



**Chagrin River Watershed Partners, Inc.**

*Riparian Setbacks and Other Model Codes to Reduce Imperviousness*

Kyle Dreyfuss-Wells  
 (440) 975-3870, kdw@crwp.org  
 www.crwp.org

Ohio EPA Stormwater Training  
 December 12, 2007

**Codes to Reduce Impervious Cover:  
 Lessons Learned in NE Ohio**

- **Why Communities Adopt New Codes:** Hard surfaces cost too much and better options exist.
- **Riparian and Wetland Setback Zoning:** Township and municipal zoning tool to maintain stream and wetland infrastructure.
- **Comprehensive Stormwater Management:** Improved stormwater quality and quantity control.
- **Conservation Development Districts:** Township and municipal zoning to allow for innovative residential design, with no increase in density.

**Chagrin River Watershed Partners**

- Formed in 1996 by watershed communities. Supported by member dues and grants. Board composed of member representatives.
- Work directly with 36 cities, villages, counties, townships, and park districts to minimize flooding and erosion as communities grow.
- Focus on improving local development practices and site design to reduce long term infrastructure costs.



**Sponsoring Members**



**Flooding, Erosion, and Water Quality Problems:**  
 The Impacts of Land Use Change

*More cost effective to **prevent** problems through effective planning and zoning than to **fix** problems with gabions, complicated storm water structures, and repetitive rebuilding.*

**Riparian areas, streams & wetlands.....**



Hunting Valley

**Sinks for storm water and its pollutants**

**Free flood and erosion control & water quality protection**

Chardon

Replace with impervious surfaces

Source of storm water & pollutants



## Traditional Storm Water Management

Centralized, efficient control of large floods. Uses curb and gutter systems leading to storm water basins.



Once stormwater is in a pond or a pipe, cost-effective management options are limited.



Bainbridge

### Flooding

- ✓ More storm water
- ✓ Fewer "sinks"

### Erosion

- ✓ Property damage
- ✓ Sedimentation



Willoughby Hills

## Solution?

- ✓ Better Site Design for **New** Subdivisions
- ✓ Better Placement of **New** Homes and Additions.

### Priority Development Areas and Priority Conservation Areas

- ✓ Riparian and Wetland Setbacks, Conservation Development, Other Tools to Enable Communities, Developers, and Builders to Achieve These Improvements.

### Best Local Land Use Practices

## Recommended Best Local Land Use Practices

- Comprehensive planning
- Open space acquisition
- Riparian & wetland setbacks
- Erosion & sediment control
- Stormwater management
- Conservation development

### Supported by:

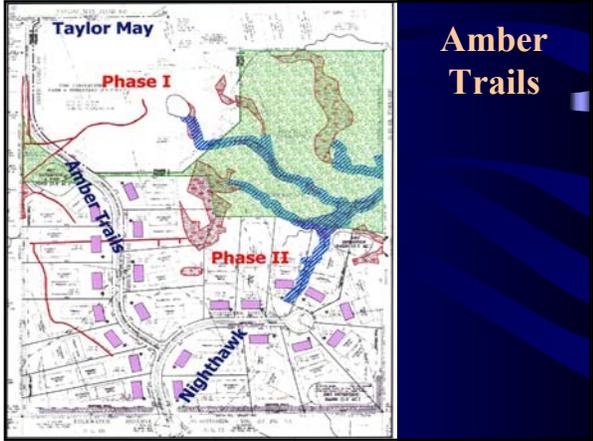
Chagrin River Watershed Partners, Inc.  
County Soil and Water Conservation Districts  
County Planning Commissions  
Ohio Lake Erie Commission through BGI

### Components of

Community NPDES Phase II Implementation.

### Riparian & Wetland Setbacks

- **Zoning tool** to limit development within specific distances of streams and wetlands.
- Similar to front and side yard setbacks.
- Do not make lots "unbuildable".
- **Control location** of soil disturbing activities during construction and other activities regulated by zoning.

### Riparian and Wetland Setbacks Result in Better Development Decisions.

3 acre parcel  
25 foot riparian setback  
Additional wetland setback



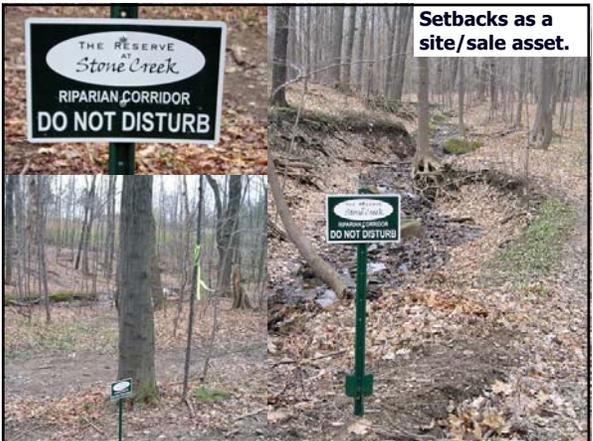
Building Ask...  
e location?  
ic location & type?  
eway crossing?  
age impacts for  
rbors?  
basement?

### Variance in Bainbridge Township



Front yard setback = 100'

Variance granted to 70' feet to avoid riparian impacts.



