

Mission Impossible?

Can Water Requirements Support— Not Hinder—Great Neighborhoods?

RailVolution
October 19, 2010



Lynn Richards, Policy Director

U.S. Environmental Protection Agency

Office of Sustainable Communities

Water Quality in the US is generally not getting better:

US water bodies "Impaired"

1995: 36%

2005: 44% (22% increase)

What we have been doing generally isn't working. Why?

1. Failing water infrastructure
2. Inadequate Stormwater regulations

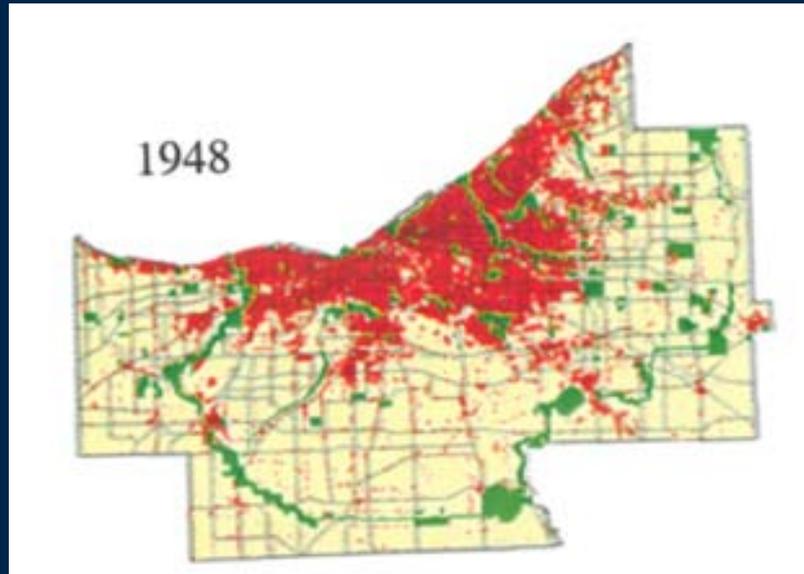
Failing Water Infrastructure

- Our wastewater treatment works will require:
 - \$134.4 billion for wastewater treatment and collection systems,
 - \$54.8 billion for combined sewer overflow corrections, and
 - \$9 billion for stormwater management to control wastewater pollution for just a 20-year period. [1]
- There is a \$11 billion annual deficit for replacing aging drinking water systems that will need improvement to comply with existing and future federal water regulations. [2]

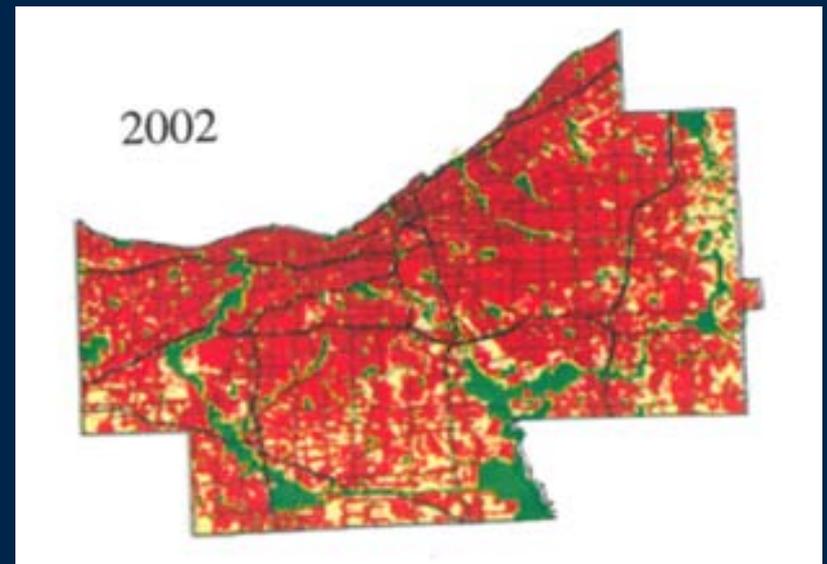


Source: (1) EPA's Clean Watersheds Needs Survey 2004 Report to Congress and (2) The American Society of Civil Engineers 2009 Report Card for America's Infrastructure

Expansion with little population growth



U.S. Census 1950
1,389,582 pop.



U.S. Census 2002
1,393,978 pop.

Source: Cuyahoga Co Land Use Maps – Cuyahoga County, Ohio, Planning Commission

Bigger lawns use more water...

