the initiative to protect and restore streams and their floodplains to preserve their ecological integrity as well as their ability to store and convey floodwaters. Preserving these areas also has the added benefit of increasing adjacent property values.



## Tools for Smart Growth

### Smart Growth Site Planning Protects Streams

In her 1970 hit single, Joni Mitchell complained that they “paved paradise and put up a parking lot.” As it turns out, she had a right to be concerned: land development and accompanying impervious cover has been proven to have a significant adverse impact on the quality of our watersheds, especially

streams and their floodplains. Short of severely curtailing new development, one of the best tools to mitigate these impacts is a change in the way that development sites are designed. Towards this end, the Center for Watershed Protection convened a national site-planning roundtable of diverse planning, environmental, home builder, fire, safety, public works, and local government personnel. Over an

18-month period, these professionals hammered out 22 model principles for land development that realistically focused on redesigned streets, smaller parking lots, improved site design, and extensive conservation of natural areas in all new developments. Collectively referred to as “better site design,” these techniques provide local governments with a comprehensive process through which they can minimize

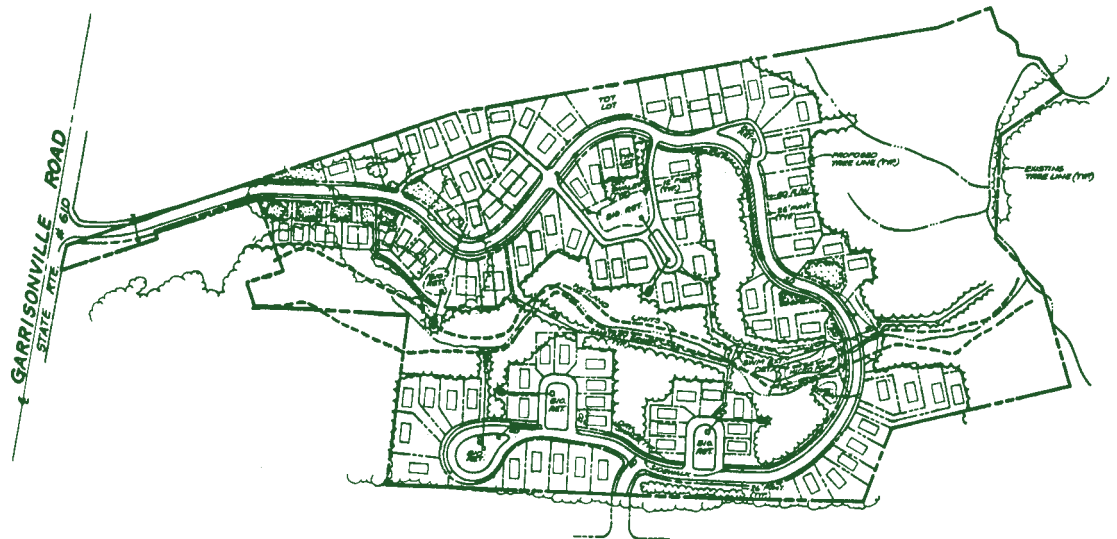
#### Conventional Design

*This site represents a typical single-family residential subdivision. Lots are a uniform size and shape, cul-de-sacs dominate the landscape, existing natural resources (forest, streams, floodplains, and wetlands) are only moderately protected, street widths are excessively wide, driveway widths and lengths create unnecessary impervious cover, and lawn turf is the dominant feature in the developed site. Total impervious cover: 12.0 acres (27% of total site).*



#### Innovative Design

*In this innovative design, lots are narrower and varied in shape, existing natural resources have been preserved wherever possible, a significant area is retained as natural open space, street widths are narrow, and houses are closer to the road thus creating shorter driveway lengths. In addition, a minimum 100 ft. buffer is provided along all intermittent and perennial streams, stormwater is managed in a “treatment train” with bioretention facilities coupled with a wet extended detention pond, and lawn turf is minimized. Total impervious cover: 9.1 acres (20% of total site).*



impervious cover and promote land conservation. The principles are not intended to be strict mandates, but guidelines that provide a framework for smarter, better, more ecologically sound site development based on local conditions.

The better site design approach seeks to accomplish three basic goals at every development site: to reduce the amount of impervious cover, to increase the amount of natural land set aside for conservation, and to use pervious areas for more effective stormwater treatment. The application of these principles requires that designers scrutinize every aspect of a site plan—street widths, parking spaces, setbacks, lot sizes, driveways and sidewalks—to determine if any of these elements can be reduced in scale. At the same time, creative grading and draining techniques must be modified to best prevent concentrations of stormwater and improve infiltration. Finally, as much undisturbed land area as possible should be conserved as forests, meadows, stream buffers, and other natural habitat. Avoiding development in flood hazard areas is particularly effective as it not only protects streams and their floodplains, it also prevents the loss of life and property caused by floods. Applied collectively, better site design principles can increase open space, reduce pollutant loads, and raise property values.

In theory, the Center's principles are deceptively simple: make streets only as wide as they really need to be; don't create more parking than necessary; and protect trees whenever possible. However, when applied simultaneously, the results of better site design techniques can be impressive. Recent studies in Delaware, Maryland and Virginia have demonstrated that better site design can reduce impervious cover by 25% to

nearly 60% for subdivisions and by 20% for shopping centers and office parks. This reduced imperviousness translates directly into:

- Less polluted runoff;
- Better water quality;
- Less variable stream base flow; and
- Lower construction costs.

The good news for Joni, and the rest of us, is that while paradise will continue to be paved, developers, water quality managers, and planners across the country are taking steps to rethink land development and overcome existing impediments to better site design. As a means of facilitating this better site design consciousness, the Center's national site-planning roundtable developed a *Codes and Ordinances Worksheet* that communities can use to see how the standards, ordinances and codes that shape development in their own areas measure up against the model principles. However, real progress toward smart growth will require more local governments to continue to examine their current practices in the context of a broad range of

economic, legal, safety, environmental, and planning concerns.

