Green InfrastructureVision:
Opportunities for Land Owners, Local Governments, and Developers

Wild Things
March 5, 2011

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What is Green Infrastructure?

(The Conservation Fund, 2006)

- Interconnected network of natural areas and open spaces that:
  - Conserves natural ecosystem functions
  - Sustains clean air and water
  - Provides trails and other benefits to people and wildlife

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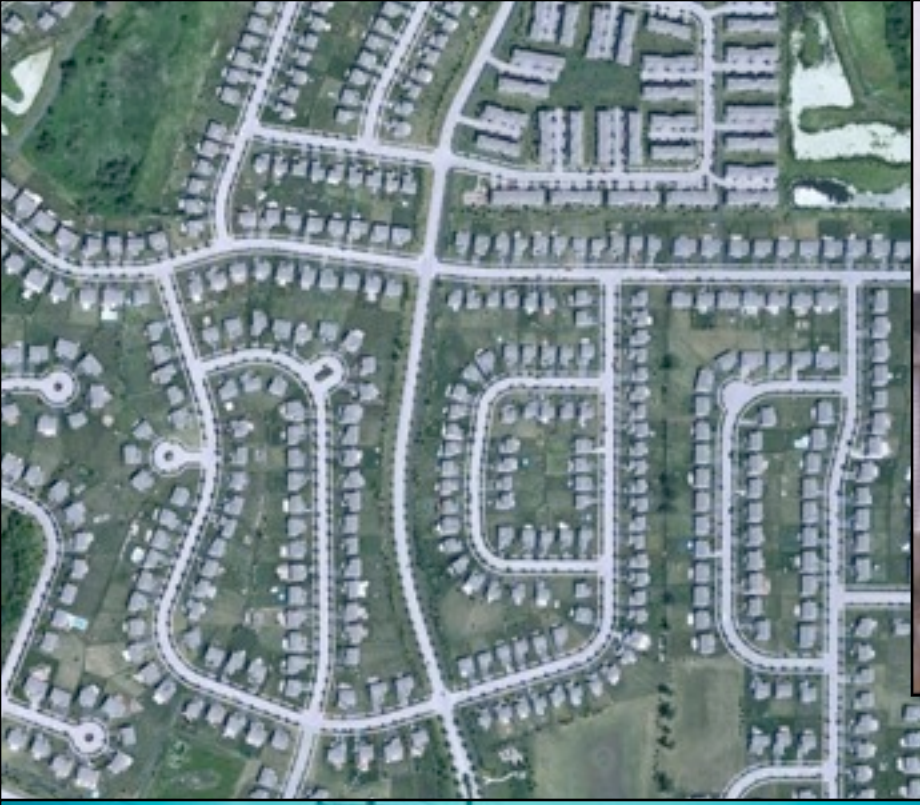


FAMOUS

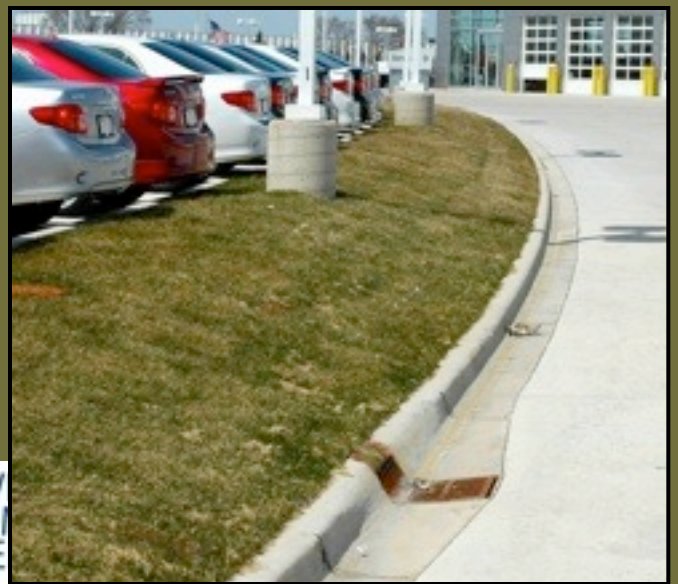
Google

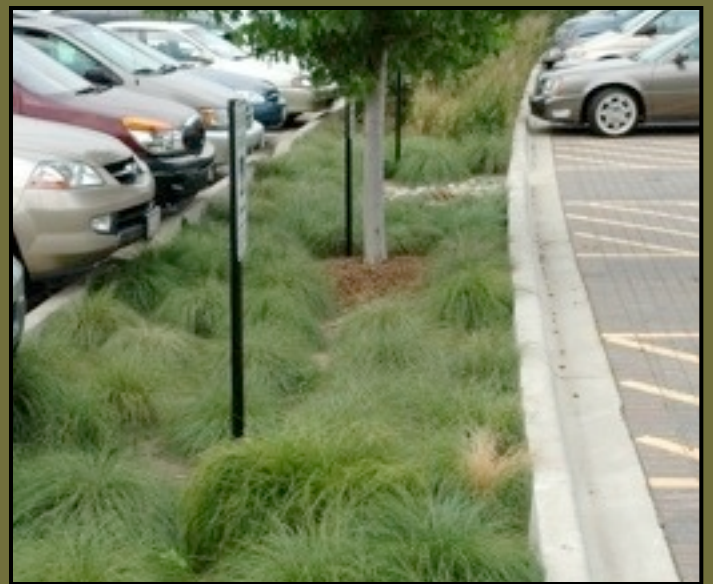
Google

Grassland Birds

Green Infrastructure – A Technology Focus

- Products, technologies, and practices that use natural systems – or engineered systems that mimic natural processes – to enhance overall environmental quality and provide utility services
- Green vs. grey infrastructure
  - E.g., a swale vs. a storm sewer





Chicago Wilderness Green Infrastructure Vision (2004)

- Purpose
  - Develop a *tangible, green infrastructure vision* that reflects the goals of the Biodiversity Recovery Plan
  - Develop a *map* that identifies on-the-ground, regional scale opportunities for biodiversity protection
  - Identify specific *protection techniques* for identified “resource protection areas”

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- *"Make no small plans. They have no magic to stir men's blood."*

  Daniel Burnham, 1909

Definition: Green

- *Interconnected network of land and water that supports biodiversity and provides habitat for diverse communities of native flora and fauna at a regional scale.*
- *Includes large complexes of remnant woodlands, savannas, prairies, wetlands, lakes, stream corridors and related natural communities.*
- *May also include areas adjacent to and connecting these remnant natural communities that provide both buffers and opportunities for restoration.*

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Project Approach

- Held a series of workshops with CW members and resource agencies – over 90 participants
  - Initial workshop in NE Illinois
  - Workshop in SE Wisconsin
  - Workshop in NW Indiana
  - Input from City of Chicago green infrastructure process

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Baseline Mapping Data

- Streams and rivers
- Floodplains
- Wetlands and lakes
- Woodlands
- Grasslands
- Designated Natural areas
- Publicly owned natural lands
- Watershed boundaries

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Chicago Wilderness

Green Infrastructure Vision

Green infrastructure is defined as the interconnected network of land and water that supports biodiversity and provides habitat for diverse communities of native flora and fauna at the regional scale. It includes large complexes of remnant woodlands, savannas, prairies, wetlands, lakes, stream corridors and the related natural communities that have been identified in the Biodiversity Recovery Plan. Green infrastructure may also include areas adjacent to and connecting these remnant natural communities that provide both buffers and opportunities for ecosystem restoration.

- Recommended Resource Protection Areas
- Existing Public Open Space
- County Boundaries
- State Boundaries
- Streams and Rivers
- Lake Michigan
- Open Water

Ê Chicago Wilderness member organizations are undertaking an effort to identify and prioritize sites for biodiversity protection and recovery along the Lake Michigan nearshore. This work will be proposed as an addendum to the Biodiversity Recovery Plan and is scheduled to be considered for adoption in 2004. Results should be integrated with a future version of the Green Infrastructure Vision.

Ê The City of Chicago and invited Chicago Wilderness member organizations undertook an effort to identify sites for biodiversity protection and recovery in the City. This work was completed in 2004. Appropriate regionally-significant biodiversity conservation sites identified by the City have been integrated into the Green Infrastructure Vision.