- Outdoor water use (avg.):
 - National: 50-70%
 - Gainesville, FL: 11%
 - Utah: 60%
 - Las Vegas: 75%
- System capacity determined by peak demand: summer watering



...And Cost More to Serve

Water and Sewer Service Costs

Estimated costs of water and sewer services based on identical water consumption

Lot Size	Proximity	Annual Water and Sewer Service Costs
.25 acre	Near Service Center	\$143
1 acre	Near Service Center	\$272
1 acre	Distant from Service Center	\$388

Speir, Cameron, and Kurt Stephenson. 2002. "Does Sprawl Cost Us All? Isolating the Effects of Housing Patterns on Public Water and Sewer Costs." *Journal of the American Planning Association* 68(1): 56-70.

Water And Sewer Service Costs

- For compact, small-lot development, each additional mile from city center adds roughly \$50,000 to 30 year cost of providing water and sewer services.
- For low density, large-lot development, each mile adds roughly \$122,000 to 30 year cost.



Adds \$50,000 to 30-year cost



Adds \$122,000 to 30-year cost ⁷

Costs of Deteriorating Infrastructure: Leaks

- Aging pipes result in between 6% and 25% of drinking water being lost through leaks and breaks.
- In 1995, an estimated 25.4 billion gallons of water leaked per day across the country.



Sources: Environmental Health Perspective, US Geological Survey, Kansas Water Office

But, if we build more compactly

- Focus development and redevelopment in or adjacent to existing cities, towns and villages.
 - Mix of uses in one neighborhood and a more compact pattern overall to support more economic and social activity.
 - Support roads and public spaces to help encourage convenient transportation choices.
- 

We Save Money

Billions of dollars, nationally

	Water & Sewer Laterals Required	Water & Sewer Costs (billions)	Road Lane Miles Required	Road Land Miles Costs (billions)
Sprawl Growth Scenario	45,866,594	\$189.8	2,044,179	\$927.0
Compact Growth Scenario	41,245,294	\$177.2	1,855,874	\$817.3
Savings	4,621,303	\$12.6 (10.1%)	188,305	\$109.7 (6.6%)

Sprawl Costs: Economic Impacts of Unchecked Development, Robert W. Archell, Anthony Downs, Barbara McCann and S. Mukherji, Island Press, 2005

...and continue to save money...



- NJ study shows that by 2020, a smart growth plan produces savings over the business-as-usual plan:
 - Local governments cut annual fiscal deficit by nearly 40%
 - **\$870 million** less in local road infrastructure costs
 - **\$1.45 BILLION** less statewide in sewer and other infrastructure

The Costs and Benefits of Alternative Growth Patterns (NJ) 2000

More compact development uses less water

- Reduces water demand
 - Homes on 1/5 acre use 50% less water than those on 1/2 acre
- Estimates by Envision Utah:
 - Can reduce water demand by 10%
 - Can reduce infrastructure cost by 21%



HUD DOT EPA

PARTNERSHIP FOR SUSTAINABLE COMMUNITIES

To meet the President's challenge for our agencies to work together to encourage and fully assist rural, suburban, and urban areas to build sustainable communities, and to make sustainable communities the leading style of development in the United States.

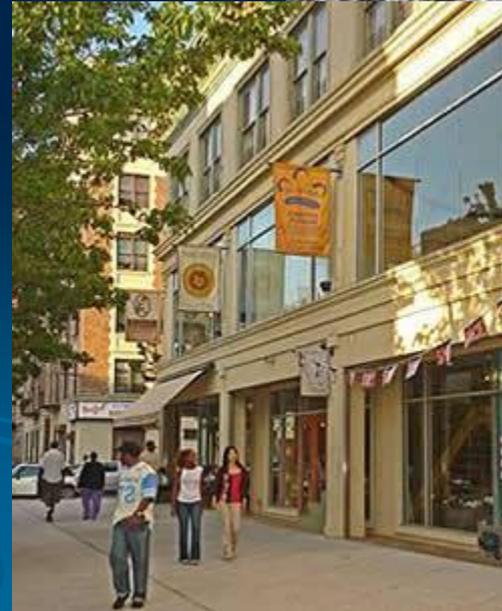
The Partnership is focused on ensuring that federal investments, policies, and actions do not subsidize sprawl but do support development in more efficient and sustainable locations.



PARTNERSHIP FOR SUSTAINABLE COMMUNITIES

Guiding Principles

1. Provide more transportation choices.
2. Promote equitable, affordable housing.
3. Enhance economic competitiveness.
4. Support existing communities.
5. Coordinate policies and leverage investment.
6. Value communities and neighborhoods.