For more information on the 22 model development principles, contact the Center for Watershed Protection, 8391 Main Street, Ellicott City, Maryland 21043; phone (410)461-8323; fax(410) 461-8324; email: [mrrunoff@pipeline.com](mailto:mrrunoff@pipeline.com). You can visit us online at [www.cwp.org](http://www.cwp.org).

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## Protecting Farmland: An Integral Part of Smart Growth

People are often surprised to learn that more than half of the nations agricultural production, including three-fourths of its fruits, vegetables and dairy products, occurs right outside America's expanding cities. Our agrarian ancestors were smart enough to settle on the most fertile land. Will we be smart enough to protect that land from sprawl?

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**See Farmland, page 6**

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American Farm Land Trust

*Our ancestors were smart enough to settle on the most fertile land—will we be smart enough to protect this land from sprawl?*

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### Farmland from page 5

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Protecting farmland is an important part of almost any smart growth strategy. Farmland is, of course, a source of locally grown food that contributes to the economy. But it also provides environmental benefits: open space to relieve congestion, habitat for wildlife, and watersheds free of pavement. And it is a source of tax revenue that does not demand many public services (cows don't go to school) and, hence, makes a positive contribution to local budgets. It is, therefore, not surprising that the protection of green, open farmland consistently ranks high in polls asking people why sprawl should be curbed.

American Farmland Trust is an active participant in the Smart Growth Network and recently formed a partnership with the U.S. Conference of Mayors to promote the recycling of brownfields to protect green fields. The focus of American Farmland Trust is on areas of the country where the most productive farmland lies in the path of sprawl, from California's Central Valley to New England's Connecticut River Valley and many places in between (to view AFT's "Farming on the Edge Map," go to <http://farm.fic.niu.edu/foe2/map/foemap2.html>). For more information about AFT, its programs, services and publications, visit their website at [www.farmland.org](http://www.farmland.org), call (202) 331-7300 or write American Farmland Trust, 1200 18th Street, N.W., Suite 800, Washington, D.C. 20036.

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## Sprawl, Transportation, Watersheds, & Air Quality: Meeting the Challenge

How many hours do you spend behind the wheel of a car or truck? If you can't take a train, bus, or subway

most likely you're an "average" commuter, faced with the daily, relentless crush of autos corralled into commuter traffic corridors. In Philadelphia alone, the amount of miles each vehicle travels daily is projected to increase from 106 million in 1995 to 112 million in 2000, an increase of over 1 million daily miles traveled every year. Transportation officials refer to this as vehicle miles traveled, or VMT, and is a critical determinant of ozone pollution levels.

### What's sprawl got to do with it?

People continue to move out of cities to buy bigger homes on larger lots while urban areas lose population and jobs. For example, between 1973 and 1990 residential development increased by almost 50% in Maryland and the Washington Metropolitan Area is projected to lose a total of 309,000 acres of open space between 1990 and 2020. This sprawl development that demands additional water, electricity, schools, sewer lines, police and fire protection, and highways often creates an economic burden on communities and degrades the water quality and wildlife habitats of our rivers streams, wetlands, and estuaries.

### Sprawl, Traffic Congestion, and Air Pollution

People and businesses move out of the cities into the suburbs where traditional zoning laws partition land into separate areas zoned for specific purposes so that workers are separated from their work by long commutes on an inefficient, overcrowded highway system. There are more people driving longer periods of time and carrying fewer passengers today than at any other time.

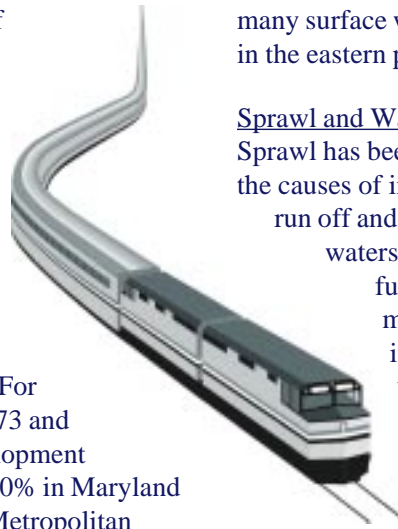
Pollution control technology has made the automobile engine much cleaner than in the past. However, vehicle miles traveled has increased over 220% since 1970, negating the emission benefits of clean engine technology. In addition, transportation accounts for the release of some 30% of volatile organic compounds as well as nitrogen oxide pollution, which is contributing to the over-enrichment and eutrophication of many surface water bodies, especially in the eastern part of the country.

### Sprawl and Watersheds

Sprawl has been identified as one of the causes of increased storm water run off and stream erosion in many watersheds. In a healthy functioning watershed, most precipitation soaks into the ground and is utilized by vegetation, recharges aquifers, and maintains surface water flows. When just 10% of the watershed is developed, streambeds start to degrade due to increased runoff. After about 20% if the watershed is developed, most streams have been severely degraded or destroyed.

### Is there a solution?

What combination of policy and technology can address sprawl, high VMT, and the deterioration of watersheds? To address these issues, many experts agree that a combination of transportation facilities combined with different designs of living are needed. Transit oriented development is a high intensity mix of shopping, businesses and high density housing located around light rail stations. In addition, the traditional town model of development has been shown to produce compact mixed use, pedestrian-oriented living areas, which have coherent and well-defined boundaries and are surrounded by rural areas





helping to protect watersheds and their economic and environmental benefits. Rather than eliminating development, making developments fit the functioning watershed and providing a wider array of ways to get to places is the solution. For more information, contact Paul T. Wentworth at (215) 814-2183 or visit our website at [www.epa.gov/reg3artd/](http://www.epa.gov/reg3artd/).