DATA SOURCES

Summary

- Over 140 *resource protection areas* identified, totaling over 1.8 million acres

- Compares to:
  - 360,000+ acres of *protected* public natural open space in Chicago Wilderness
  - over 6 million *total* acres within the 3-state assessment area

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Regional Green Infrastructure Protection Recommendations

- Continuing land acquisition
- Expanded ecosystem restoration
- Greenway connections
- Private conservation easements
- Conservation development
- Urban/suburban retrofitting
- Farmland preservation

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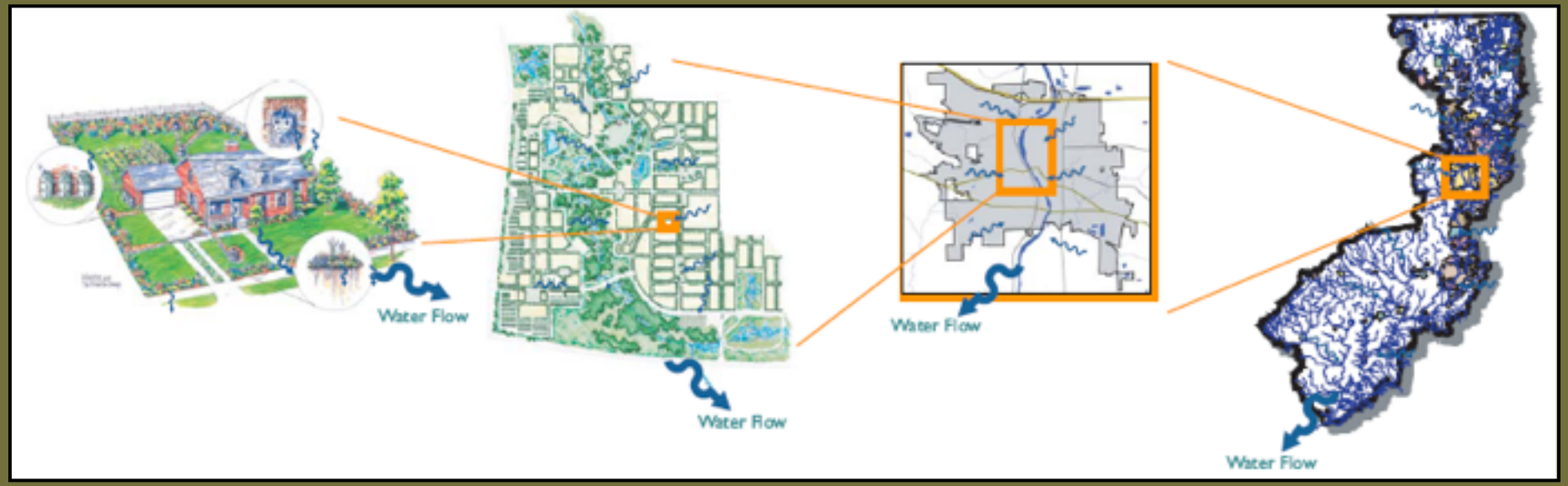
Green Infrastructure Should Be Implemented at Varying Spatial



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At the Regional Scale…

- CW is working to:
  - Encourage sustainable regional land use and transportation plans
  - Protect sensitive lands at the landscape scale
  - Encourage connection of protected landscapes between individual open space jurisdictions

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The Regional Greenways Plan – Connecting Communities and Open Space

