



Going Beyond Sustainability

Applying a Regenerative  
Design Approach to  
Restoring Biodiversity  
and Creating Water  
Resilient Cities

# What is Regenerative Design?

- **Regenerate** = Create again
- **Regenerative design** = design process that strives to re-establish ecosystem processes/services at different scales, taking into account ongoing human and biological influences which have the power to degrade ecosystem process/services over time and prevent nature systems from re-establishing themselves.
- **Ecological restoration vs. regenerative design**
  - **ER** = taking a disturbed natural landscape and re-establishing structure to allow nature to re-establish itself. Human influences are negligible and can be managed to prevent process degradation or loss over time.
  - **RD** = involves modifying urban landscapes/sites impacted by substantial human and biological external influences that without intervention, would not result in re-establishment of ecosystem process or services.

# TRAJECTORIES OF ENVIRONMENTAL DESIGN

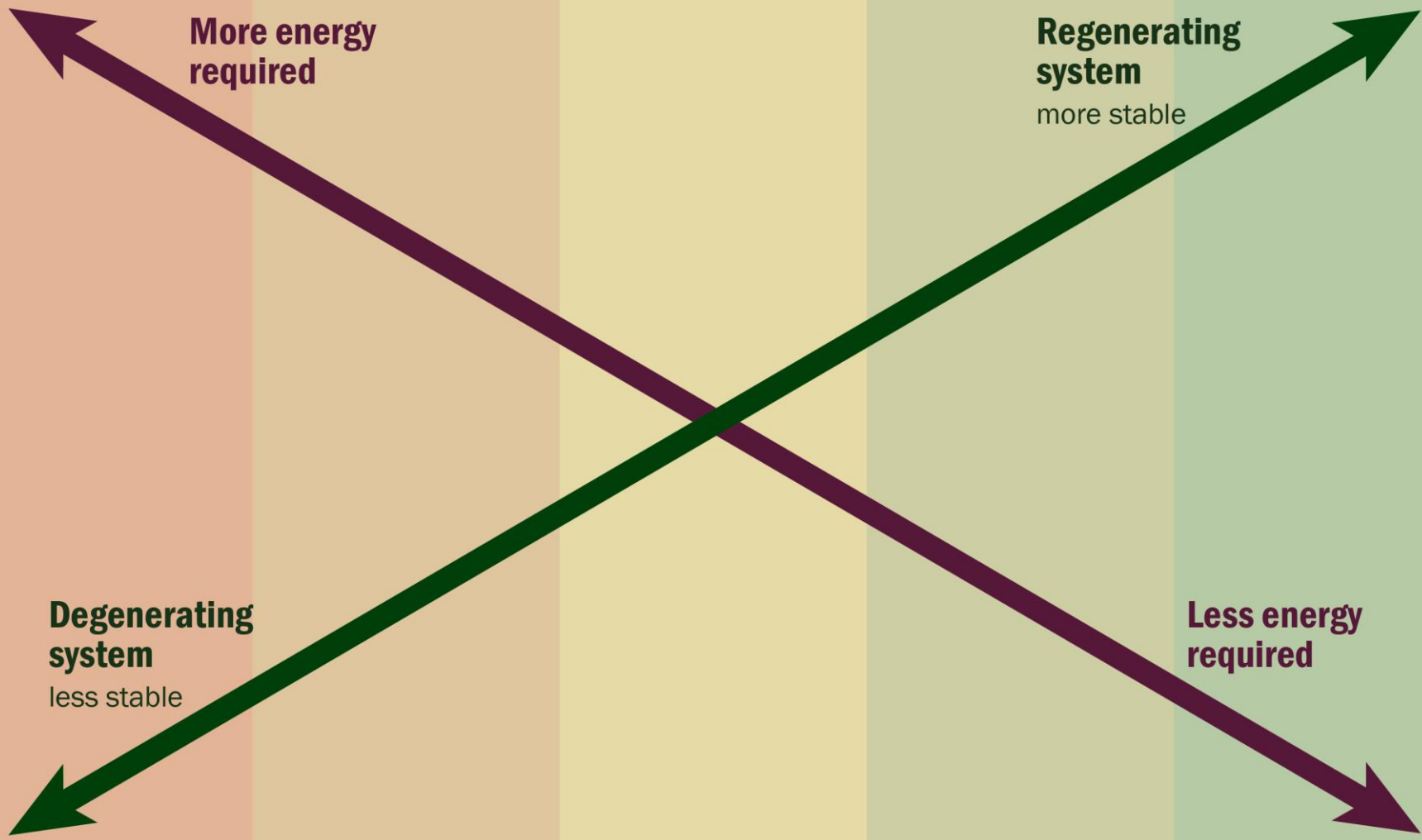
**CONVENTIONAL PRACTICE**  
“One step better than breaking the law.” —*Croxtan*