### Smart Growth and Floodplain Management

On August 17, 1999, the President signed into law the Water Resources Development Act (WRDA) of 1999. Included in the law is the Flood Mitigation and Ecosystem Restoration Program or “Challenge 21,” a pilot program authorizing the US Army Corps of Engineers (COE) to undertake nonstructural “flood control” and riverine ecosystem restoration projects. The Act encourages projects that will “conserve, restore, and manage hydrologic and hydraulic regimes and restore the natural functions and values of floodplains.” Challenge 21 reflects a dramatic shift in the COE, encouraging a more environmentally sensitive approach to

“The [Water Resources Development Act of 1999] will promote the use of effective, nonstructural means to address flooding concerns and complement efforts across the Nation to restore the environmental value of floodplains and aquatic ecosystems.”

*President Clinton*

reducing flood losses. WRDA authorizes \$20 million in fiscal year (FY) 2001; \$30 million in FY 2002; and \$50 million in FY 2003-2005 for Challenge 21.

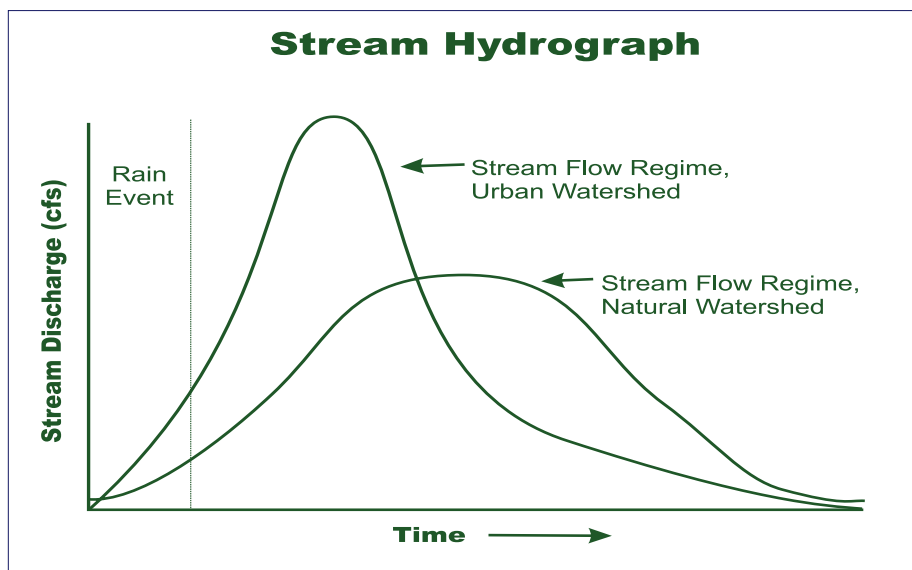
Another significant provision of WRDA is Section 219, “Nonstructural Flood Control Projects” which provides a major shift in the way the COE calculates costs and benefits of proposed projects. This provision mandates that the COE “calculate the benefits of the nonstructural project using methods similar to those used for calculating the benefits of structural projects...” This means that all of the costs of a structural project (including intangible environmental costs) and all the benefits of a nonstructural

project (such as wetlands preserved) should be included in the cost/benefit analysis for proposed projects. It is hoped then that this would ultimately result in fewer structures (such as levees and stream channelization projects) being built and the natural resources and functions of more floodplains being protected. A full text version of WRDA ‘99 can be downloaded from the Internet at [www.house.gov/transportation/](http://www.house.gov/transportation/) (House Transportation and Infrastructure Committee Web Page). “Challenge 21” is also referred to in the President’s Clean Water Action Plan (CWAP); to find out more about CWAP and to get updates on implementation activities, visit [www.cleanwater.gov](http://www.cleanwater.gov).

### Will Hurricane Floyd Encourage Smarter Growth?

Shortly before this issue of *Watershed Events* went to press, Hurricane Floyd produced torrential rains from the Carolinas to New England with rivers and streams taking back their floodplains to store and convey floodwaters (which is their function). However, there was extensive damage to thousands of homes and commercial buildings, as well as drinking water and wastewater treatment facilities, built in these flood hazard areas. Other critical facilities such as telephone, electric, and financial services (e.g., ATMs) computer centers were also damaged or destroyed, affecting millions of people. In addition, millions of gallons of hog manure and raw sewage were swept into North Carolina rivers contaminating drinking water supplies, homes, and businesses. In New Jersey alone over a million people were advised to boil their water.

See Floyd, page 8



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### Floyd from page 7

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In the United States and most other countries, floods have caused a greater loss to life and property, and have devastated more families and communities than all other natural disasters combined. In addition, although many billions of dollars have been spent on “flood control,” flood losses continue to rise and more people live in flood hazard areas than ever before.

As floodplains are often the most biologically productive and geologically dynamic area within a watershed, relocating or acquiring flood-damaged structures (as was done after the Great Flood of '93 along the Mississippi and Missouri Rivers), and limiting the siting of critical facilities in flood hazard areas, would help reduce the loss of life and property caused by floods, save taxpayer dollars, and help protect and restore the natural resources and functions of floodplains. Implementing smart growth policies and programs that discourage development in flood hazard areas will therefore help protect the ecological integrity and biodiversity of our riverine and coastal floodplains, as well as contribute to making our communities more livable and sustainable for the 21<sup>st</sup> century, and beyond. For more information on floods and protecting the natural resources and functions of floodplains visit the website [www.floods.org](http://www.floods.org). To receive the publication *Protecting Floodplain Resources: A Guidebook for Communities* call (202) 646-3484 and ask for publication 268.

Approximately 80% of the nation's wetlands are located in floodplains.

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“We abuse land because we regard it as a commodity belonging to us. When we see land as a community to which we belong, we may begin to use it with love and respect.”

*Aldo Leopold*

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### Winning the War on Sprawl with Better American Bonds

Last November, 240 communities across the nation voted on ballot initiatives to protect open space, enhance local livability, and promote smart growth. More than 70% of these measures were adopted, authorizing \$7.5 billion in state and local spending. The voters in these communities were responding in large part to the astonishing loss of open space and increasing traffic congestion that has occurred in recent years across the country.