SUSTAINABLE COMMUNITIES PARTNERSHIP

Align Water Infrastructure to support Sustainable Communities

- New Approach to State Revolving Loan Funding
 - Encourage states to align SRF infrastructure investments for communities with Sustainable Communities Principles.
 - EPA will create sustainable infrastructure pilot programs with 3 states (CA, MD, NY) interested in modifying their SRF program.
- 2010 Drinking Water and Clean Water SRF Guidance - released April, 2010
 - —As a matter of Administration priority, EPA will increase its emphasis on the important of directing SRF assistance to projects that support sustainable systems.

EPA's State Revolving Loan Fund Sustainability Policy

- Released October, 2010
- Purpose of the policy is to provide guidance and direction to states and local water utilities on priorities for water infrastructure investments and management practices.
- The policy recognizes that:
 - Federal investments, policies, and actions should support water infrastructure in more efficient and sustainable locations to best support existing communities, enhance economic competitiveness, and promote affordable neighborhoods.
 - Systems should have an on-going collaborative process with all stakeholders to determine where and how water infrastructure investments are made in their communities.
 - Water infrastructure planning and investments should support other community infrastructure investments and sustainability goals in areas like transportation and housing.

How to make better use of water investments

➤ Fix it first.

- Support existing communities using a "fix-it-first" approach that focuses on repairs and upgrades to existing infrastructure to address the backlog of needs and thereby maximize capital investments that have already been made;

➤ Better planning.

- Encourage adoption of internal and cross-sector planning processes that enable a community to make thoughtful infrastructure investments based on a triple-bottom-line (economic, social, and environmental sustainability) evaluation of various alternatives and support decisions on where and how the community wants to grow;

SUSTAINABLE COMMUNITIES PARTNERSHIP

What we want to do...

Align our Water Policies to support Sustainable Communities

- Should we regulate development on a parking lot and a forest the same way?
- Some types of development, like redevelopment and high density, produce water quality benefits.
 - Those benefits should be recognized in our regulations and policies.
 - Example: West Virginia and Tennessee state stormwater permits



And what we have been doing is creating a regulatory environment that makes it pretty easy to develop forests.

An assertion:

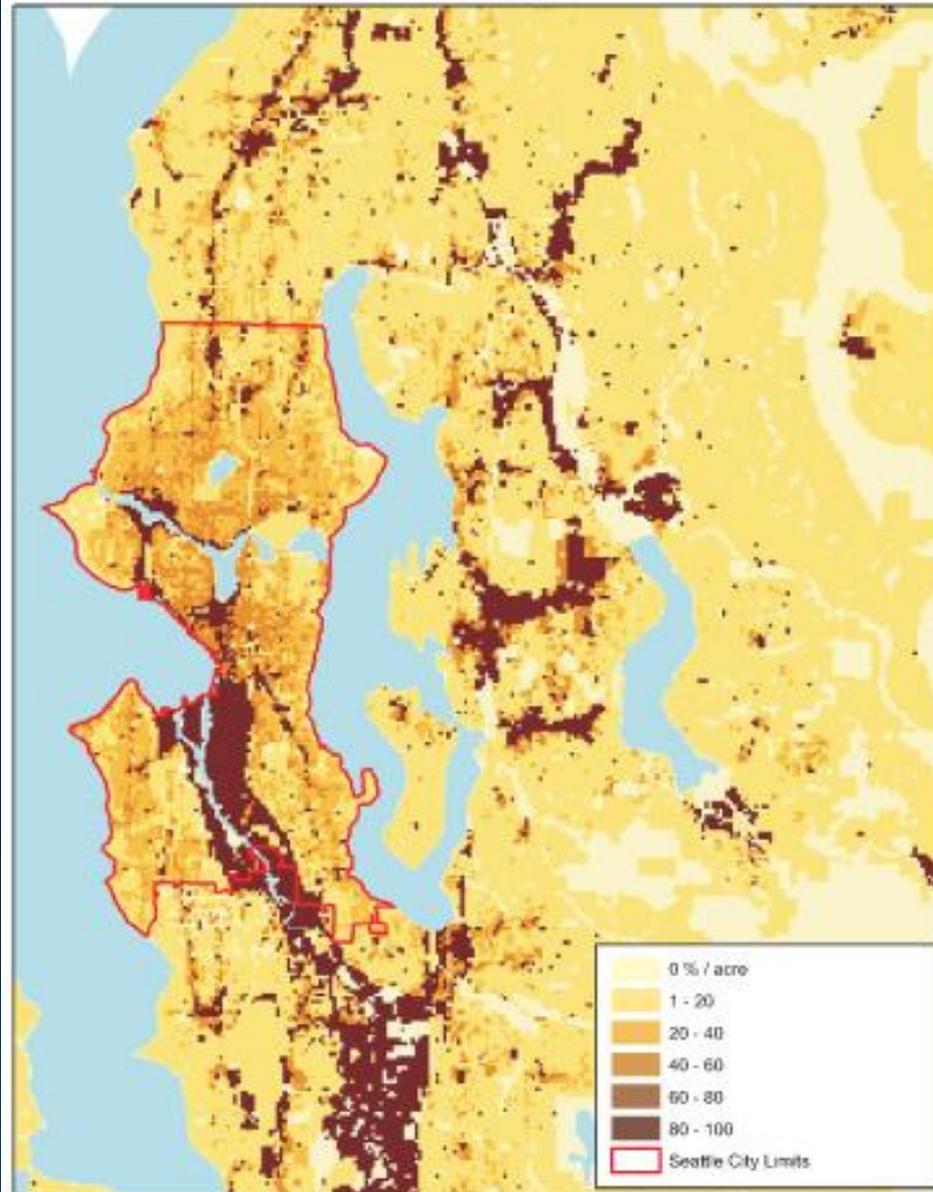
Most stormwater regulations can promote sprawl and disadvantage urbanism.



