


Watershed Planning for Sourcewater Protection



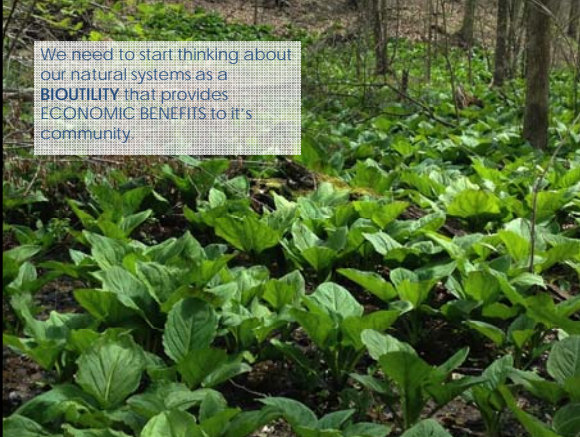
Jeffrey Kerr, ASLA, AICP
Jim Demboski, P.E.

Environmental Design Group
100 Years of Excellence, 1888-2014

Nature provides certain services (*green infrastructure*) that communities would otherwise need to expend resources through engineering, construction, and maintenance of traditional (gray) infrastructure.



We need to start thinking about our natural systems as a **BIOUTILITY** that provides **ECONOMIC BENEFITS** to it's community.



Source: Produces something. In this case, ecological, economic, and social benefit for the communities.



Sink: Consumes something. In this case, consumes resources necessary to mitigate degraded ecological function.

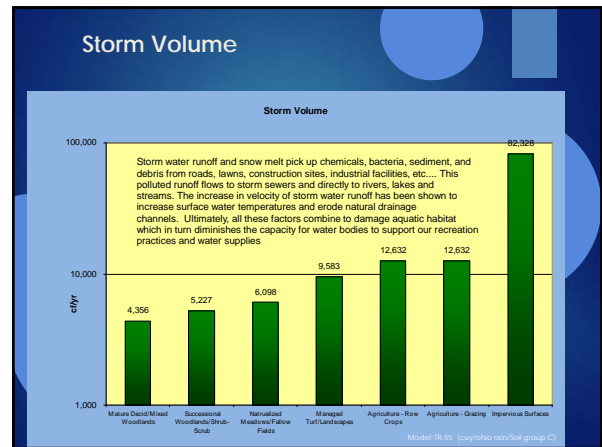
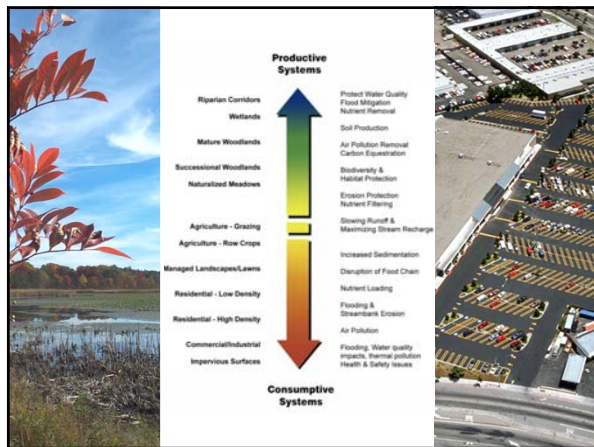
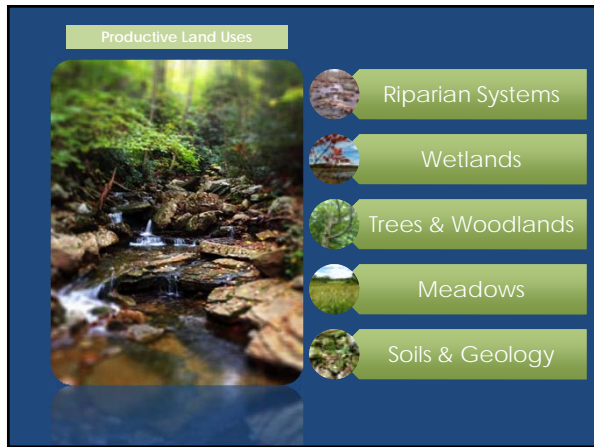
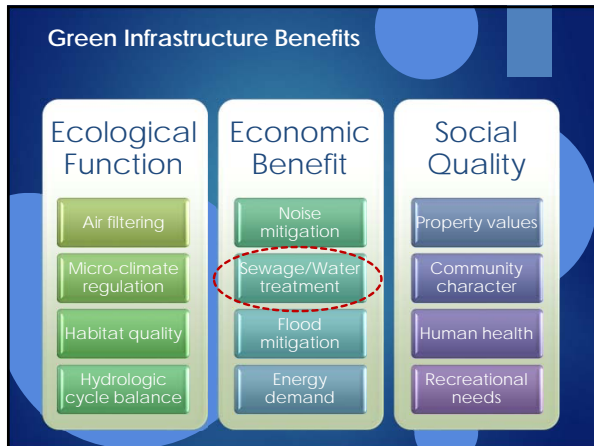