To address these and other adverse impacts of sprawl, the Administration has proposed a “Livability Agenda” that will create a new financing tool call “Better America Bonds.” These bonds will generate \$9.5 billion in bond authority whereby communities will pay zero interest and the principle after the term of the 15 year bond expires. This tax credit bond provides a considerable subsidy for communities compared to the more traditional tax-exempt bond. For example, the issuer of a million dollar bond saves more than \$700,000 over the 15 years by issuing a Better America Bond rather than a tax-exempt bond.

These bonds offer a creative way for state and local governments to limit or control sprawl through economic incentives to preserve open space, create parks, clean up brownfields, and improve water quality, all which

have economic as well as environmental benefits. Bonding authority will be distributed directly to the communities through a competitive process. The Better American Bonds program will be administered in a similar manner to EPA's Brownfields program, which has helped 250 communities leverage more than \$1 billion to clean up and redevelop abandoned contaminated sites—and create thousands of jobs as well. Local communities will determine how best to use the Better America Bonds; the federal government will not purchase any land or be involved in local zoning or land use decisions.

As this issue of *Watershed Events* was going to press, there were two legislative proposals in Congress to amend the Tax Code to finance “Better America Bonds.” On August 5, Senator Max Baucus (D-MT) and Senator Orin Hatch (R-UT) introduced a bipartisan proposal, S. 1558, the Community Open Space Bonds Act of 1999, which would create bonds for local communities to buy open space, cleanup abandoned industrial sites, protect water quality, and preserve special wetlands areas. On the House side, Congressman Robert T. Matsui (D-CA) has introduced H.R. 2446, the Better America Bonds Act of 1999. H.R. 2446, which was introduced on July 1, 1999, currently has 116 House cosponsors. For more information on Better America Bonds and the Livability Agenda visit the website at [www.epa.gov/bonds/](http://www.epa.gov/bonds/).

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### Why We Need Smart Growth: A View From the Field

Development activities which result in sprawl across rural landscapes cause



### Sustainable Development Listserv Available

Five E's Unlimited has an on-line newsletter (e-zine) entitled "Sustainability Review". This on-line newsletter will circulate the most current information on ideas, methodologies, tools, and success stories involving people, places, and organizations attempting sustainable development. Sustainability Review will be published bi-weekly. To subscribe, visit Five E's Unlimited web site at [www.eeeee.net/ee01026.htm](http://www.eeeee.net/ee01026.htm).

a number of adverse impacts including:

- Decreasing the economic and environmental value of resource lands;
- Increasing nonpoint source pollution from impervious surfaces and causing larger flood peaks, both of which degrade the physical, chemical, and biological integrity of streams and wetlands;
- Creating an inefficient land-use pattern expensive to serve;
- Threatening economic viability by diffusing public infrastructure investments; and
- Destroying the intrinsic visual/functional character of the landscape.

Communities can—and will, and should—develop. But to ensure that they are developed wisely, we need to encourage visionary and realistic planning to replace the random decisions (or non-decisions) that have transfixed much of our rural landscapes.

John Wesley Powell, the first man to go down the Grand Canyon and the first Director of the U.S. Geological Survey, promoted watershed, rather than political, boundaries as a guiding principle for development of the West. Although never implemented (look at a map with all those square states) complex natural landscapes

and their hydrologic and ecologic functions are often best understood in terms of watersheds, rather than in the traditional context of political boundaries. This is so because watersheds tend to be composed of multiple ecosystems that are linked by the movement of energy, nutrients, and water through various pathways (aquifer recharge zones, rivers, wetlands, etc.). How these pathways function is critical to the health of all aquatic systems as New Zealand recognized in their realignment of political jurisdictions to coincide with the country's 11 major watersheds.

In developing plans to protect our watershed landscapes, officials at all levels of government, as well as the private sector, need to simultaneously (1) address citizens' key concerns and values, (2) be visionary and think long-term, (3) strengthen a community's ability to deal with change, and (4) develop processes for finding common ground. Communities can create choices to achieve sustainability by adopting integrative frameworks that balance social, economic, and ecological concerns—the essence of "smart growth."

Smart growth also challenges local governments to develop rational strategies for using already-developed land more efficiently, to make thoughtful choices about where new

development should and should not go, and to set up regulatory mechanisms that are fair, clear, consistent, and far-sighted. By developing these rational strategies that are founded upon sound principles of smart growth, one can lay a rational foundation for sustainable development. For example, numerous regions of the country are now promoting the idea of "urban growth boundaries" around their towns that significantly restrict development in unincorporated areas. These boundaries are defined as areas in which town centers can economically provide public services, encouraging in-fill construction and increased density in all land-use sectors.

Economic growth and environmental quality are mutually compatible, and supportive goals. Implementing smart growth concepts into local and regional planning will help protect watersheds while providing for a sustainable economy for generations to come. For more information, please contact Dr. Warren Flint at (757) 442-5588 or e-mail: [VACOASTIST@aol.com](mailto:VACOASTIST@aol.com). Visit our web site at [www.eeeee.net](http://www.eeeee.net).

### Earth Force Takes Over for GREEN

Earth Force has announced that it has assumed the mission of the Global Rivers Environmental Education Network (GREEN). As a part of Earth Force, GREEN will continue to offer a network of water monitoring support along with innovative action guides and affordable water monitoring equipment. You can now reach GREEN at (703) 519-6876 or at [green@earthforce.org](mailto:green@earthforce.org). Check out [www.earthforce.org](http://www.earthforce.org) for more information.

## Views From the Field

### Maryland Leads the Way in Smart Growth and Neighborhood Conservation

Maryland Governor Parris N. Glendening's Smart Growth and Neighborhood Conservation initiative represents the nation's first incentive-based statewide effort to reverse the costly, inefficient, and often unsightly patterns of development known as "sprawl." The initiative's goals are to:

- Strengthen and revitalize older towns and cities;
- Permanently preserve the State's most beautiful natural landscapes and most valuable environmental resources; and
- Save taxpayers the high cost of building new infrastructure required to support sprawl development.

