Making Great Neighborhoods:

Implementing a Comprehensive Green Infrastructure Approach

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# Three major growth trends over the last 50 years

1. **Growth on the edge**

   Employment and population growth heavily favored medium and large metropolitan regions over nonmetropolitan areas.

2. **Low density**

   Within metropolitan regions, most growth occurred in low-density development at the fringe of urbanized areas.

3. **Single use development**

   Emphasis on automobile travel to the exclusion of other modes.
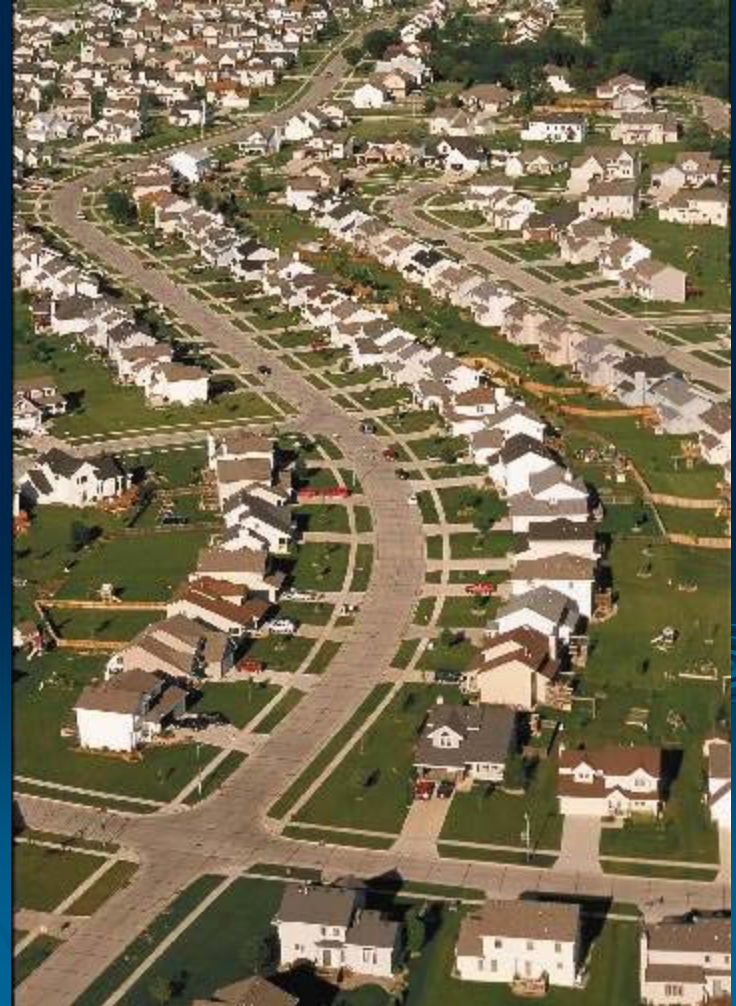
Environmental and public health impacts of growth patterns

> Contaminated runoff and impaired water quality

> Increased in driving and decreased air quality

> Habitat and farmland loss

> Growing obesity and asthma rates

> Brownfields abandonment

To best protect water quality

Preserve, Recycle, Reduce, Reuse

- **Preserve**: Protect and enhance natural features, such as undisturbed forests, meadows, wetlands, and other natural areas.

- **Recycle**: Recyle 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.

Preserve Critical Land Areas

➤ Preserve large, continuous areas of open space;
➤ Preserve sensitive ecological areas

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Recycle land: direct development to already degraded areas

Why Redevelopment?

➢ Some development patterns, like redevelopment, reduce stormwater:

- A George Washington University study (2002) found that for every brownfield acre that is redeveloped, 4.5 acres of open space are preserved.

- An analysis by King County, Washington, demonstrated that property that is vacant and eligible for redevelopment in the county's growth areas can accommodate 263,000 new houses—enough for 500,000 people.

Redeveloping a dead mall: Mizner Park

- ➢ Abandoned mall in Boca Raton, FL
- ➢ 29 acres
- ➢ 100% IC
- ➢ Value: $26.8 M
- ➢ Redeveloped into:
  - 272 apartments
  - 103K sq ft office
  - 156K sq ft retail
  - decreased IC by 15%
- ➢ Value: $68 M

Communities can enjoy a reduction in runoff by taking advantage of vacant or underused properties.