**GREEN DESIGN**  
LEED, Green Globe, other rating tools.

**SUSTAINABLE DESIGN**  
“100% less bad.” —*McDonough*  
Neutral.

**RESTORATIVE DESIGN**  
Humans doing things to nature.

**REGENERATIVE DESIGN**  
Humans intentionally participating as nature.



**Degenerating system**  
less stable

**Regenerating system**  
more stable

**Less energy required**

MONOCULTURE → FRAGMENTED → TECHNIQUES → TECHNOLOGIES → RECIPROCITY → DIVERSITY → UNDERSTANDING → RELATIONSHIPS → WHOLE SYSTEMS → LIVING SYSTEMS

## A Regenerative Ecologically Based Design Approach

Holistic planning and design: where human activities are deeply integrated with living systems, continuously building biological diversity, living infrastructure, resilience, and community spirit.

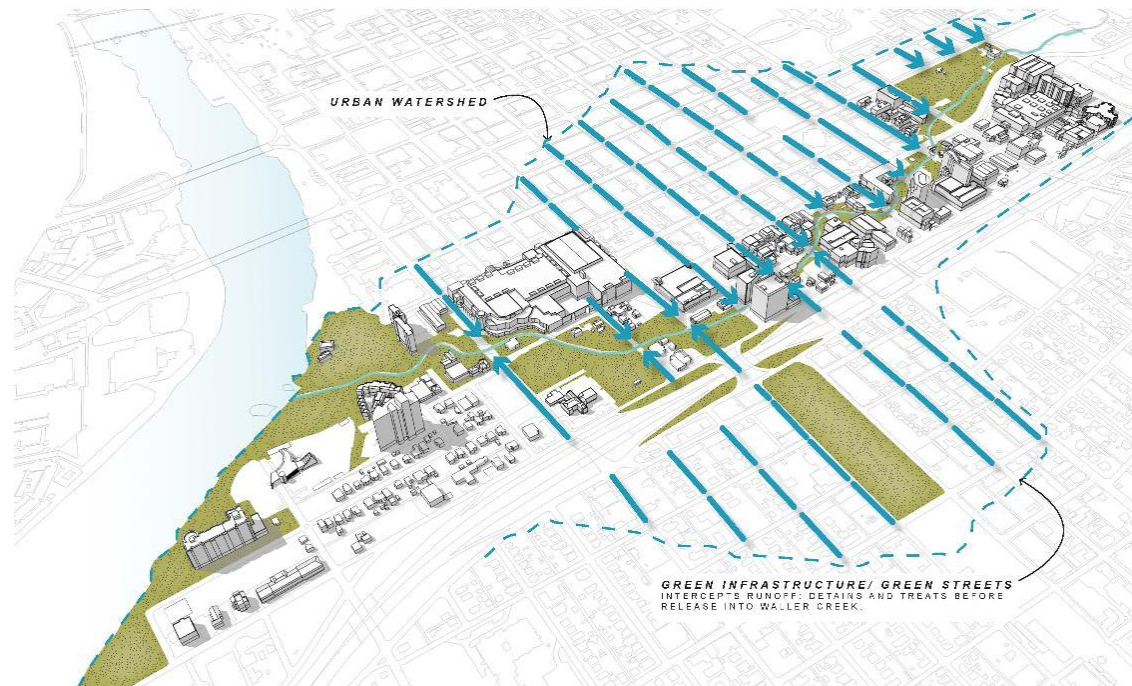


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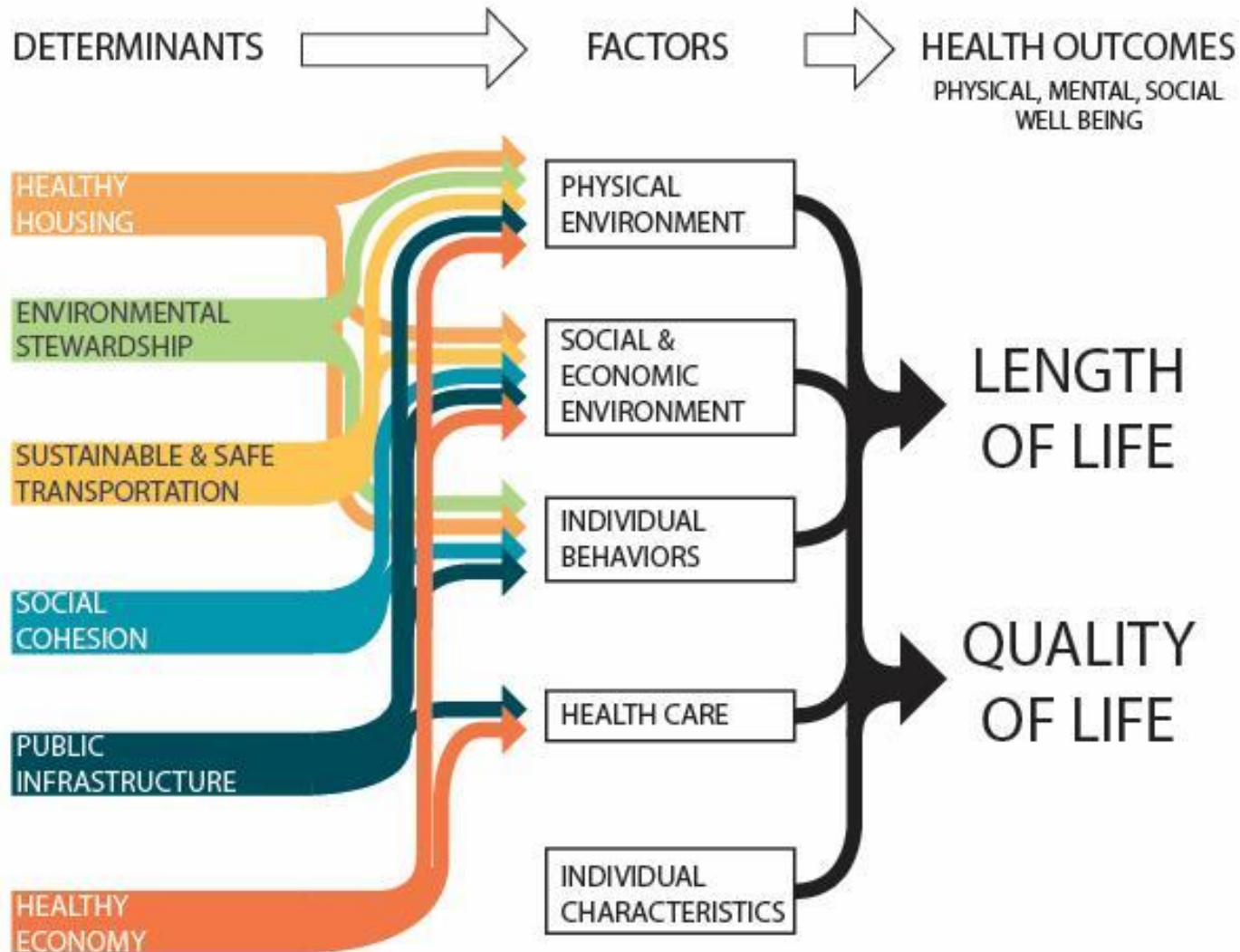
# Focus on establishing ecological processes through creating living infrastructure

Strategically planned and managed networks of natural lands, working landscapes and other green spaces – at many scales – that conserve ecosystem functions, restore ecosystem processes and regenerate healthy, robust and water resilient cities.