*The fundamental goal is to assure that Maryland's unique quality of life is preserved for generations to come.*

The initiative employs the state's \$17 billion annual budget as an *incentive* to encourage developers and local governments to direct growth to areas where the infrastructure already exists or is planned to support it—and as a *disincentive* to build elsewhere. The goal is to change the bottom line so citizens will willingly engage in more sensible, less expensive, and more environmentally sensitive growth patterns.

To be eligible for future state financial support, locally designated growth areas must for the first time meet minimum state criteria for average residential density and the provision of

public water and sewer. No one is prohibited from developing outside of designated growth areas, but if they do they will no longer receive state assistance.

As a balance to the emphasis on urban revitalization, the initiative features Maryland's most ambitious land conservation effort ever: The new "Rural Legacy Program" is strategically targeting for permanent preservation greenbelts around existing communities and other large, contiguous tracts of land that are under intense development pressure or that represent especially valuable natural resources. In the first year of

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**"It is crucial that we protect our environmental infrastructure—our green infrastructure. Tax dollars will no longer be used to subsidize sprawl. State funds will only be spent in accordance with Smart Growth guidelines."**

*Parris Glendening, Governor of Maryland*

the program, more than 16,000 acres will be protected, including some of the state's richest farmland, buffers along rivers and streams, Civil War battlefields, and Maryland's shoreline, including the Atlantic Coastal Bays and Chesapeake Bay.

A variety of additional statutory, administrative and budgetary programs support the concept of directing new growth to existing or planned communities, including measures to:

- Sharply increase state spending on school renovation and expansion in older communities;
- Encourage cleanup and redevelopment of contaminated "brownfields" industrial sites;
- Spur job development by offering tax credits for job creation within



targeted growth areas;

- Stabilize struggling communities by offering business loans, closing cost assistance, and low interest mortgage loans for home buyers in selected neighborhoods; and
- Fight crime by targeting "hot spots" where crime is the worst.

Smart Growth is built on the premise that we cannot discourage development of natural areas without simultaneously encouraging growth in existing communities.

Through the coordinated efforts of 10 Cabinet-level departments, Maryland's

Smart Growth initiative addresses the interrelated problems created by sprawl:

- Economic and social problems caused by the abandonment of older towns and cities;
- Accelerating loss of farms, forests and other pristine areas to new development; and
- High cost to taxpayers to build schools, roads and other infrastructure to support such far-flung development.

If current growth patterns are not changed, Maryland will consume as much land in the next 25 years as it has during the entire history of the state.

All residents of Maryland—urban, suburban and rural—will benefit from

the Smart Growth initiative. More importantly, future generations of Marylanders will benefit from a legacy of more sensible development patterns, stronger communities, and hundreds of thousands of acres of permanently preserved natural areas.

Although there have been many successes already, Smart Growth differs from most governmental programs because of its long term vision; the program's most significant achievements may not be known or seen for years or even decades to come. For more information on Maryland's smart growth initiative contact Mr. John Frece at (410) 260-8112 or [jfrece@dnr.state.md.us](mailto:jfrece@dnr.state.md.us).

## Vacant Lots to Green Lands is Smart Growth!

Philadelphia will have fewer neglected vacant lots thanks to the U.S. Department of Agriculture (USDA) and EPA. The Green Land Initiative, a project of the Philadelphia Urban Resources Partnership (PURP), will invest \$300,000 to restore vacant land in the city. PURP, funded by the USDA and supported by EPA, provides grants and technical assistance to help communities restore, enhance and appreciate their urban natural resources.

What do abandoned vacant lots have to do with Smart Growth? Some cities are still losing population to sprawl development. Between 1990 and 1996, Philadelphia lost 9.6% of its population, the largest decline among the nation's 3,142 counties. The continued exodus from urban centers contributes to increased development pressure in the suburbs, leaving the urban core with excess housing, empty buildings and vacant lots, and underutilized transit and other infrastructure.

Vacant land in Philadelphia has reached epidemic proportions—30,900 lots according to latest estimates. As people left, many buildings were abandoned, vandalized and eventually demolished. The raw land left behind is unsightly, unhealthy and unsafe. The Green Land Initiative will help community development corporations to undertake land restoration activities—amending the soil, planting new trees and shrubs, establishing diverse habitats. The restored lands will not only alleviate visual blight, but will also contribute to a cleaner, healthier, more natural environment and contribute to a quality of life and sense of community.

The decision to partner with community development corporations (CDCs) is a key part of the program. CDCs play an important role in revitalizing neighborhoods, particularly in housing construction. The Green Land Initiative will help CDCs acquire new skills to manage vacant lands and develop new green space

assets. The participating community development corporations are: Project H.O.M.E., New Kensington Community Development Corporation and Frankford Group Ministries Community Development Corporation.

Smart growth is about more than preserving open space in suburban and exurban areas, it is about improving the quality of life for city residents as well. One reason people move out of urban neighborhoods in the lack of parks and open space. With an abundance of underutilized vacant land, there is an opportunity to make our cities desirable places to live and work once again by retrofitting the urban environment and improving the quality of life for city dwellers. For more information, contact Patrice Carroll, Director PURP c/o EPA, 1650 Arch Street 3WP10, Philadelphia, PA 19103, (215) 814-5679; e-mail: [carroll.patrice@epa.gov](mailto:carroll.patrice@epa.gov).