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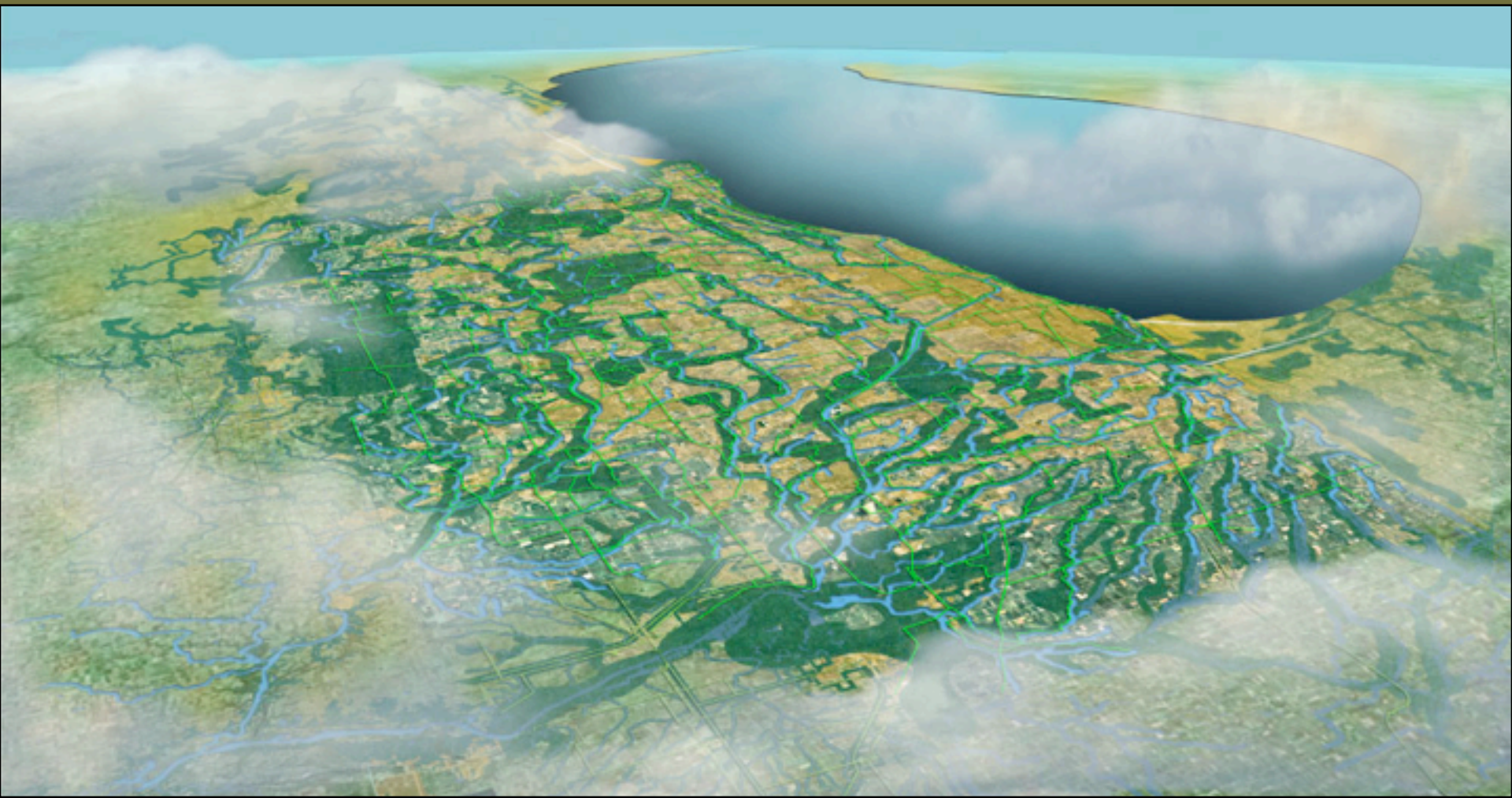
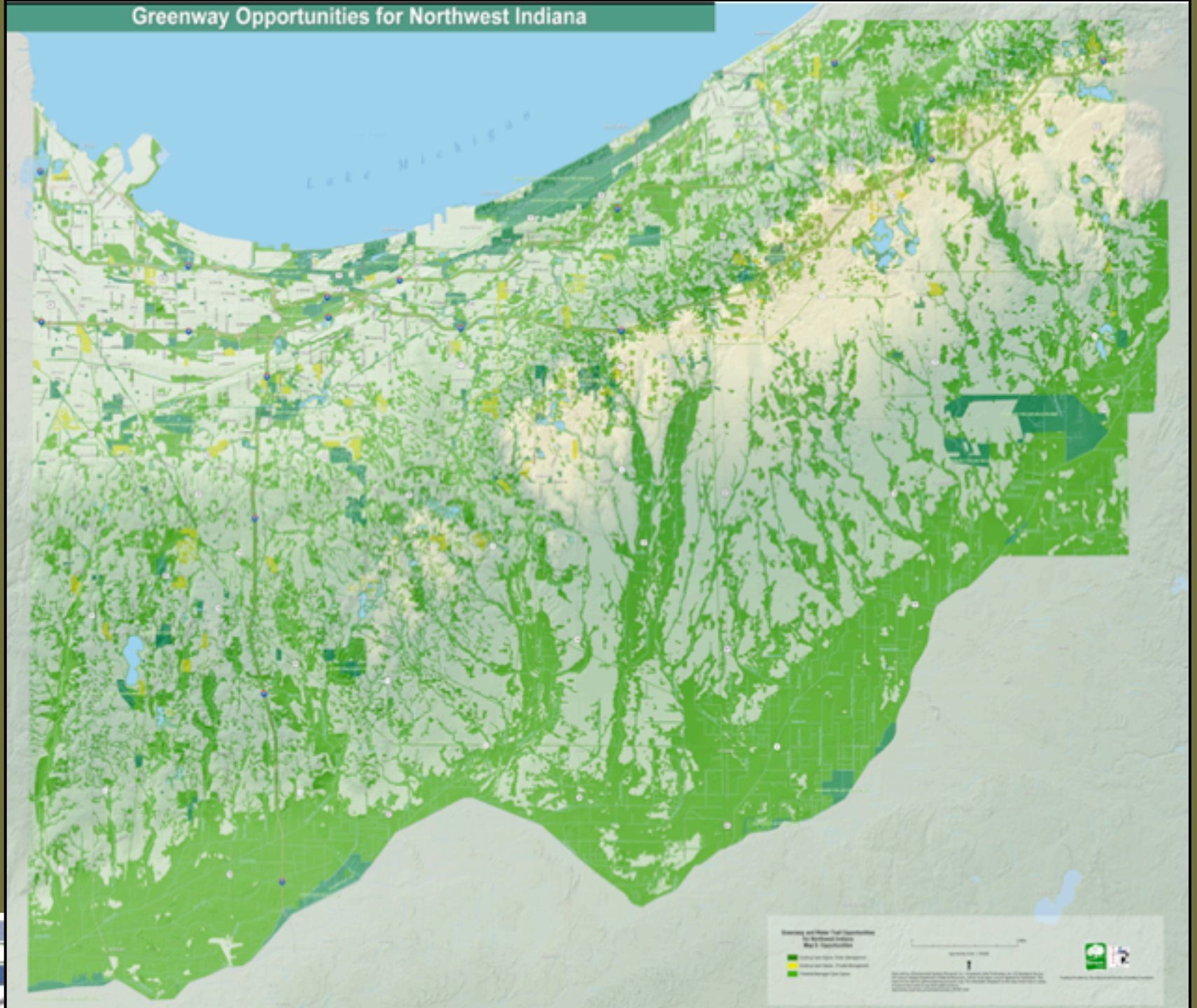
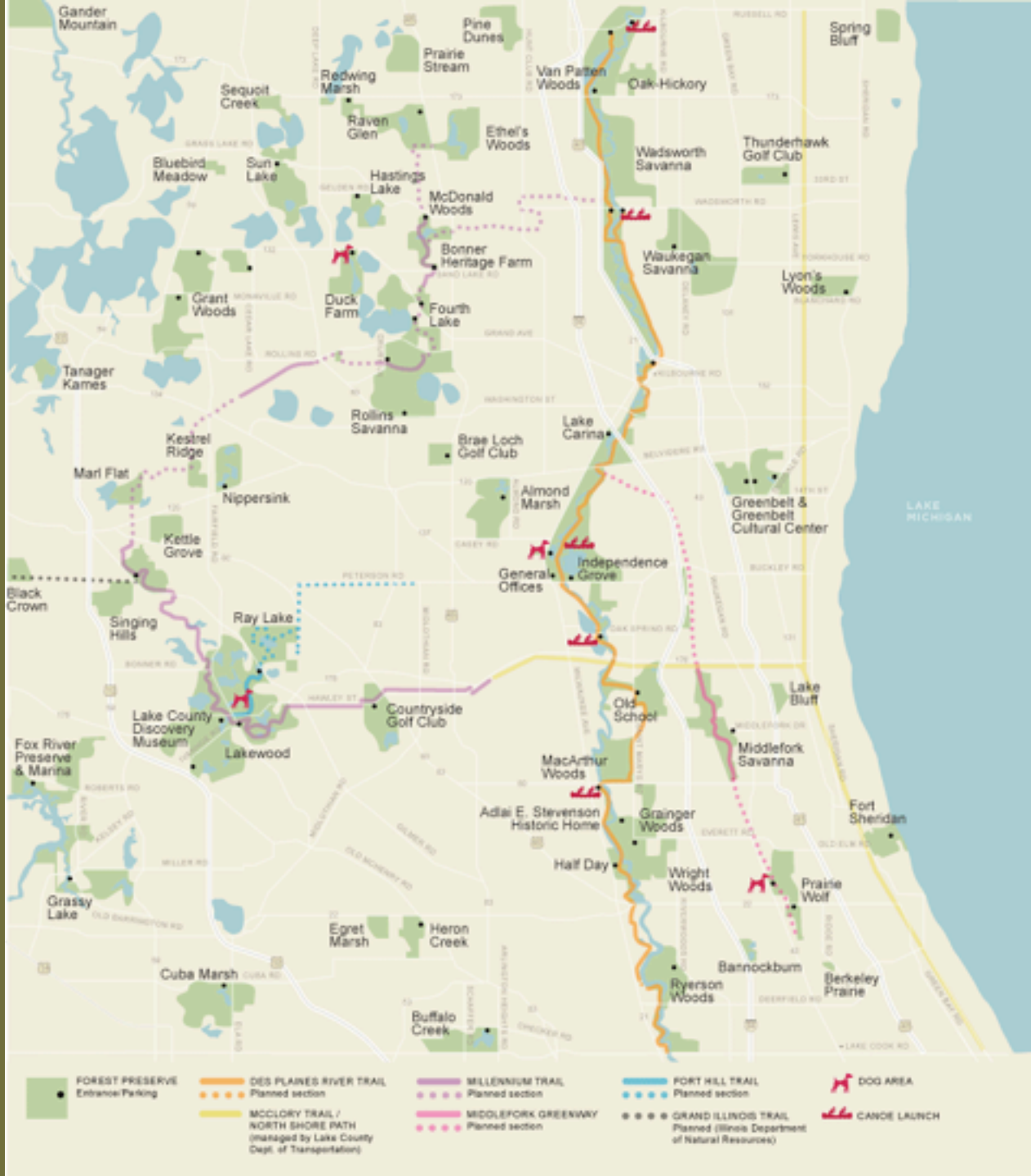
CMAP GoTo 2040 Plan

Goal: Increase Conservation Open Space from 250,000 to 400,000 acres




Greenway Opportunities for Northwest Indiana

Expanding Forest Preserve Acquisitio



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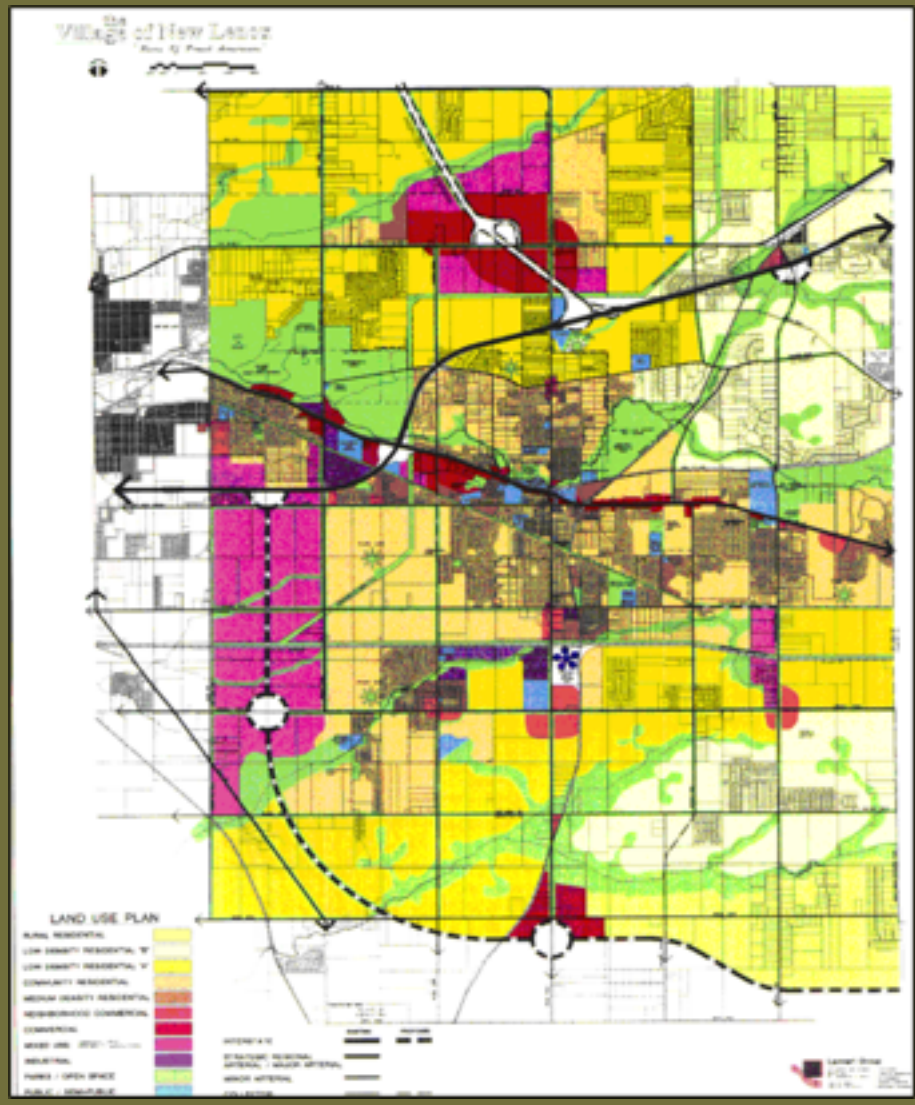
At the community