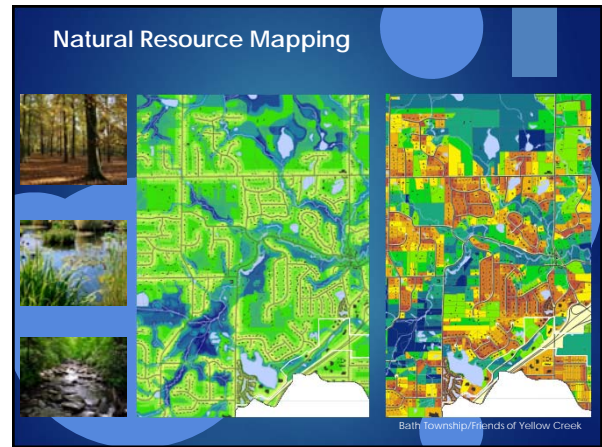
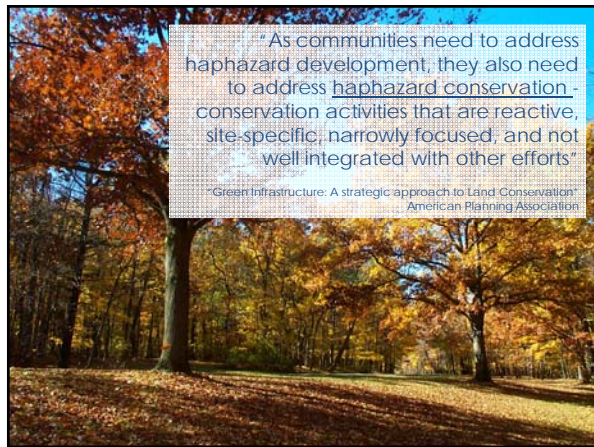
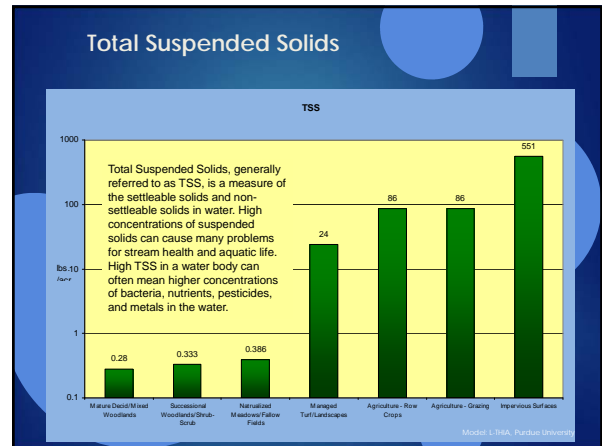
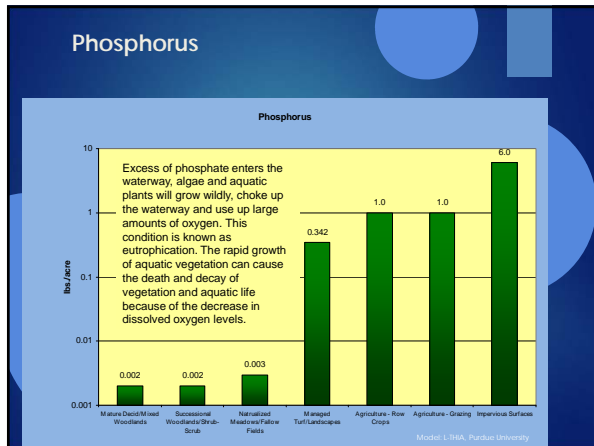
Green vs. Gray

Natural Resources = Green Infrastructure

<ul style="list-style-type: none"> Wetlands Streams Woodlands Meadows Soils Vegetation Organisms 	<ul style="list-style-type: none"> Roads Storm Lines Sewer Treatment Facilities Water systems Bridges Power Plants
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City of Akron