## Smart Growth Principles Promoted More Than 100 Years Ago!

The smart growth concept is not new. Renowned Landscape Architect Frederick Law Olmsted used the term "healthy growth" in 1868 to describe how cities and towns should be planned and developed. Olmsted is best known for designing Central Park in New York City, Mt. Royal Park in Montreal, and the grounds of the U.S. Capitol with his partner Calvert Vaux. But Olmsted also designed dozens of other city parks, university campuses, subdivisions, and new neighborhoods for rapidly expanding cities such as New York and Chicago. Olmsted was an innovative and visionary planner in his design of parks and cities, but "it would take the automobile, urban renewal, and a less sensitive generation of planners to undo Olmsted and Vaux's achievements" according to a recently published biography.<sup>1</sup>



*The U.S. Postal Service honored Frederick Law Olmsted with a stamp in September 1999.*

<sup>1</sup>Rybczynski, Witold. 1999. *A Clearing in the Distance: Frederick Law Olmsted and America in the Nineteenth Century*. Scribner, New York.



## Friends of the Rappahannock Engage Building Community to Promote New Stormwater Paradigm

A new stormwater paradigm, being championed by some local governments, has emerged that promotes designing new developments so that runoff from the site is comparable to that from more natural areas. Rather than just lowering the height of the runoff peak by retaining stormwater, "low impact development" actually reduces runoff by increasing infiltration. In addition to recharging groundwater and reducing downstream erosion, these practices allow runoff to first flow through the soil, removing many of the pollutants.

In an effort to promote more widespread adoption of these practices, The Friends of the Rappahannock, a grassroots conservation group based in Fredericksburg, Virginia, initiated an advocacy, education, and technical assistance effort in the rapidly developing central Rappahannock watershed (which is under considerable development pressure due to its location midway between Washington, DC and Richmond, VA). Funded initially by an EPA Sustainable Development Challenge Grant, the group has set out to "market" the benefits of low impact development practices to homebuilders and the commercial development community. Concurrently, they are engaging local code and planning officials on topics that present roadblocks to implementation of innovative practices. "We are helping bridge the gap that exists between all the innovative guidance documents and the actual acceptance and implementation of these practices," notes John Tippet, the group's executive director.

This collaborative approach is yielding positive results. In the rapidly developing Fredericksburg area, for example, three major developers are now implementing state-of-the-art "parking lot bioretention" practices to filter and infiltrate the critical first flush runoff. Additionally, the group has engaged the local Association of Homebuilders to take their members on a tour of low impact subdivisions. "Our goal is to help the development community market 'river friendly' practices just like they now market energy efficiency," notes Tippet. For more information, contact the Friends of the Rappahannock at (540) 373-3448, [cleanriver@pobox.com](mailto:cleanriver@pobox.com) or visit their web site at [www.crrl.org/for](http://www.crrl.org/for).

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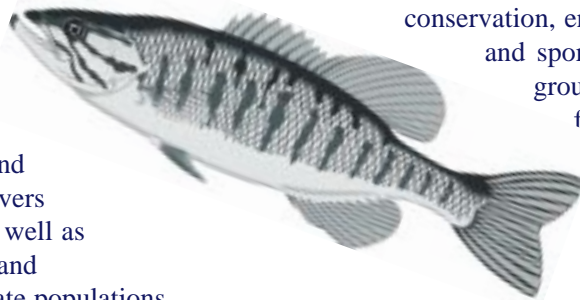
## Managing Storm Water to Protect Fisheries

With recent attention on water pollution from factory farms, the degradation of our waterways due to stormwater runoff is sometimes overlooked. In urban and suburban areas the increasing extent of impervious surfaces is generating more runoff, often causing significant sedimentation and erosion along rivers and streams, as well as damage to fish and macroinvertebrate populations. However, a broad coalition led by the Community and Environmental Defense Services (CEDS) is doing something about it.

Surface runoff from urban and suburban areas is harmful to our streams for a number of reasons. Often the first inch of rain carries a toxic cocktail of car and truck fluids, heavy metals, air pollution fallout,

fertilizers, and pesticides. Sediment loadings from agriculture and construction sites choke streams destroying fish spawning sites and hot water surges from sun-baked parking lots kill sensitive organisms, decreasing biodiversity. On a hot summer afternoon ponded storm water may heat to 95° F or more and cause significant stress to fish and other wildlife when discharged into a nearby stream, wetland, or other waterway. Smallmouth bass undergo stress at 78°F and begin dying at 86°F. Trout begin to suffer at approximately 68°F and begin dying at 72°F.

Presently, the strategy of some jurisdictions is to capture the first 0.13 to 0.25 inches of runoff from most development sites. The coalition recommends that the first 1.5 inches of runoff from all impervious surfaces be retained. In those rare instances when it is not possible to recharge the first 1.5 inches of runoff, the excess runoff should be treated with a filtering measure such as bioretention, a dry-swale, or a sand filter.



A coalition of more than 40 conservation, environmental, and sportsman groups have formed to encourage communities to do a better job of protecting our bass

waters by implementing and enforcing laws to control construction site sediment pollution and post-construction storm water impacts. For more information about CEDS, contact Richard Klein at (410) 329-8194 or [info@ceds.org](mailto:info@ceds.org). The Community and Environmental Defense Services also has a web page at [www.ceds.org](http://www.ceds.org).

## Promoting Smart Growth in Coastal Communities

Conventional development practices in coastal communities have often had significant adverse impacts on water quality and other natural resources. Most of our early settlements occurred along natural harbors, bays, or along navigable rivers as these were areas where commerce and trade were most easily facilitated. Centuries of development, however, have significantly altered the habitats and ecosystems of these areas. The impact of this development on sustainability and livability issues needs to be critically examined in order to both enhance and further the discourse on "smart growth."



### Population and Density of Coastal Areas

Defining coastal areas as communities within fifty miles of the coast, these data are indicative of pressures on coastal areas:

- 53% of the nation's population lives within fifty miles of the coast, yet this area represents only 17% of the nation's total land mass (excluding Alaska). It is projected that 27 million additional people will live in coastal area by 2015.
- The average density per square mile in the coastal zone has increased from 187 people in 1960 to an expected 327 people by 2015. This is three times the national average for density per square mile.
- 14 of the 20 largest cities in the nation are in the coastal zone.