- Incorporate GI principles of biodiversity and sustainability into master plans and ordinances
- Protect interconnected greenways and wildlife corridors
- Plan walking trails and bike paths linking subdivisions and regional trails



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St. Charles Park District Comprehensive Master Plan

- Identifies natural area goals and objectives
- Uses the goals, objectives and green infrastructure maps to generate land preservation and acquisition strategy

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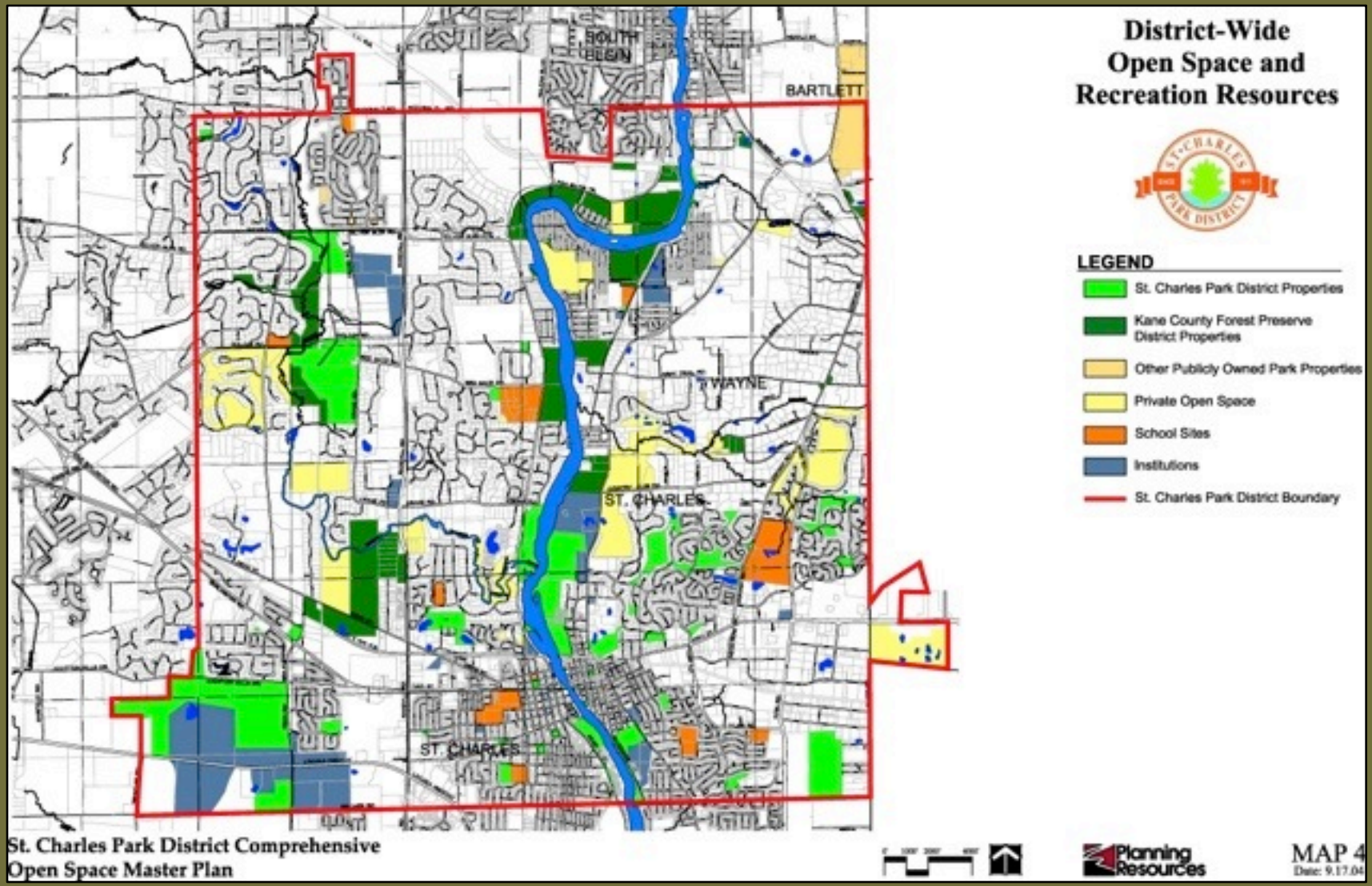
Existing Open Space



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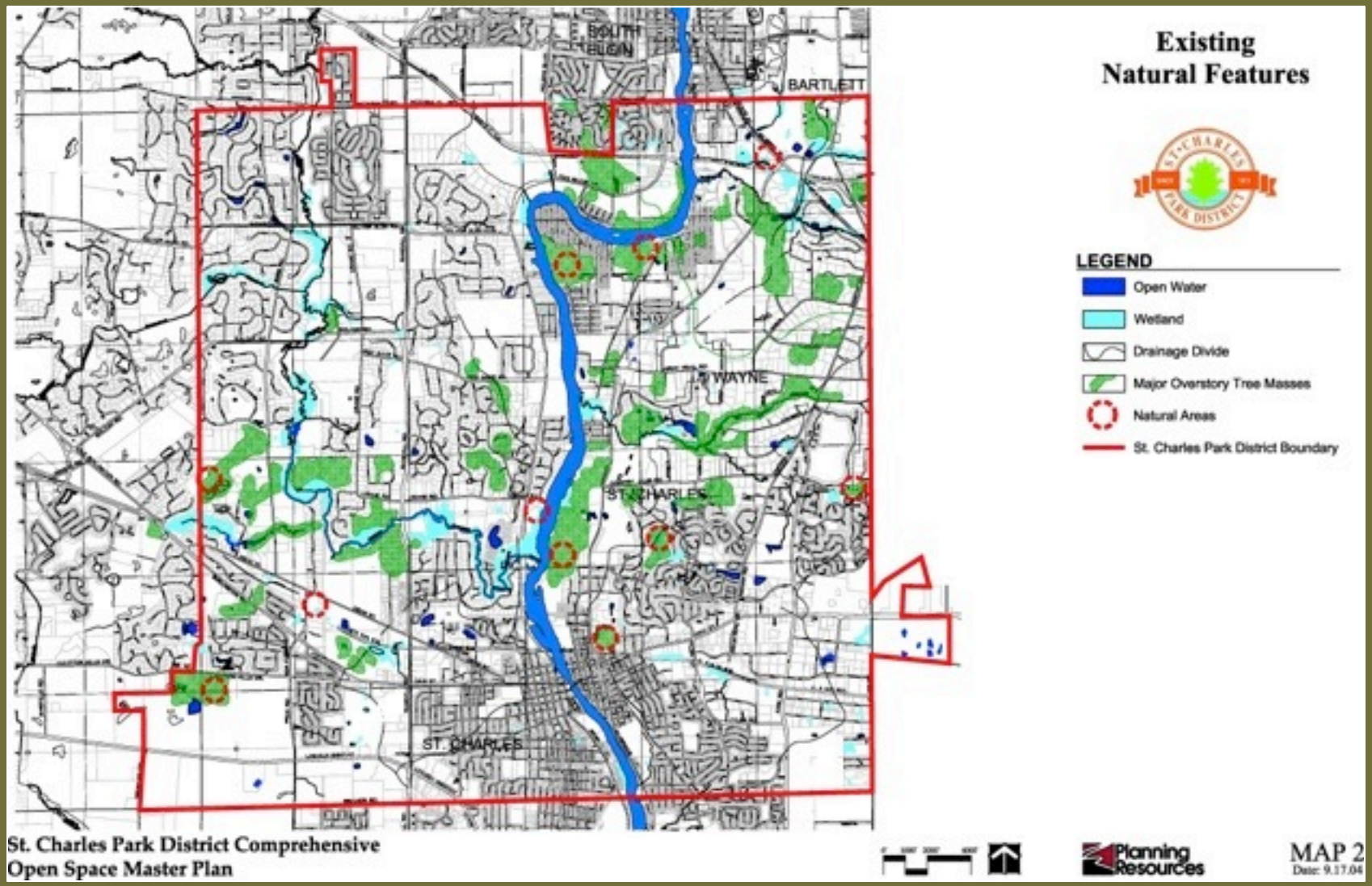
Existing Natural Features