Metropolitan Seattle Imperviousness

Per Acre

Per Capita



Source: Criterion Planners for the Puget Sound Regional Council

NEW QUESTIONS

What are best strategies:

- on a **WATERSHED** (or **sewershed**) basis?

- on a **PER CAPITA** basis?

- on a **COST-BENEFIT** basis?

"Flawed" Regulatory Approaches

- **Same standards for greenfield development as redevelopment**
 - Can make it harder to redevelop, create dense urban areas
 - Especially problematic with very high green infrastructure standards
 - **New standard emerging**
 - Pre = post
 - What is "pre" for a parking lot?
 - Creates confusion
 - **Requiring sidewalks on only one side of the road:** single objective thinking
 - **Stormwater requirements linked to planning or other non-environmental outcomes, like affordable housing**
 - Where's the water quality benefit?!
 - **Cluster development- conservation sub divisions**
 - Maybe a good option in some rural areas, but in general these subdivisions still require significant off site impervious surfaces and significant driving
 - **Many SW requirements are trying to do two things:**
 - Regulate stormwater flows and water pollutants AND
 - Fix past ills: retrofitting existing development
- 

Better Possible Responses

➤ Look past the site

- Develop different standards for greenfield development and redevelopment
- Develop standards for the watershed or sewershed

➤ Consider land use

- Recognize that some land use strategies that have a *direct* water quality benefit
 - HUD and DOT recognize this connection with transportation and affordable housing
- Link SW management impacts to a wide range of local codes and ordinances

EPA's Water Quality Scorecard

Provides over 200 policy suggestions



EPA 331802001 | October 2005 | <http://www.epa.gov>

WATERQUALITY SCORECARD

Incorporating Green Infrastructure Practices at the Municipal, Neighborhood, and Site Scales



Identifies the drivers of impervious cover across the municipal, neighborhood, and site scales across multiple city departments

Better Possible Responses (cont'd)

➤ Consider costs

- Develop standards with cost ranges, differentiate by region, e.g., \$X-Y/cubic ft of stormwater managed
- Include some costs associated with redevelopment and other strategies with water quality benefit
- Create fee structures based on impact
 - Impact fees
 - Variable sewer hook up fees
 - Fees for new impervious surface created

➤ Look at retrofits

- Differentiate between your stormwater standard and a retrofit policy
- Retrofit policy should include:
 - Redevelopment activities
 - Parking lots and other large paved areas
 - Transportation network: streets and roads

To best protect (or enhance) water quality...

Preserve, Recycle, Reduce, Reuse

- **Preserve:** Protect and enhance natural features, such as undisturbed forests, meadows, wetlands, and other natural areas.
- **Recycle:** Recycle land by directing development to already degraded land, e.g., parking lots, vacant buildings, abandoned malls.
- **Reduce:** Reduce land consumption and development footprint by using land efficiently
- **Reuse:** Capture and reuse stormwater by directing it back into the into the ground through infiltration, evapotranspiration, or reuse.

Mission impossible?

No.

Water requirements can support great neighborhoods— when we support and encourage land use strategies and community goals with sound water infrastructure investments and stormwater requirements

Thank You

Lynn Richards,
Policy Director

EPA's Office of Sustainable
Communities

202-566-2858

Richards.Lynn@epa.gov