- 17 of the 20 fastest growing counties in the nation are in the coastal zone.
- 19 of the 20 most densely populated counties are in the coastal zone.

### The Cost of Growth

Increasing population is often perceived as a sign of economic growth. More jobs are available and area businesses profit from increased sales. But there is a downside: the increased costs to local governments and residents. More infrastructure, including roads, schools, and water treatment, are needed for the growing population and more emergency services are needed to respond to fires and medical emergencies. In addition, although new development is often promoted by town officials as a means to broaden the tax base, more development frequently causes an *increase* in taxes for the residents because of the costs of additional services.

Rampant coastal development has adversely impacted water quality and estuarine ecosystems in virtually every state. More and more, city managers, residents, and tourists are concerned that unchecked growth in coastal areas will degrade the quality of life they associate with living in, or visiting, coastal areas. For coastal managers, habitat destruction and the hardening of the coast (seawalls, groins, etc.) in an attempt to control erosion, as well as flooding from destructive hurricanes, creates a need to assess the suitability of additional development in these flood-prone, geologically dynamic, and biologically productive areas. Yet managing

growth in coastal areas is a complex and politically sensitive task. Dr. Rutherford Platt, author of *Land-Use and Society*, observed that "The expectations and demand that the federal government be extremely generous and supportive of disaster victims, and the property rights movement nationally, have in a broad sense intimidated state and local officials from limiting development of flood hazard areas."

### How Can Smart Growth Help?

There are three ways smart growth can help coastal communities. First, smart growth can direct development to less fragile areas and focus on alternate modes of transportation to reduce the extent of roadways and the associated impacts of increased traffic. Secondly, smart growth can promote redevelopment that is aesthetically, architecturally, and environmentally appropriate for coastal areas. Finally, smart growth can identify areas and attractions that could provide for year-round income from residents. Thus, there would not be dramatic fluctuations of income for businesses and city governments after the "tourist season." This would enable the community to generate more capital to improve services and infrastructure and prevent degradation of water bodies due to increased use during the tourist season. These are but a few of the general directions in which smart growth could be tailored to coastal areas and better influence the population growth that is expected in coastal areas well into the 21st century. For more information, visit the Smart Growth Network at [www.smartgrowth.org](http://www.smartgrowth.org) or contact Jessica Cogan at [cogan.jessica@epa.gov](mailto:cogan.jessica@epa.gov). Data presented in this article is from NOAA; for more information visit their website at <http://state-of-coast.noaa.gov>.

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## National Association of Counties Publishes Watershed Report



The National Association of Counties (NACo) Watershed Management Advisory Committee recently published a report entitled "Leadership in Watershed Management: The County Role." The report highlights counties from across the country that have implemented innovative watershed management programs to address both point and nonpoint source pollution in a comprehensive, coordinated manner. In the report, Commissioner George Bird of Candler County, Georgia, emphasizes that "Watershed management is a developing priority for local governments. Since this issue affects many aspects of all jurisdictions, watershed management should be a basis for all land use planning." This publication will help county, as well as state and local, officials to move forward in protecting and restoring water resources. To order this publication call NACo at (202) 942-4256 or e-mail [vvickers@naco.org](mailto:vvickers@naco.org).

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## Watershed Protection Techniques

The Center for Watershed Protection has recently developed several excellent publications on watershed protection techniques. The *Rapid Watershed Planning Handbook* is a comprehensive, practical manual that provides a guide for creating an effective plan quickly and inexpensively. *The Better Site Design: A Handbook for Changing Development Rules in Your Community* covers everything from basic engineering principles to poten-

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## New Resources

tial barriers to implementing better site designs. These and other publications are available from the Center by calling (410) 461-8323 or by using their website [ww.cwp.org](http://ww.cwp.org).

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### Girl Scouts Work for Clean Water While Earning New Patch

Girl Scouts from all over the country will soon be working hard to earn a new water resources patch. The *Water Drop Patch Project*, which began as a pilot project with the Girl Scout Council of the Nation's Capital, will be soon be available to Girl Scout troops across the nation. The Project encourages girls to make a difference in their communities through community-based watershed projects. Some of the activities include: learning about their local watershed; identifying ways to reduce pollution at home and in the yard; stenciling storm drains; and participating in "stream walks" to monitor and survey local stream health. To help troops get started, EPA and the Girl Scouts developed *A Water Drop Patch Program* booklet, which outlines 20 different activities along with definitions, resources, and helpful websites. Individual troops will be able to order the document this fall by calling the National Service Center for Environmental Publications at 1-800-490-9198. (EPA Publication # EPA 840-B-99-004). The document will also



be available on the internet at [www.epa.gov/surf2/adopt/patch/](http://www.epa.gov/surf2/adopt/patch/). For more information on NACo's watershed management programs call Abby Friedman at (202) 942-4225 or e-mail [afriedma@naco.org](mailto:afriedma@naco.org).

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### Days Afield: Exploring Wetlands in the Chesapeake Bay Region

*Days Afield: Exploring Wetlands in the Chesapeake Bay Region* (Gateway Press, 1999) by William S. Sipple is a book based upon 30 years of field experience, journal notes, and extensive literature review covering many aspects of wetland ecology, biology, processes, dynamics, and management, including wetland degradation. It should be useful to professionals in the field as well as others interested in natural history and the outdoors. It is currently available only through the author: William S. Sipple, 512 Red Bluff Court, Millersville, MD 21108. Phone: (410) 987-4083; e-mail: [bsip333@aol.com](mailto:bsip333@aol.com). The price is \$19.95 plus \$2.00 shipping/handling (add \$1.00 for 5% sales tax if live in Maryland).

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### New Smart Growth Video

The Chesapeake Bay Program has developed a new video, *Beyond Sprawl*, which provides techniques for implementing smart growth including cluster zoning, transfer of development rights, and transit-oriented development. To order a copy contact Bonnie Phillips at (804) 786-5056.