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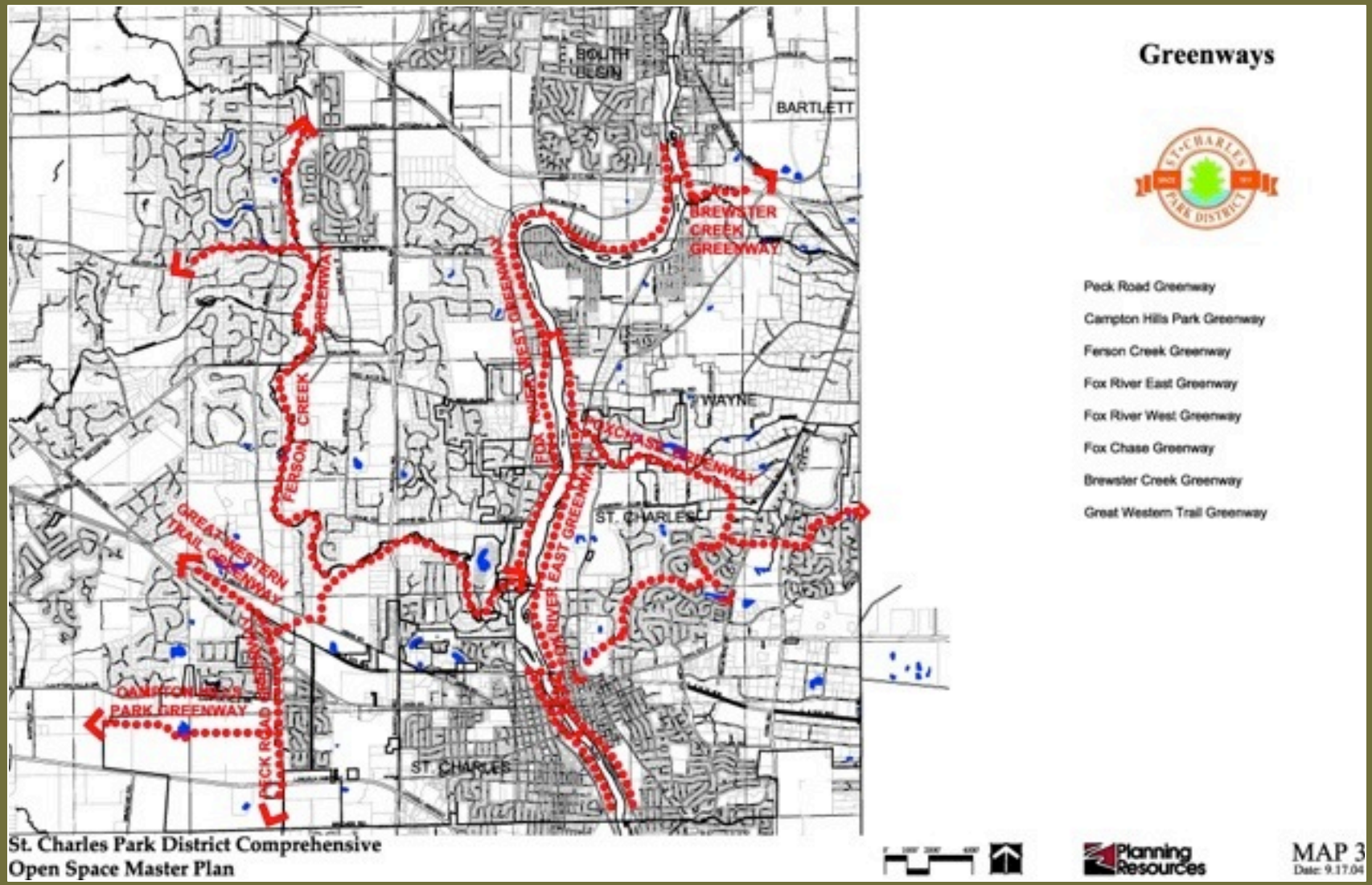
Proposed Greenways



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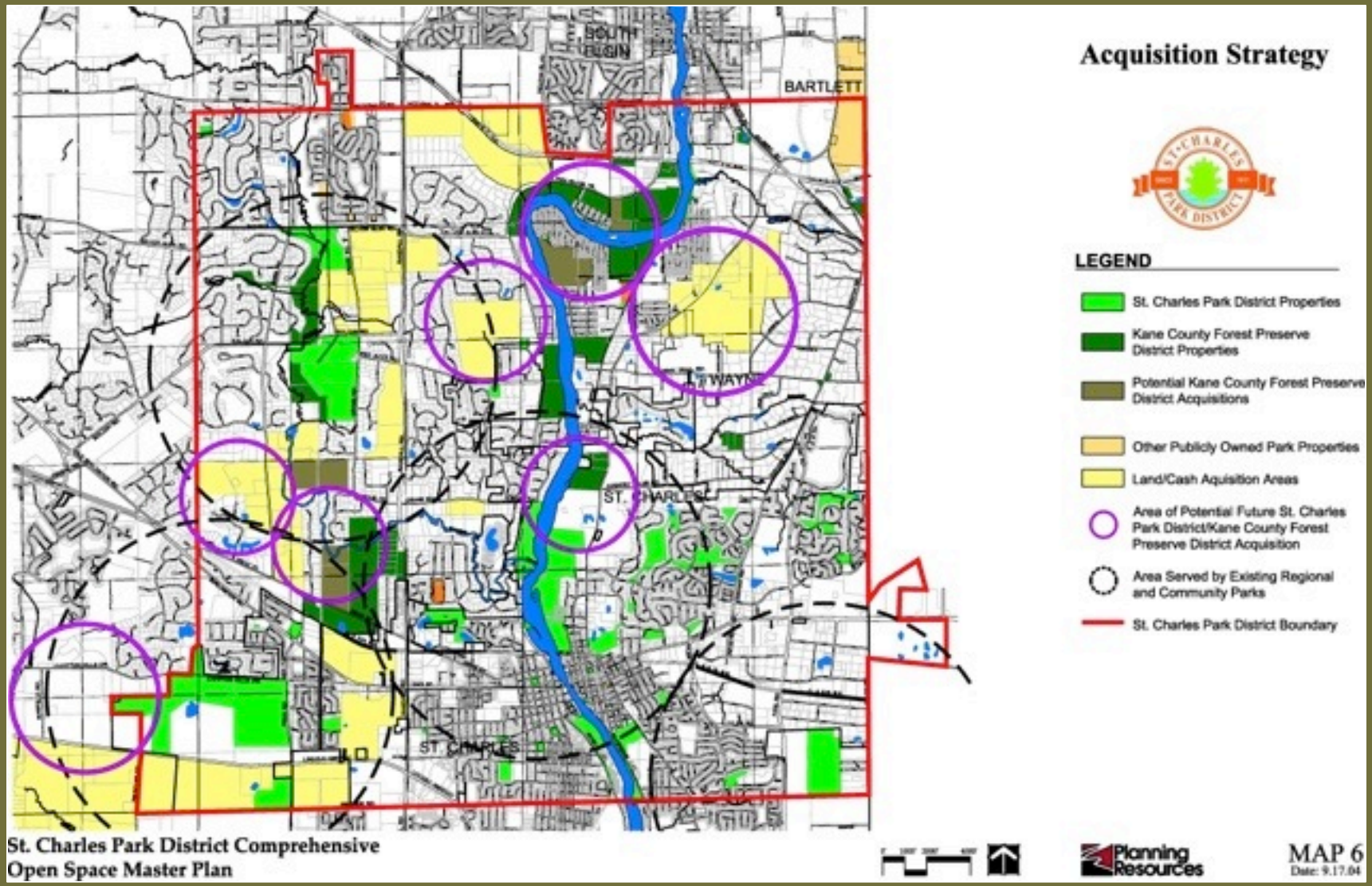
Land Acquisition Strategy



St. Charles Park District Comprehensive
Open Space Master Plan

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At the neighborhood scale…

- Incorporate "conservation design" into new developments
- Find creative ways to:
  - infiltrate runoff
  - protect natural areas
  - create greenway & trail connections