## Comprehensive Stormwater Management: Tools to Reduce Impervious Cover

- ✓ Disconnected downspouts
- ✓ Smaller driveway culverts
  - ✓ Road side ditches
  - ✓ Rain gardens
  - ✓ Rain barrels
  - ✓ Bioretention
- ✓ Pervious pavement

## Low Impact Development: Combine Stormwater Management and Landscape Design



## This is Stormwater Management



## Traditional & Innovative Stormwater Management

### Stratford Commons Condominiums, Willoughby Hills

- 1) 9 acre site off Route 6.
- 2) Built with innovative design.
- 3) Also treats quality/quantity for 3 acre commercial site.
- 4) Existing wetland at back of lot.

## Traditional Stormwater Management =

Wet basins & significant wetland impacts, with possible Individual Permit required.



## Enhanced Swale System =

Bioswales to treat water quality volume.

Treated storm water discharged to wetland.

Small pond before wetland used for sediment settling during construction

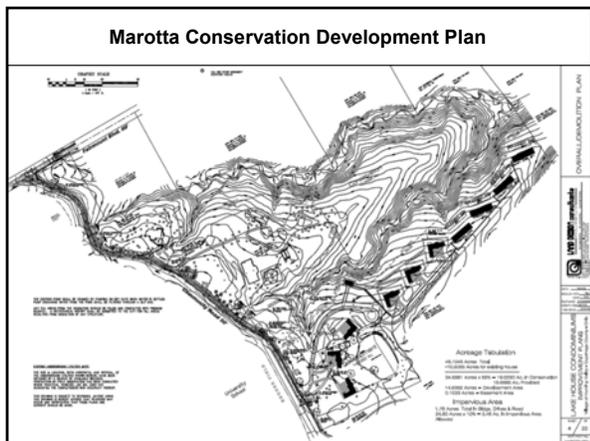
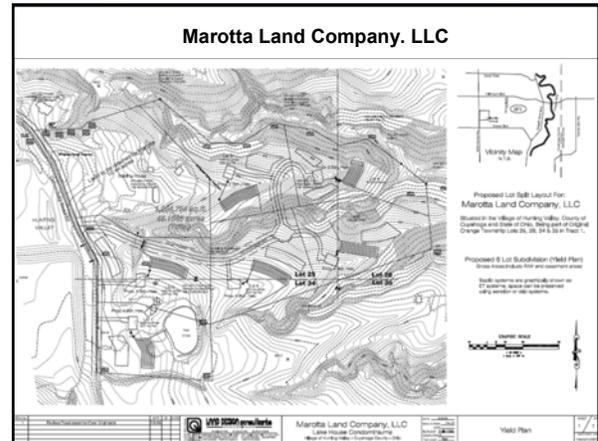
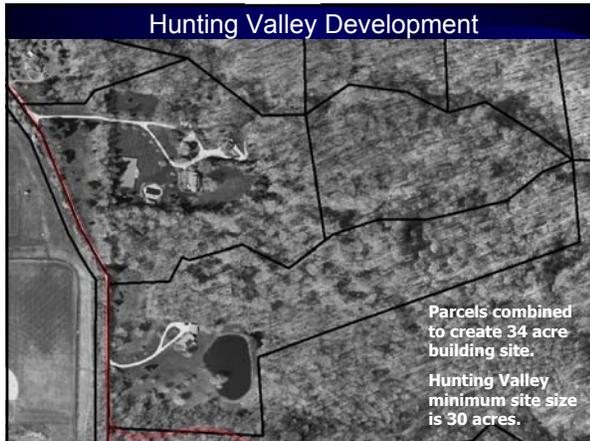


## Enhanced Swale System

➤ <b>Enhanced Swale =</b>	<b>\$45,400</b>
Includes 4" underdrain, stone backfill, permeable soil backfill and excavation	
➤ <b>Storm Sewer Structure =</b>	<b>\$8,900</b>
➤ <b>Sediment Forebay =</b>	<b>\$325</b>
➤ <b>Total Enhanced Swale =</b>	<b>\$54,625</b>
➤ <b>Total Traditional =</b>	<b>\$105,130</b>

## Conservation Development Districts

- At least 40% Open Space
- Conservation Easement
- No Density Bonus



## Model Regulations

- **Model resolutions and ordinances available for:**
  - Riparian and Wetland Setbacks
  - Comprehensive Stormwater Management
  - Conservation Development Districts
- **All based on public health and safety.**
- **Provide options to landowners, developers, and communities to:**
  - Improve development products.
  - Reduce infrastructure costs.

## Why Riparian & Wetland Setbacks, Conservation Development, and other Code Changes?

- **Maintain services:** Local government tools to maintain the ability of riparian areas, wetlands, and other natural features to control flooding, limit stream bank erosion, and reduce water pollution.
- **Lower costs:** Good site designs keep homes, infrastructure and other property out of the path of ever-changing streams.
  - Reduce public safety concerns.
  - Reduce need for costly stream bank stabilization.

## Why Riparian & Wetland Setbacks, Conservation Development, and other Code Changes?

- **Stormwater management:** Non-structural stormwater Best Management Practices.
- **Only happens at the local level:** Ohio EPA, US Army Corps of Engineers, County Planning Commissions, and Soil and Water Conservation Districts are:
  - **NOT responsible for maintaining your community's riparian areas, wetlands, and other site specific drainage characteristics.**
  - **NOT responsible for the long term maintenance of stormwater infrastructure built in your community.**