- Biologically complex
- Self Organizing
- Self Maintaining
- Life Giving

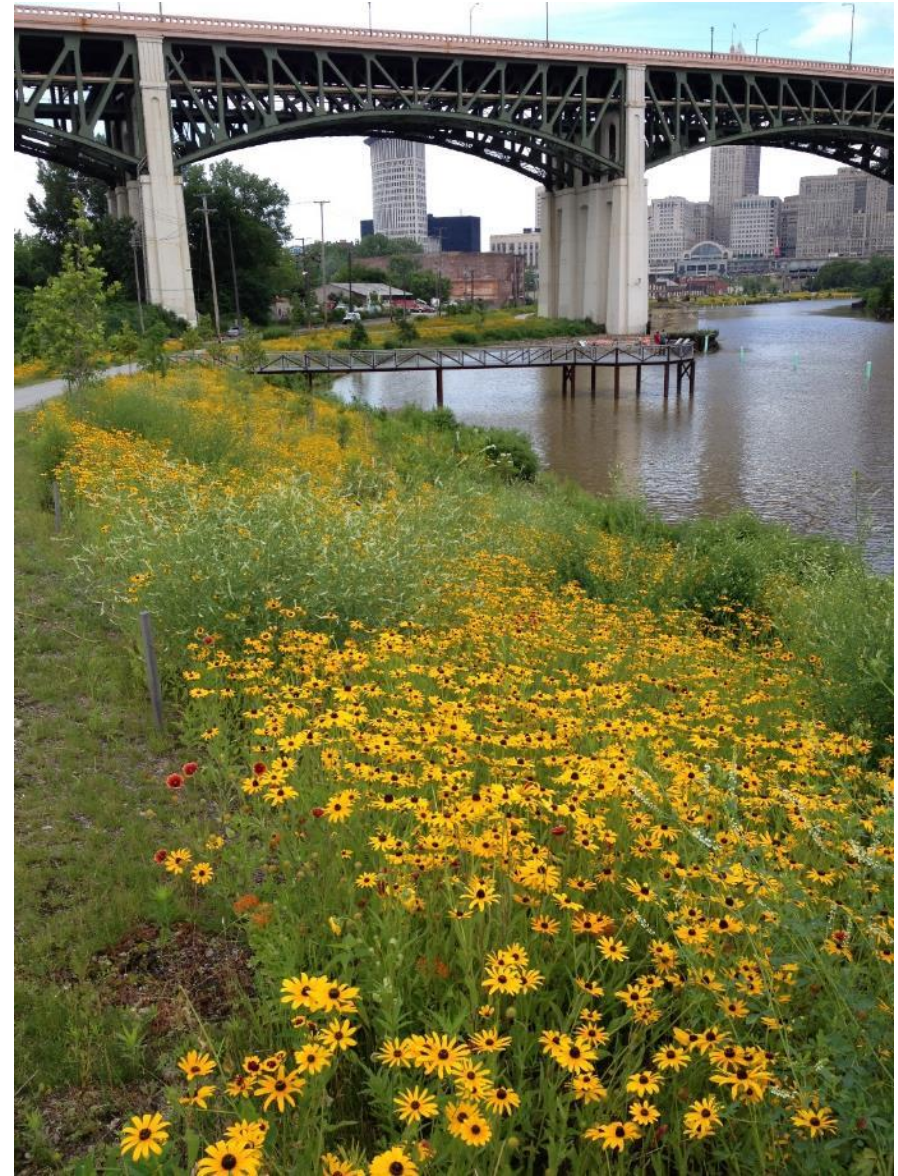


# Relationship between regenerative design, water resiliency, and health outcomes





# Scranton Peninsula

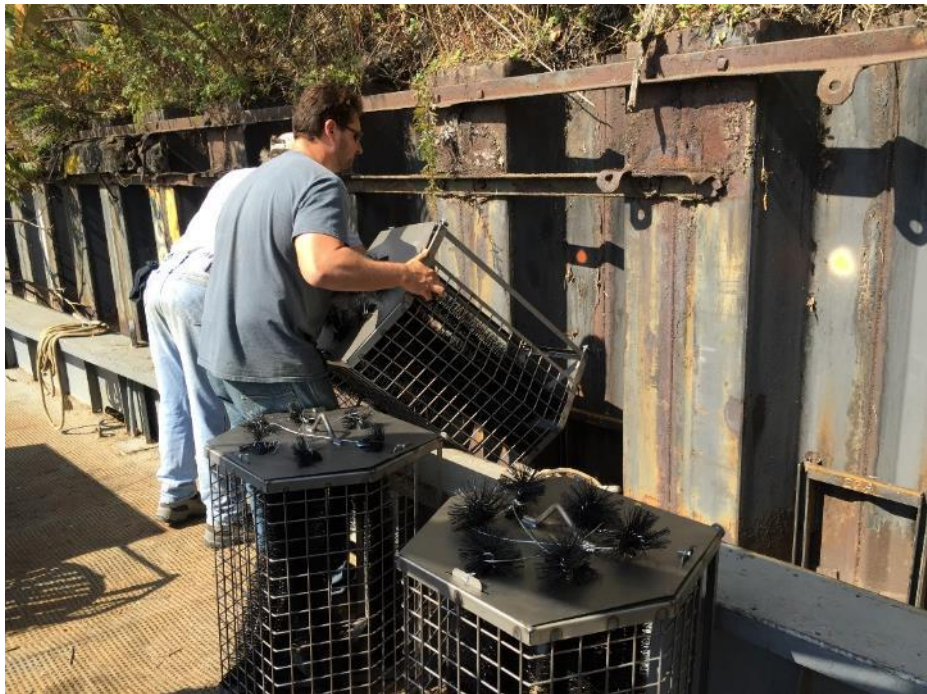






# FISH CAN'T EAT THIS

Fish native to the Cuyahoga River feed on the plant life that grows on its banks. However, the industrial spans of the Cuyahoga are occupied by degrading steel bulkheads that make it nearly impossible for fish to feed. The Green Bulkheads Project is looking at ways to restore native plant and wildlife to the Cuyahoga. To learn more about the Green Bulkhead Project, please visit [CuyahogaValley.net](http://CuyahogaValley.net)





