

National Academies Urban Sustainability Workshop

WATER AT THE RIGHT SCALE



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- Water Systems - Urban Areas



BICYCLING
自行车



OPEN AIR
STREET CAFES
室外咖啡



SAFE STREETS
FOR CHILDREN
儿童安全的街道



WALKABILITY
易于步行



STRONG
RETAIL BASE
繁华的底商



STORMWATER
MANAGEMENT
雨水收集管理系统



PUBLIC TRANSIT
公交系统

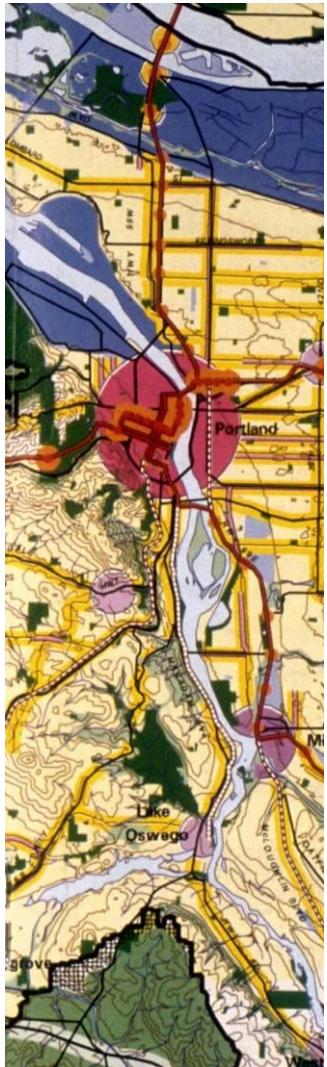
Water

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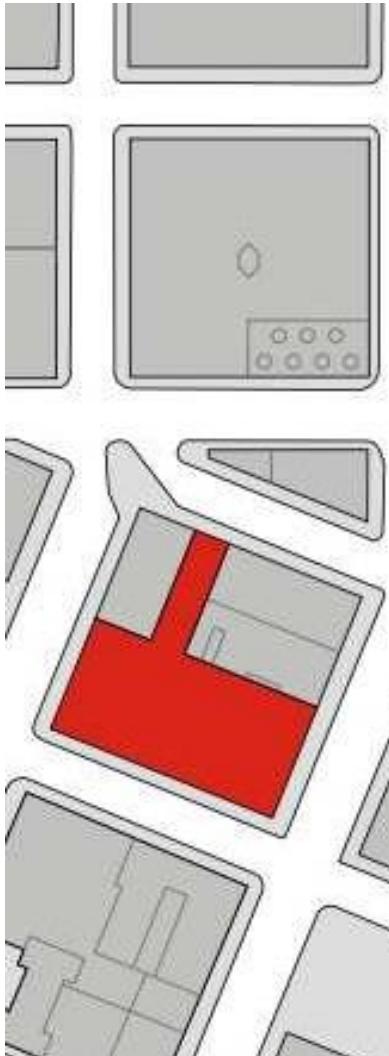
Mega City