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# EVENTS

## NOVEMBER

- 13 *Excellence in Environmental Leadership Workshop*, Austin, TX. Sponsored by the Institute for Conservation Leadership. Contact Peter Lane at (301) 270-2900, e-mail: peter@icl.org.
- 15 *Watershed 2000*, July 9-12, 2000. Vancouver, British Columbia. Call for papers, abstract submittal deadline November 15, 1999. Contact WEF at 601 Wythe Street, Alexandria, VA 22314-1994. Phone: (703) 684-2400; fax: (703) 684-2413.
- 15-17 *Conservation 2000: Conference to Highlight Local, State, and Federal Programs*, New Orleans, LA. Contact the Conservation Technology Information Center at (765) 494-9555 or e-mail: ctic@ctic.purdue.edu.
- 15-17 *Understanding and Addressing Risks to Groundwater, The 15th Annual Groundwater Foundation Fall Symposium*, Atlanta, GA. Contact Cindy Kreifels, The Groundwater Foundation, P.O. Box 22558, Lincoln, NE 68542. Phone: (800) 858-4844; fax: (402) 434-2742; e-mail: info@groundwater.org.
- 16-17 *Wetlands and Remediation: An International Conference*, St. Lake City, UT. Sponsored by Battelle Memorial Institute and others. Contact Karl Nehring at (614) 424-6510; e-mail: nehringk@battelle.org.

16-18 *Introduction to GIS (Arc/Info) for Natural Resources Workshop*, Lafayette, LA. Contact Pat O'Neil through [www.nwrc.usgs.gov](http://www.nwrc.usgs.gov).

17-19 *The 3rd Partners for Smarth Growth Conference*, San Diego, CA. Contact the Urban Land Institute at (800) 321-5011 or (410) 626-7500; website: [www.uli.org](http://www.uli.org).

30-December 1

*Tools for Community Design and Decision Making: Working Session III*, Stuart, FL. Contact Ken Snyder at (303) 275-4819.

## DECEMBER

5-9 *Annual Water Resources Conference of the American Water Resources Association*, Seattle, WA. Contact AWRA, 950 Herndon Parkway, Ste. 300, Herndon, VA 20170-5531. Phone: (703) 904-1225; fax: (703) 904-1228; e-mail: awrahq@aol.com; website: [www.awra.org](http://www.awra.org).

14 *Society and Resource Management: Transcending Boundaries Natural Resource Management from Summit to Sea*, June 17-22, 2000, Bellingham, WA. Call for papers, abstract submittal deadline December 14, 1999. Contact Conference Services, Western Washington University, Bellingham, WA 98225-5293. Phone: (360) 650-6821; fax: (360) 650-6858; e-mail: diana.bakkom@wwu.edu.

## JANUARY 2000

16-20 *4th International Conference on Diffuse Pollution*, Bangkok, Thailand. Contact Ms. Nitayporn Tonmanee, Department of Land Development (DLD) Phaholyothin Road, Chatachak, Bangkok 10900, Thailand, phone: (662) 579-0111, ext. 1386; fax: (662) 562-0732; e-mail: ldd@m Mozart.inet.co.th.

## FEBRUARY 2000

7-10 *Tools for Urban Water Resource Management and Protection: A National Conference*, Chicago, IL. Contact Bob Kirschner, Chicago Botanic Garden, 1000 Lake Cook Road, Glencoe, IL 60022. Phone: (847) 835-6837; fax: (835-1635; e-mail: bkirschn@chicagobotanic.org.

## MARCH 2000

13-16 *Conference on Land Stewardship in the 21st Century: The Contributions of Watershed Management*, Tucson, AZ. Contact Peter F. Ffolliott, School of Renewable Natural Resources, University of Arizona, Tucson, AZ 85721. Phone: (520) 621-7276; fax: (520) 621-8801; e-mail: ffolpete@ag.arizona.edu; website: [www.srn.arizona.edu/2000conf/landconf.html](http://www.srn.arizona.edu/2000conf/landconf.html).

## APRIL

25-27 *National Water Quality Monitoring Council National Monitoring Conference 2000*, Austin, TX. Contact GWPC at (405) 516-4972; e-mail: jeff@gwpc.site.net; website: [nwqmc.site.net](http://nwqmc.site.net).

## JULY 2000

9-12 *Coasts at the Millennium*, Portland, OR. Contact Laurie Jodice, The Coastal Society 17 Office, c/o MRM College of Oceanic & Atmospheric Sciences, Oregon State University, 104 Ocean Admin. Bldg., Corvallis, OR 97331-5503. Phone: (541) 737-2064; e-mail: jodice@oce.orst.edu.

## New Opportunities for Watershed Management: Training on the Internet

When the Watershed Academy was created in 1994, most people expected a single, live training course that would provide the basics of the watershed approach. Since that time, the Academy has diversified into four areas to spread its message: live courses, publications and other training materials, statewide watershed management facilitation support, and a website. Recently the Watershed Academy significantly enhanced and expanded its Internet-based training site known as Academy 2000, which can be found at [www.epa.gov/owow/watershed/wacademy/acad2000.html](http://www.epa.gov/owow/watershed/wacademy/acad2000.html).

Improvements in the speed and quality of hardware, Internet browsers, and graphics software have made it possible to develop a variety of free, self-paced training modules that introduce website visitors to several primary topics of watershed management. The modules cover the principles of watershed management, watershed ecology, watershed change, watershed analysis and planning, management practices, and community/social issues.

Internet availability means the modules can serve as homework assignments to supplement a lecture course or comprise an entirely Internet-based distance learning course for a group of students who may never meet in one place. Whatever your plans, please contact [wacademy@epa.gov](mailto:wacademy@epa.gov) and let the Academy know how you are using Academy 2000 materials.

Views expressed in *Watershed Events* do not necessarily reflect those of EPA. In addition, mention of commercial products or publications does not constitute endorsement or recommendation for use by EPA.



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