Tributary before restoration



Tributary after restoration



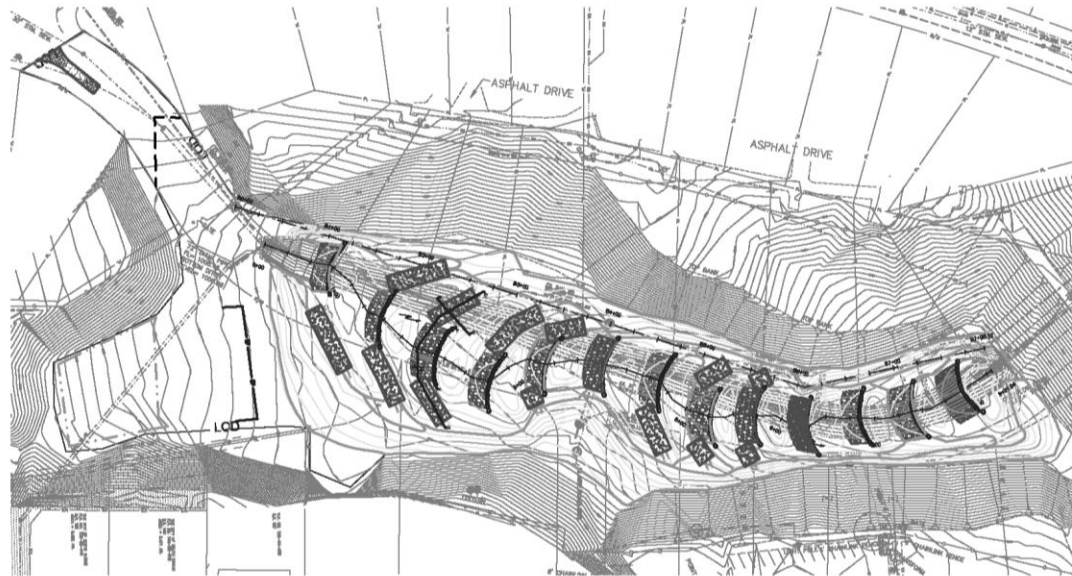