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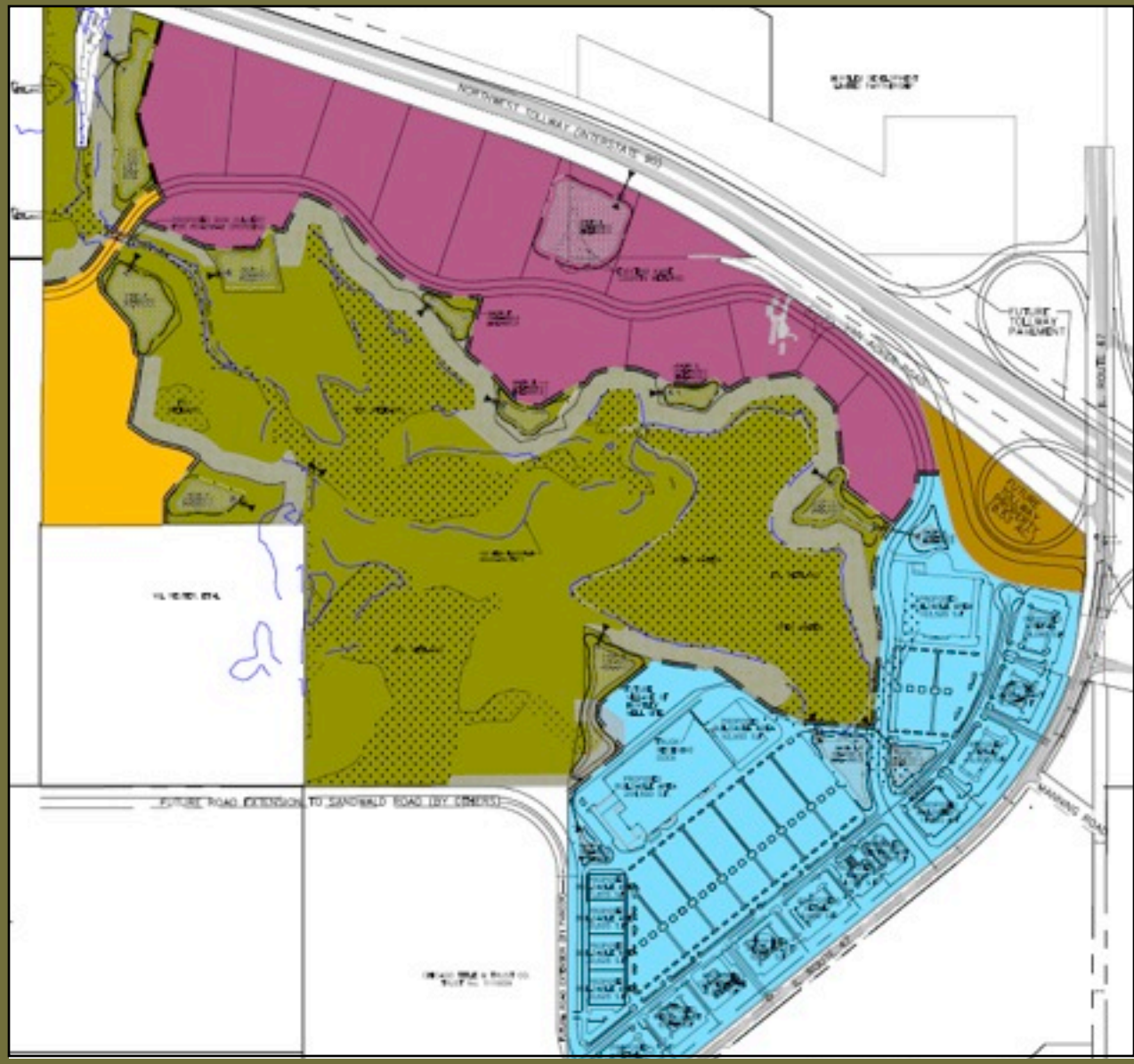
Huntley Commercial Center

170 acre natural area being donated to Village of



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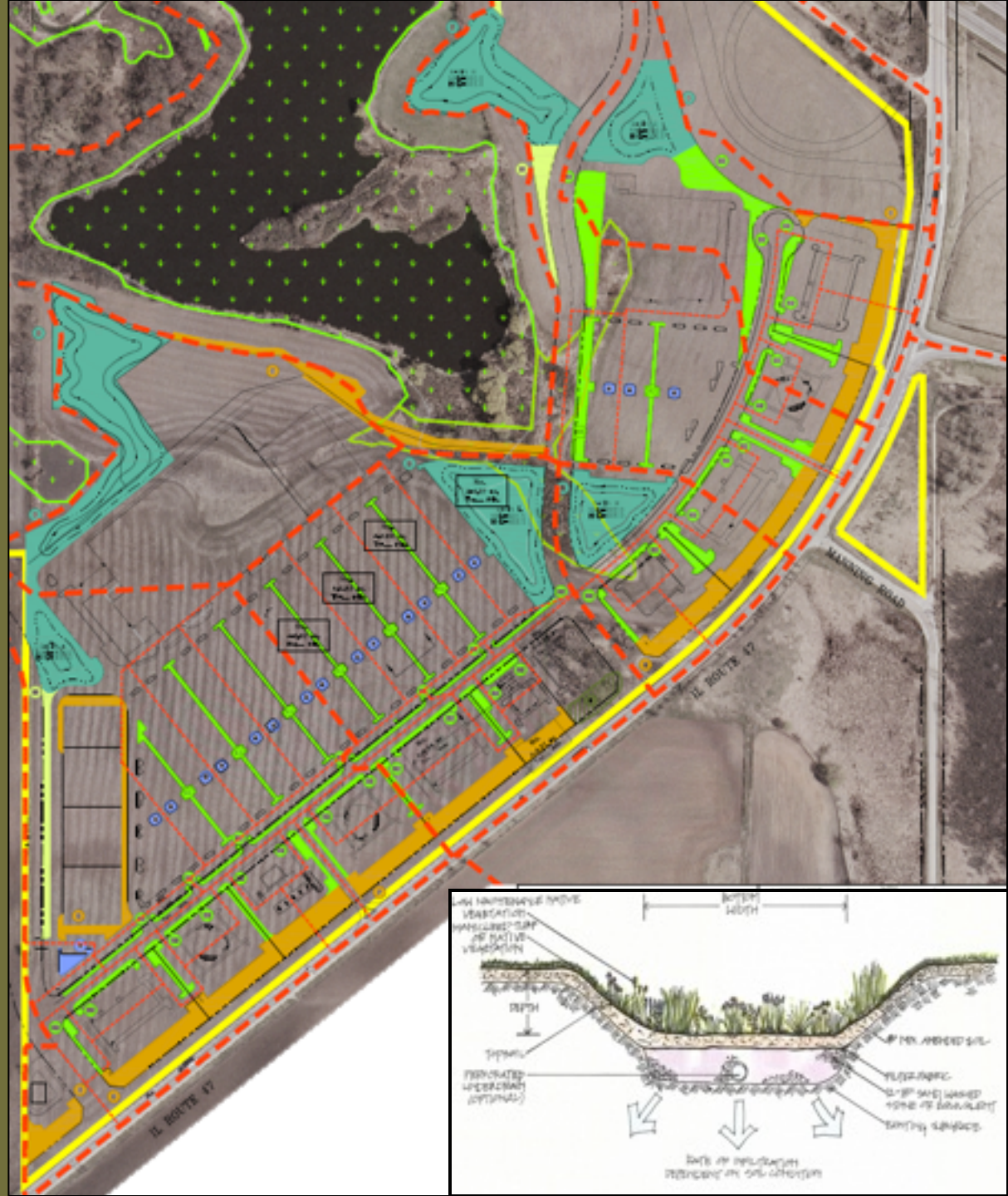
Conservation Design Approach:

Stormwater "Treatment Train"



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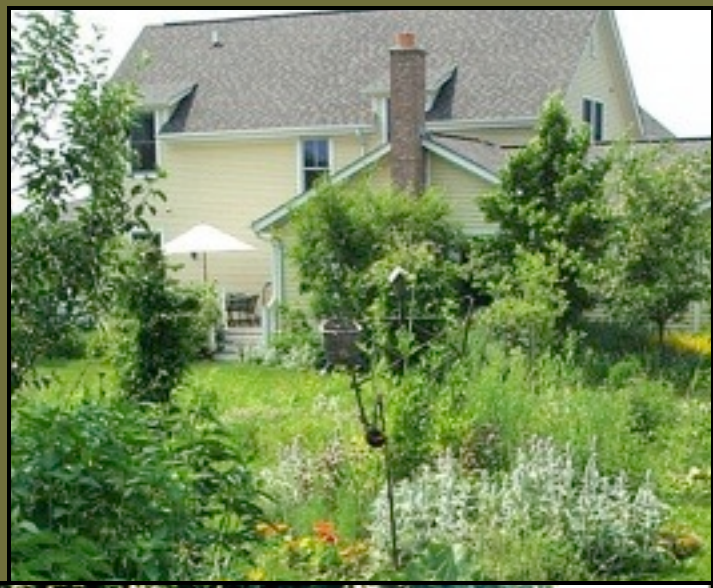
At the site/lot scale…