Region



Block

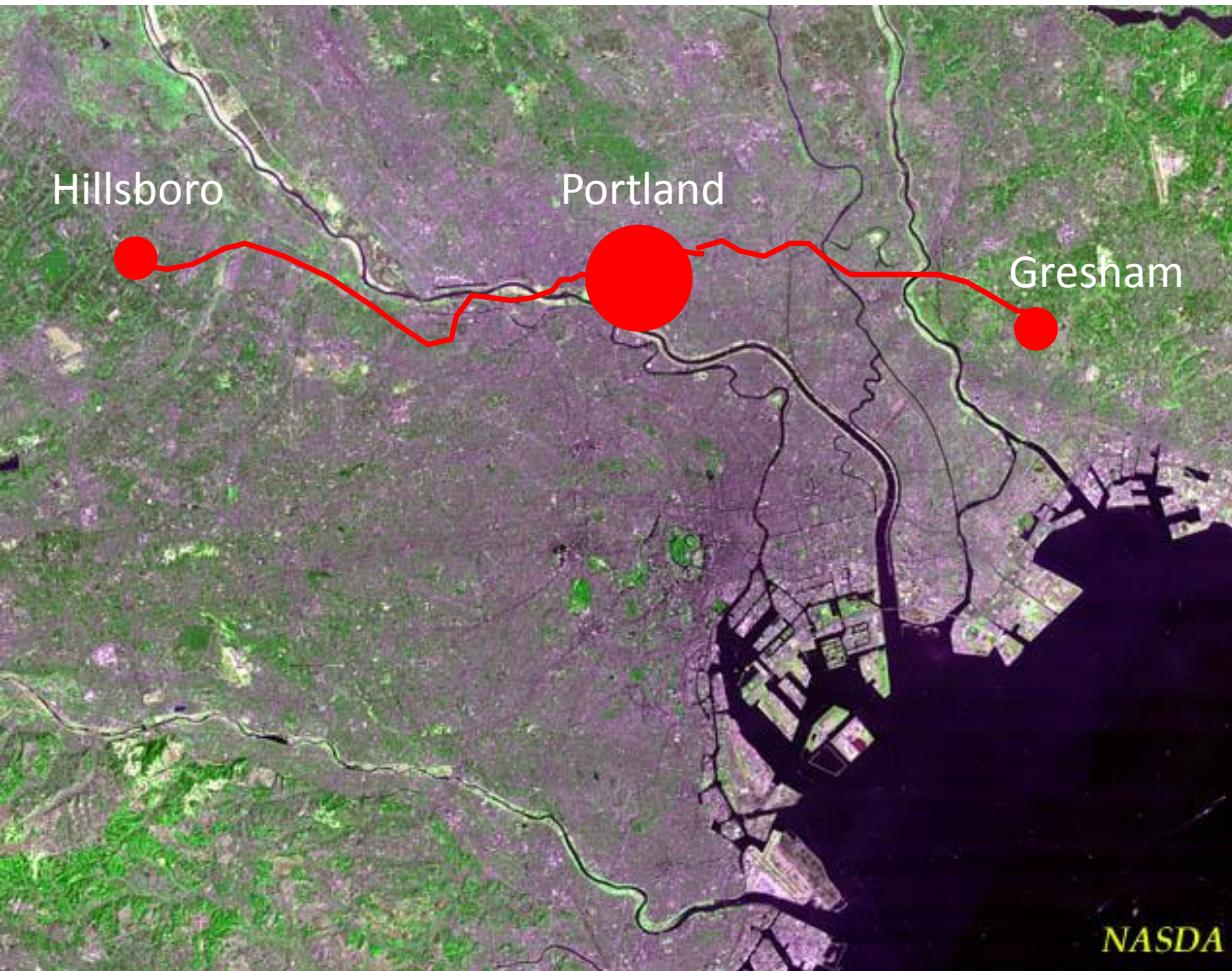


District



Scale Comparison

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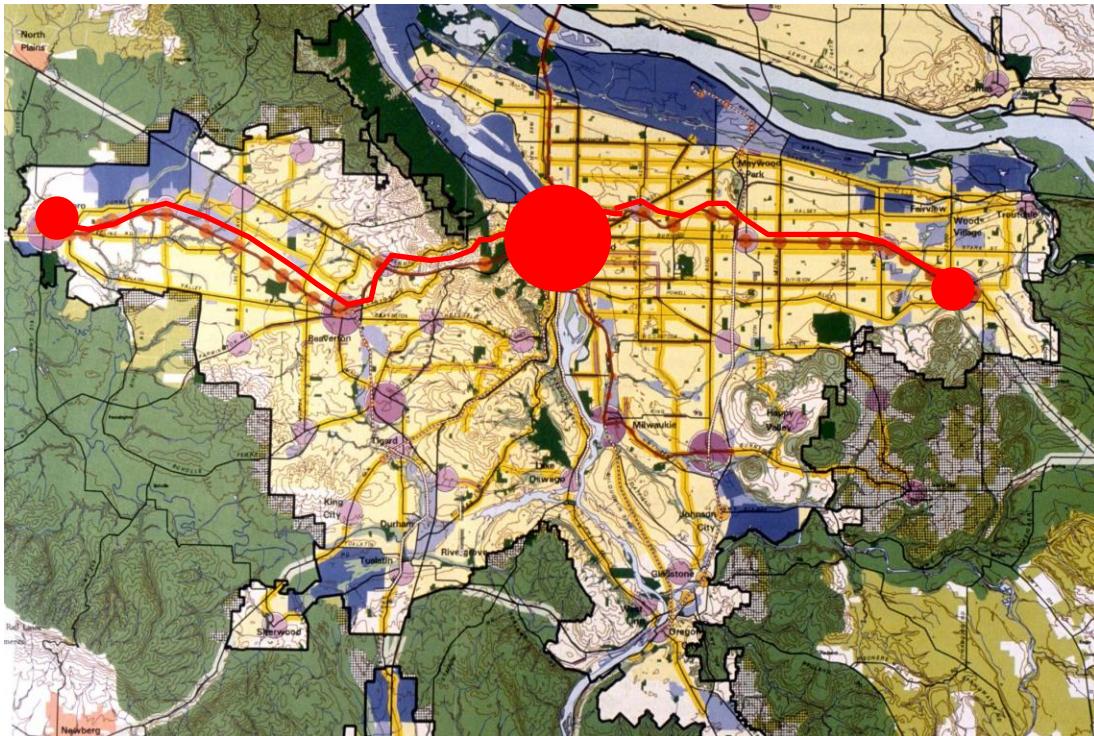
Opportunity

- Multiple Sources
- High Density
- Self Financed
- Resilience

Pathway

- Value of Moving from Grey to Green
- Value of connecting disconnected natural systems.

Mega City Scale: Tokyo



Hillsboro

Portland

Gresham

Regional Scale: Metro

Opportunity

- Upstream resource conservation
- Coordinated best management practices with bricks and mortar improvements.

Pathway

- Value of municipal compliance with state and federal goals and policies –not regulation focused.
- Value of collective action in and between watersheds.



Block Scale: 12 West

Opportunity

- Stormwater Collection and Reuse
- Leverage Private Investment

Pathway

- Value of avoided utility costs in the future.
- Value of coherent municipal permitting



Opportunity

- Density and Subscribers
- Stormwater best management practices.
- Maximize Stormwater Collection and Reuse

Pathway

- Value of a micro scaled water utility to a regional Water Utility.
- Value of waste water treatment for potable water use.