Cove Spring before restoration



Cove Spring after restoration



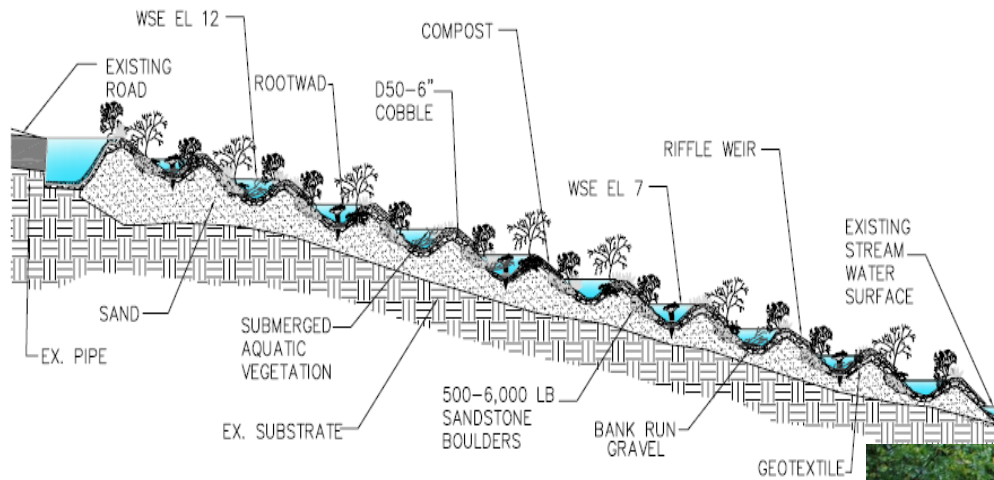