- Incorporate natural landscaping and stormwater best management practices in parks, school grounds, residences
  - Applicable to both new projects and retrofits
- Protect, restore, and manage natural areas



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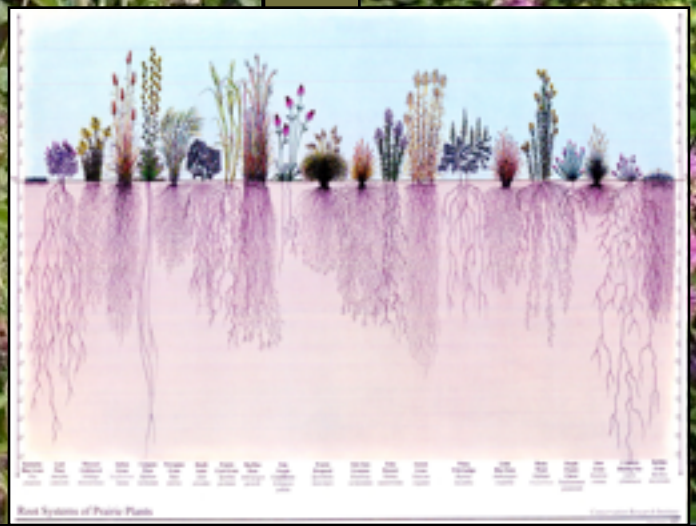
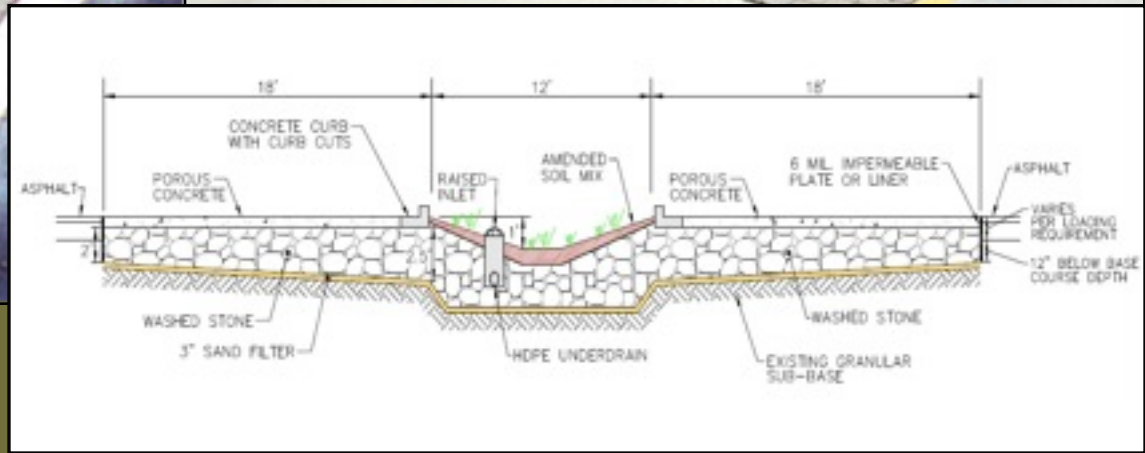
Natural Landscaping



Permeable Paving



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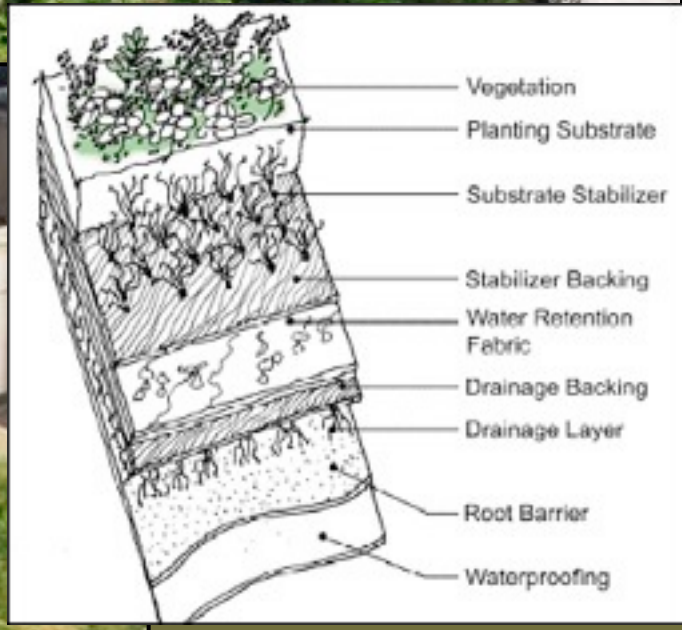
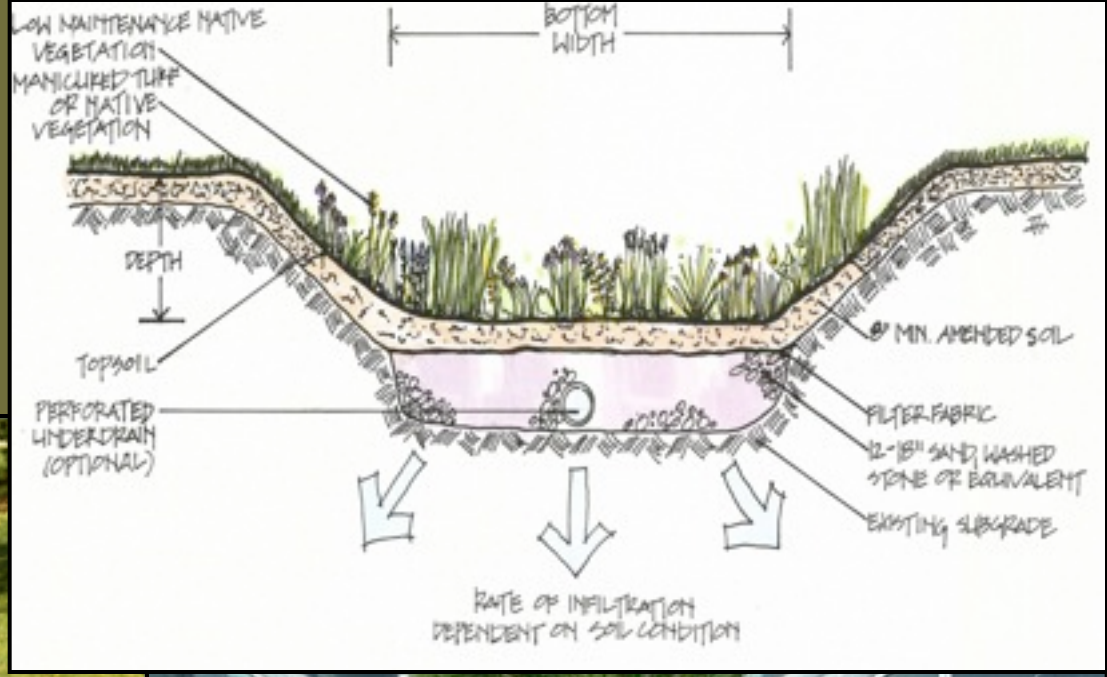
Green Roofs:

Stormwater and Energy Savings Benefits



Swales and Bio-swales



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Naturalized Detention Basins

- More effective at removing stormwater pollutants
- Can enhance site aesthetics and habitat
- Discourages nuisance goose populations

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Some Example Resource Protection Areas

- North Branch Chicago River Cluster – a representative urban/suburban preserve
- Blackberry Creek Corridor – a suburban large-scale greenway opportunity
- Boone Creek Watershed – a watershed-scale, mostly private landscape

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North Branch Chicago River Resource Protection Area

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Typical Preserve Setting: Harms Woods

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Remnant Woodland, Prairie, and Aquatic Systems

Resource Protection Recommendations

- Expand ongoing restoration work
- Retrofit existing landscapes
- Coordinate with adjacent landowners (e.g., golf courses) to expand habitat protection and make remaining greenway connections