Upper Cuyahoga River Watershed Water Protection Plan

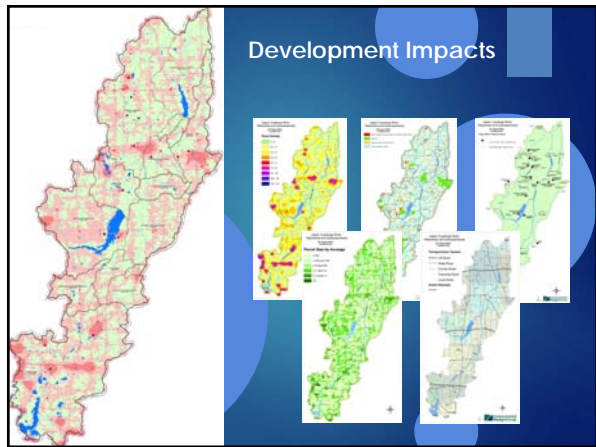
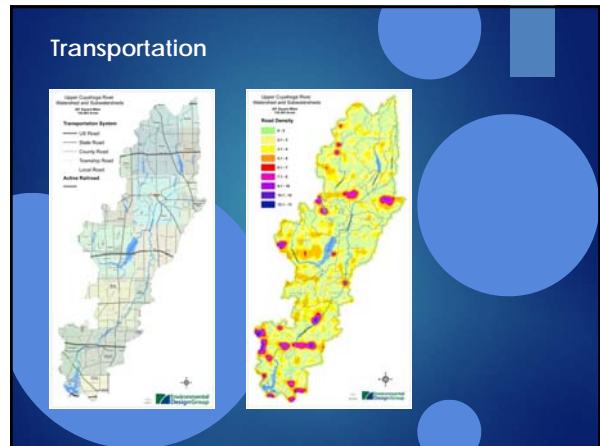
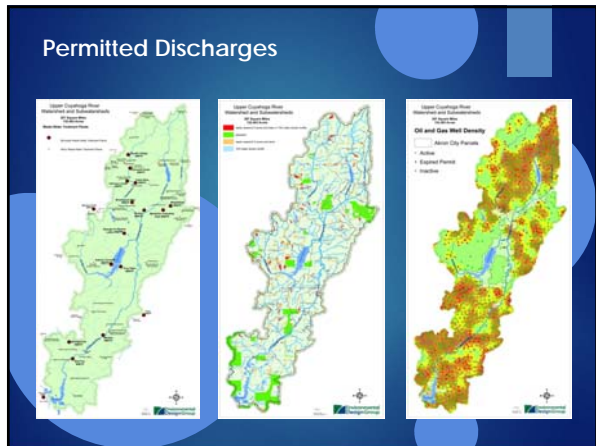
Question: How should the City of Akron manage a 209 square mile watershed to ensure water quality protection of its water supply as well as management of its 16,000 acres of property?

Goal: To determine the most effective protection strategy for water quality and what uses could be permitted on its property that would not increase risk to its water supply.

Upper Cuyahoga River Watershed

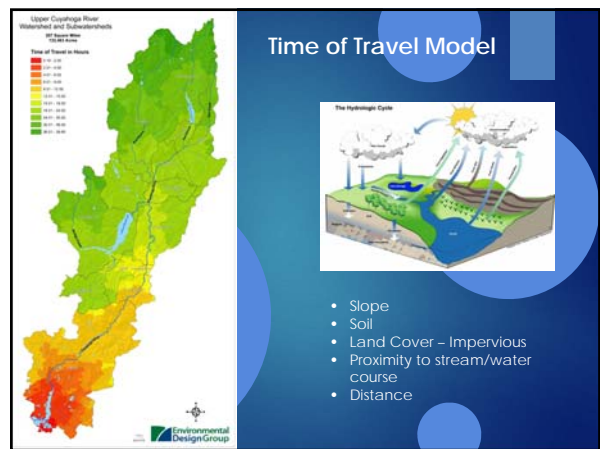
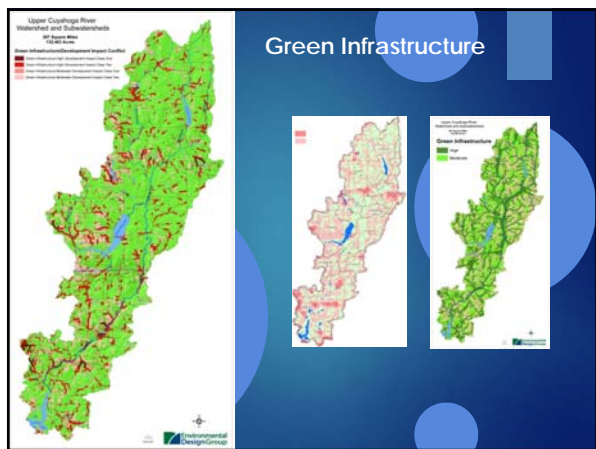
Watershed: 209 square miles
Basin: Cuyahoga River
Counties: Geauga, Portage