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Reduce land consumption:
Which is better for watershed water quality?


Low Density

Higher Density

EPA Research

➤ Higher density can be more protective of water resources because:

- Lower density development requires significant roads, retail, parking lots, office buildings to support it
- Low density development can have considerably compacted soil
- Growth is coming to a region– spreading it out doesn't make it go away, it just spreads it out

PROTECTING WATER RESOURCES
WITH HIGHER-DENSITY DEVELOPMENT

EPA United States
Environmental Protection
Agency
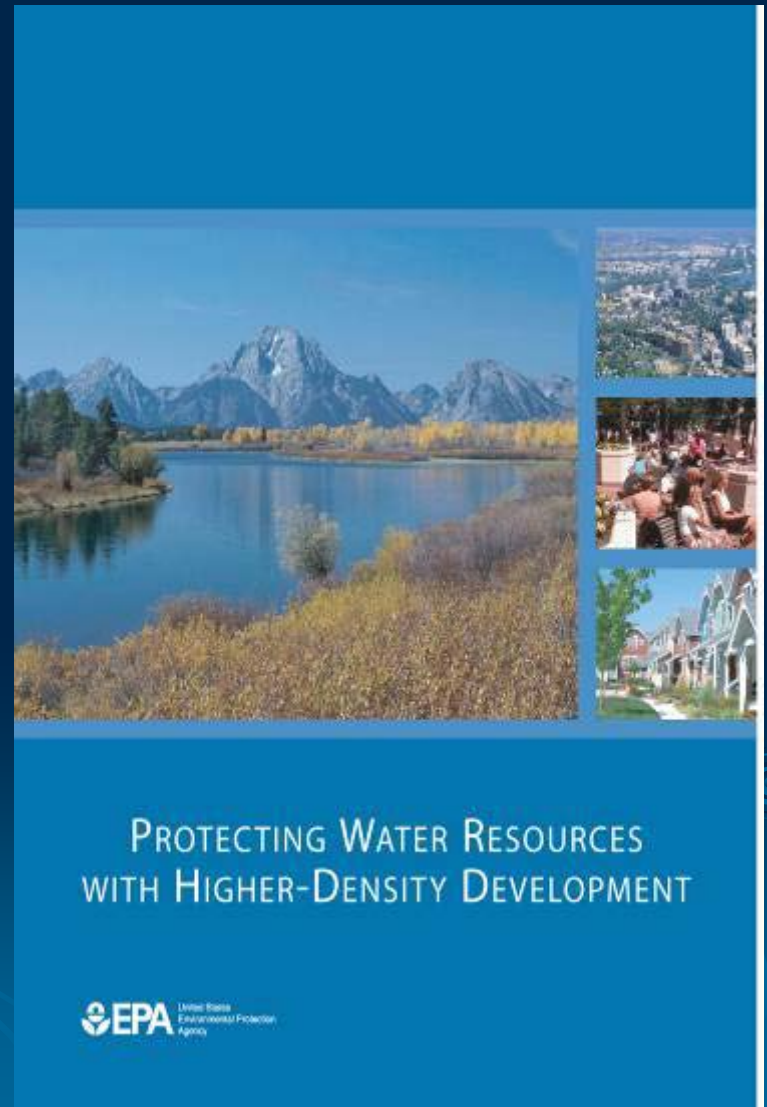
Single use development consumes more land and generates more pavement

Housing like this....

...is, by design, served by retail and roads like this

And its just not density– its mixing land uses

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Reuse: Direct stormwater back into the ground

What about here? Covington, KY

BEFORE: Madison Avenue and 15th

AFTER: Madison Avenue with Stormwater Swale

Drawn by: Kevin Perry

What about here?

BEFORE: Madison Avenue and Convention Center

STORMWATER SWALE

BIKE LANE

Drawn by: Kevin Perry

AFTER: Madison Avenue with Stormwater Swale

What about here?

BEFORE: Residential Street

AFTER: Residential Street with Curb Extensions

Drawn by: Kevin Perry

What about here?