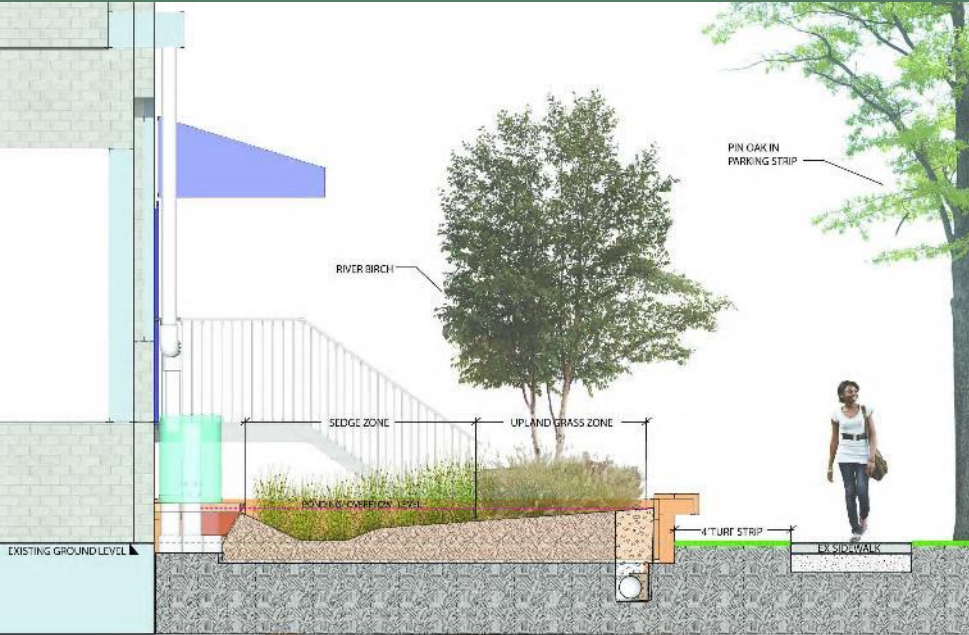




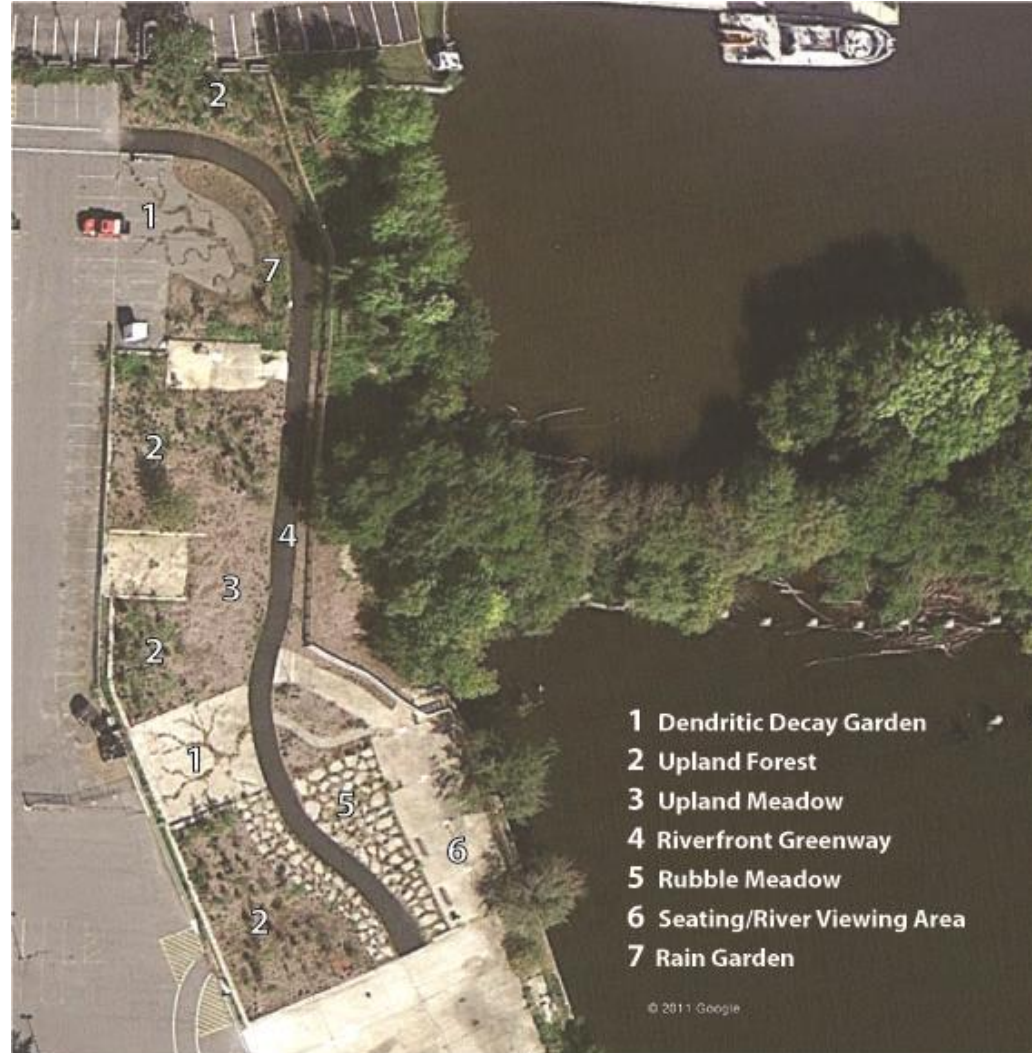
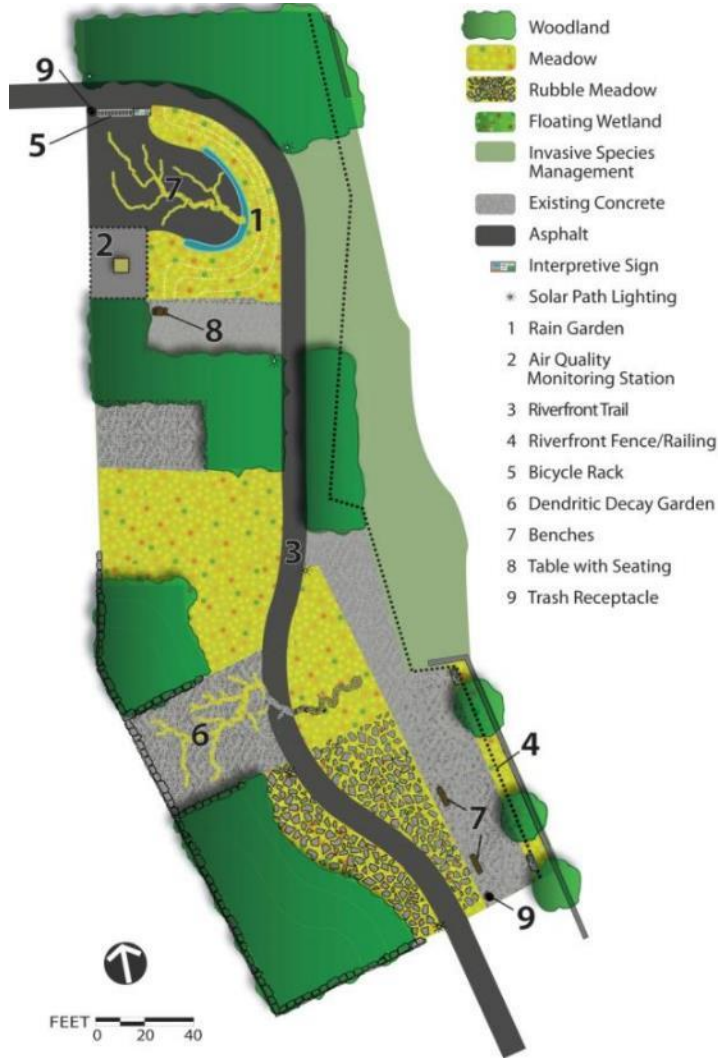