**Flow Through
Swale**
20% Reduction



**Flow Through
Planter**
20% Reduction



Roof Intensive
40% Reduction



Roof Extensive
100% Reduction



Tree Reduction
15 cf/year



Impervious
0% Reduction

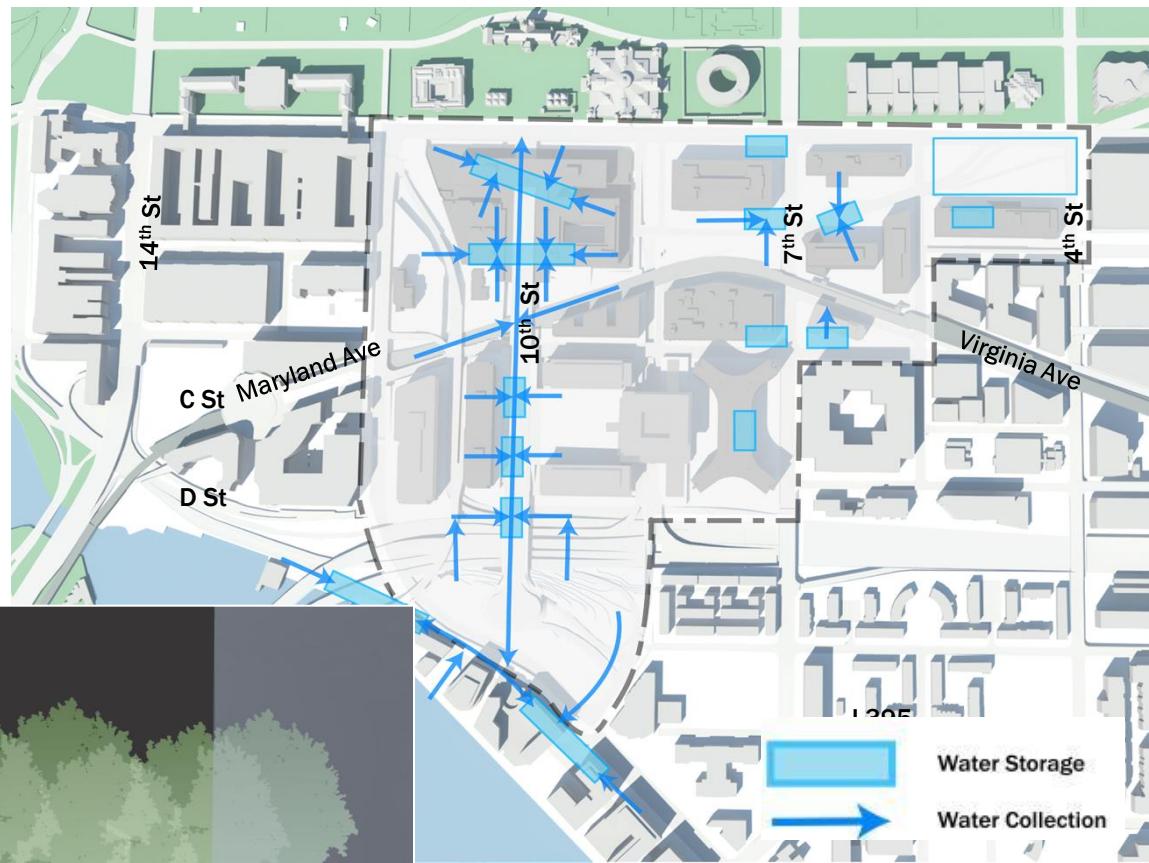


Compacted
20% Reduction



Natural
40% Reduction

Large tanks (under 10th Street) could hold enough reclaimed water to provide 70% of the total water used in the SW Ecodistrict.



District Scale: Southwest Ecodistrict

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- Civilizing Transit



CSX/VRE/Virginia Ave Conceptual Study (ZGF)

L'enfant intermodal station

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- A High Performance Street



10th Street, SW

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RESEARCH NEEDED TO ADVANCE TECHNOLOGY AT DISTRICT SCALE

Research that leads to pathways for implementation

1. Value of policy conformance with available technologies.
 - Adapting policies to new treatment systems.
2. Value of governance
 - Water District inside a Water District.
3. Value of the district scale for resiliency in the provision of water.
 - Investments for disaster that serves ecological values.

ABOVE GROUND STRATEGIES

Building, Sidewalk, Benches, Solar Street Lights, **Stormwater Planters**, **Family Cycle Track**, Rain Gardens, **Truck**, **Bus**, **Car**, Streetcar, LRT, **Commuter Bike Lane**, **Commuter Services**, Thermal Arrays, PV Arrays,



BELOW GROUND STRATEGIES

Roof Drain Collection,
Heat Exchange,
Conveyance of Potable Water,
Cleaned Stormwater, **Sewer and Reclaimed Waste Water**,
Hydronic Thermal Loop,
Micro Energy District,
Elect/DATA.

SHARED RESOURCES THROUGH DISTRICT CONNECTIONS FOUND BELOW AND ABOVE GROUND

The Right Scale: Thank You

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