BEFORE: Madison Avenue and Convention Center

AFTER: Madison Avenue with Stormwater Planters

Drawn by: Kevin Perry

Economic Benefits

➢ City of Portland estimates is can save $63 million in capital costs

➢ Meeting multiple community needs

- Calming traffic
- Creating a safer pedestrian environment
- Creating a more distinctive community

How to Implement:
EPA's Water Quality Scorecard

➢ Drivers of impervious cover at regional, neighborhood, site scales

➢ Requires cooperation and conversation between numerous departments

➢ Identifies 21 broad policy areas across 5 different municipal departments

➢ More than 230 different policies, codes, or incentives a local government could implement

4 Ways to Impact Change

➢ Adopt Plans

➢ Remove Barriers

➢ Create Incentives

➢ Enact Regulations

1. Protect Natural Resources and Open Space
2. Promote Compact Development and Infill
3. Design Complete, Smart Streets that Reduce Imperviousness
4. Encourage Efficient Parking Supply
5. Green Infrastructure On Site

| 5.AŃ Green Infrastructure Practices	Implementation Tools and Policies	Points
(1) Question: Are green infrastructure practices encouraged as legal and preferred for managing stormwater runoff? **Goal:** All types of green infrastructure are allowed and legal. Local government has removed all impediments to using green infrastructure (including for stormwater requirements), such as limits on infiltration in right-of-ways, permit challenges for green roofs, concerns about mosquitoes in rain barrels, safety issues with permeable pavements, and other such unnecessary barriers. **Why:** Green infrastructure approaches have been proven to be more effective and cost efficient than conventional stormwater management practices in many instances and provide other substantial community benefits.	**Adopt Plans/Educate:** • Inform the public, through education and outreach programs, that green infrastructure practices can be used to manage stormwater runoff on their property. • Create a training program for internal and external reviews to ensure that the stakeholders that will be using this tool will have the ability to understand and use it effectively.	**1** **1**
	Remove Barriers: • Development and other codes encourage and allow property owners to adopt home-based green infrastructure practices, such as rain gardens, rain barrels and other rainwater harvesting practices. • Review and change, where necessary, building codes or other local regulations to ensure that all local government departments/agencies have coordinated with one another to ensure that green infrastructure implementation is legal.	**1** **1**
	Adopt Incentives: • Green infrastructure practices credited towards required controls for stormwater runoff. • Establish a ŅGreen TapeÓexpedited review program for applications that include green infrastructure practices.	**1** **1**

	Enact Regulations:
	
	• Zoning and subdivision regulations specifically permit green infrastructure facilities, including but not limited to: (1 point for each technique to a maximum of 4 points)
	   --Green roofs;
	   --Infiltration approaches, such as rain gardens, curb extensions, planter gardens,
		1 to 4 points
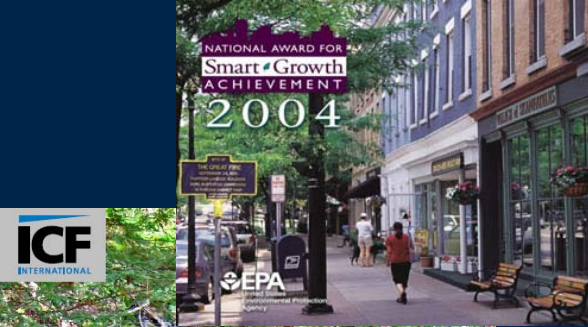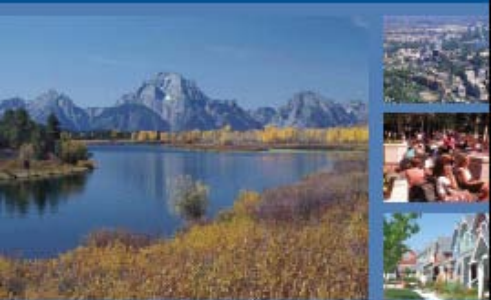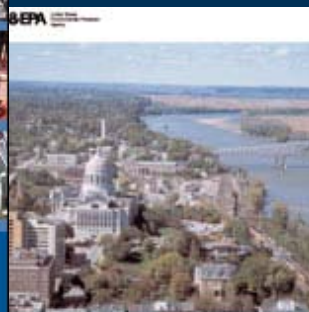
Thank You

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