## Regenerative Stormwater Conveyance (RSC)











dendritic decay garden in asphalt

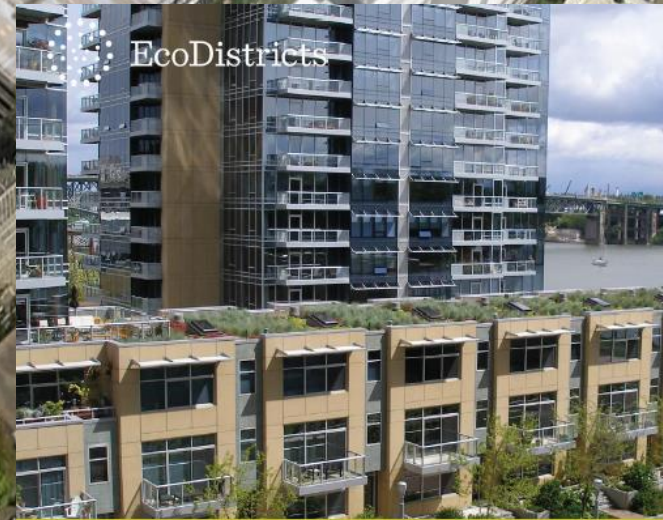




**Sidwell Friends School**  
Washington, D.C.  
*Wastewater Treatment*



Hassalo on Eight  
Lloyd Eco-District Super Block  
Project  
Portland, Oregon



**EcoDistricts**  
**LIVING INFRASTRUCTURE**  
**GUIDE**

FEBRUARY 2015





# Hassalo on Eight Lloyd Eco-District Super Block Project Portland, Oregon

WASTEWATER  
TREATMENT & REUSE

GREEN ROOFS  
& BMPS  
THROUGHOUT

STORMWATER,  
BEAUTY, HABITAT  
WATER FEATURE

RAINWATER  
CISTERN

Courtesy of GBD\* & Place\*Studio





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