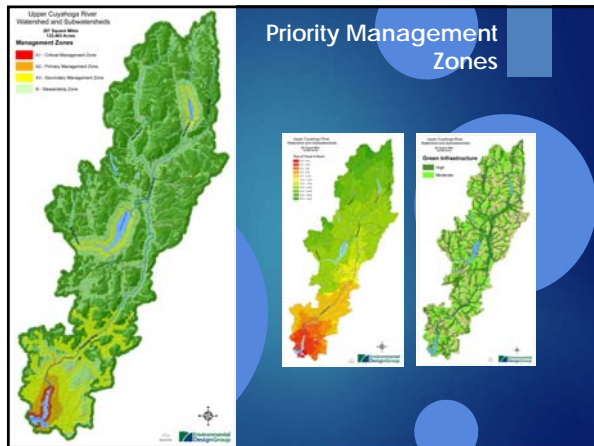
LAND USE BY GROSS CLASSIFICATION



City of Akron

Analysis Mapping





Management Zone Policy Guide

Watershed Protection Policy Guide	Public Access/Use Swimming, Fishing, Hunting	Private Recreation	Active Recreation	Oil & Gas Wells	Timber Management	Agriculture	High Speed Roadwork	High Speed Railwork	Sand & Gravel Operations
Zone A1 - Critical Management Zone	Controlled	Controlled	Controlled	Controlled	Controlled	Controlled	Controlled	Controlled	Controlled
Zone A2 - Primary Protection Zone	Controlled	Monitored	Controlled	Controlled	Controlled	Controlled	Controlled	Controlled	Controlled
Zone A3 - Secondary Protection Zone (PMA)	Monitored	Encouraged	Monitored	Controlled	Controlled	Monitored	Monitored	Controlled	Controlled
Zone B - Stewardship Zone	Encouraged	Encouraged	Monitored	Monitored	Monitored	Monitored	Monitored	Controlled	Controlled

Land Management Action Guide

City of Akron Watershed Protection Policy Guide

	Property Acquisition	Conservation/Deed Restriction/TDR	Public Outreach/Education/Stewardship	Ecological Restoration	Management	Monitoring	Land Use Stewardship	Improvements (non-restoration)
Zone A1 - Critical Management Zone	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Zone A2 - Primary Protection Zone	Maybe	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Zone A3 - Secondary Protection Zone	No	Maybe	Yes	Maybe	No	Yes	Maybe	Maybe
Zone B - Stewardship	No	Maybe	Maybe	Maybe	No	Maybe	Maybe	Maybe

Activity Evaluation Criteria

- Public Access
- Passive Recreation
- Active Recreation
- Oil & Gas Wells
- Timber Management
- Agriculture
- Development
- Sand & Gravel Operations

Watershed Protection Policy Guide	Public Access/Use Swimming, Fishing, Hunting	Private Recreation	Active Recreation	Oil & Gas Wells	Timber Management	Agriculture	High Speed Roadwork	High Speed Railwork	Sand & Gravel Operations
Surface Water Quality	3-Low	1-Minimal	2-Average	3-Average	3-Average	2-Above Average	3-Low	2-Above Average	2-Above Average
Management Monitoring	3-Above Average	3-Low	2-Above Average	3-Average	3-Average	3-Average	1-Minimal	3-Low	3-Average
Legal Liability Mitigation	4-Above Average	1-Minimal	3-Low	3-Average	3-Average	3-Low	1-Minimal	1-Minimal	3-Average
Stream/Debris Cues	3-Above Average	1-Minimal	3-Low	1-Minimal	3-Average	3-Low	1-Minimal	1-Minimal	3-Low
Public Relations Mitigation	3-Above Average	4-Above Average	3-Low	1-High	3-Average	3-Low	1-Minimal	1-Minimal	3-Low
Resource Opportunity	3-Low	1-Minimal	1-Minimal	3-High	3-Average	3-Low	1-Minimal	1-Minimal	3-Low