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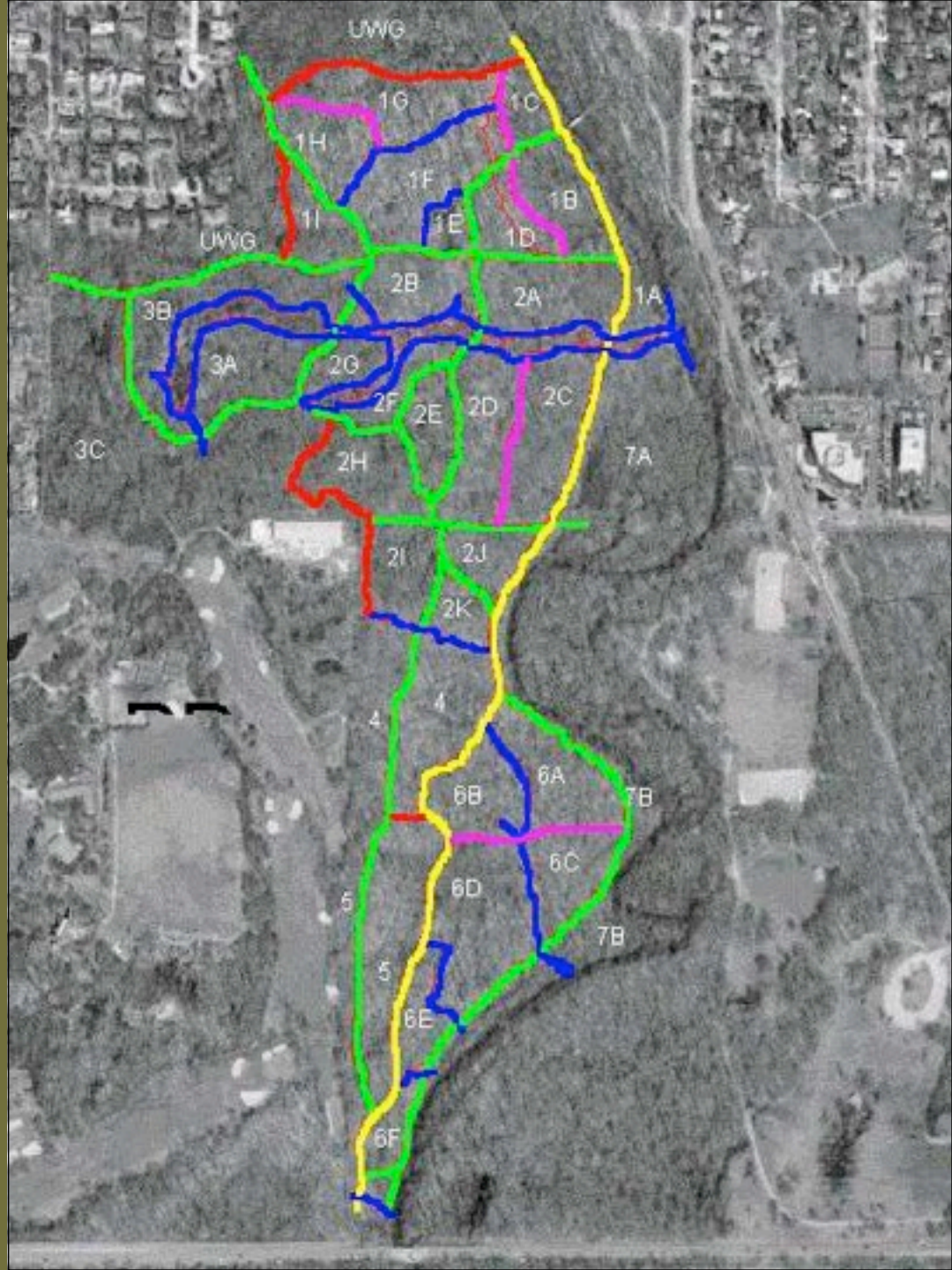
A Long-standing Restoration Program



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The Pioneers of Volunteer

Retrofit Existing Landscapes

- Burnsville, MN: Retrofitted rain gardens reduced stormwater volume by almost 90 percent

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“Green Streets” – Bio-swales and Infiltration Planters

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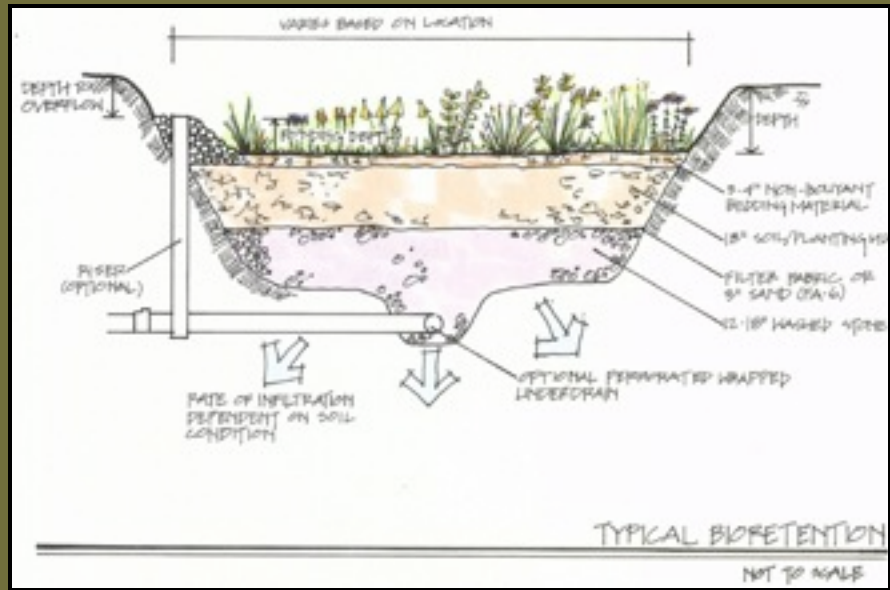
Rain Gardens



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Blackberry Creek Resource Protection Area

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Resource Protection Priorities

- Stream greenway protection
- Open space acquisition
- Conservation development

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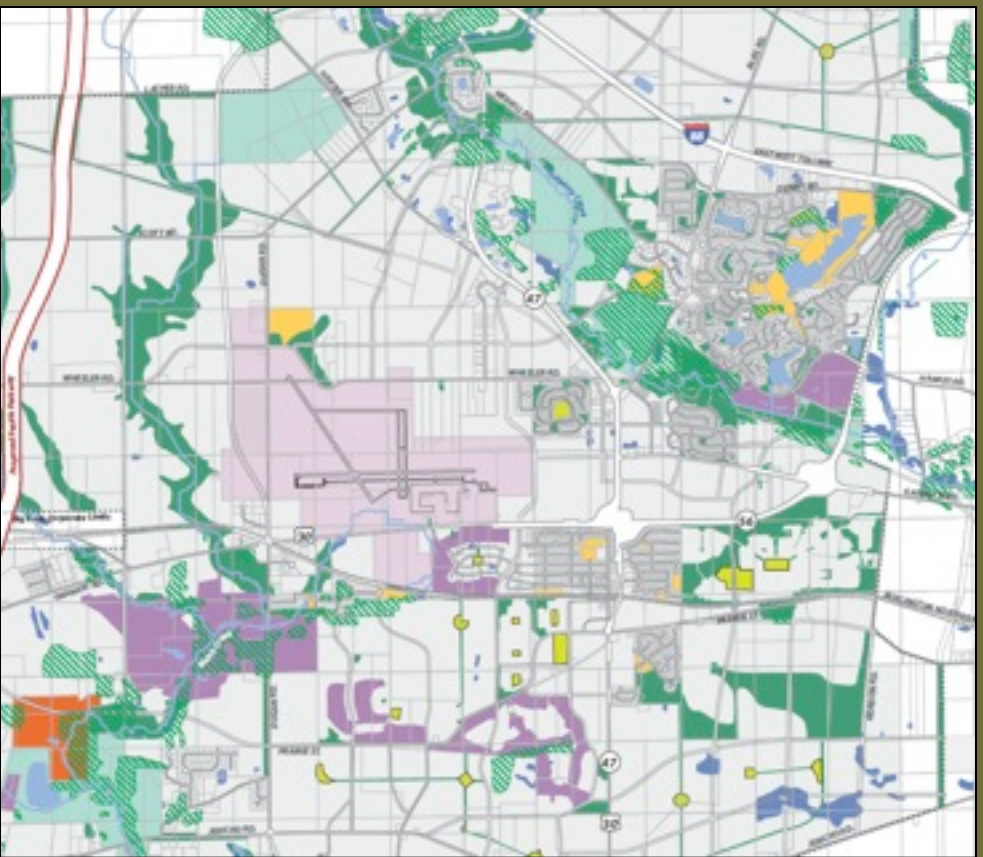
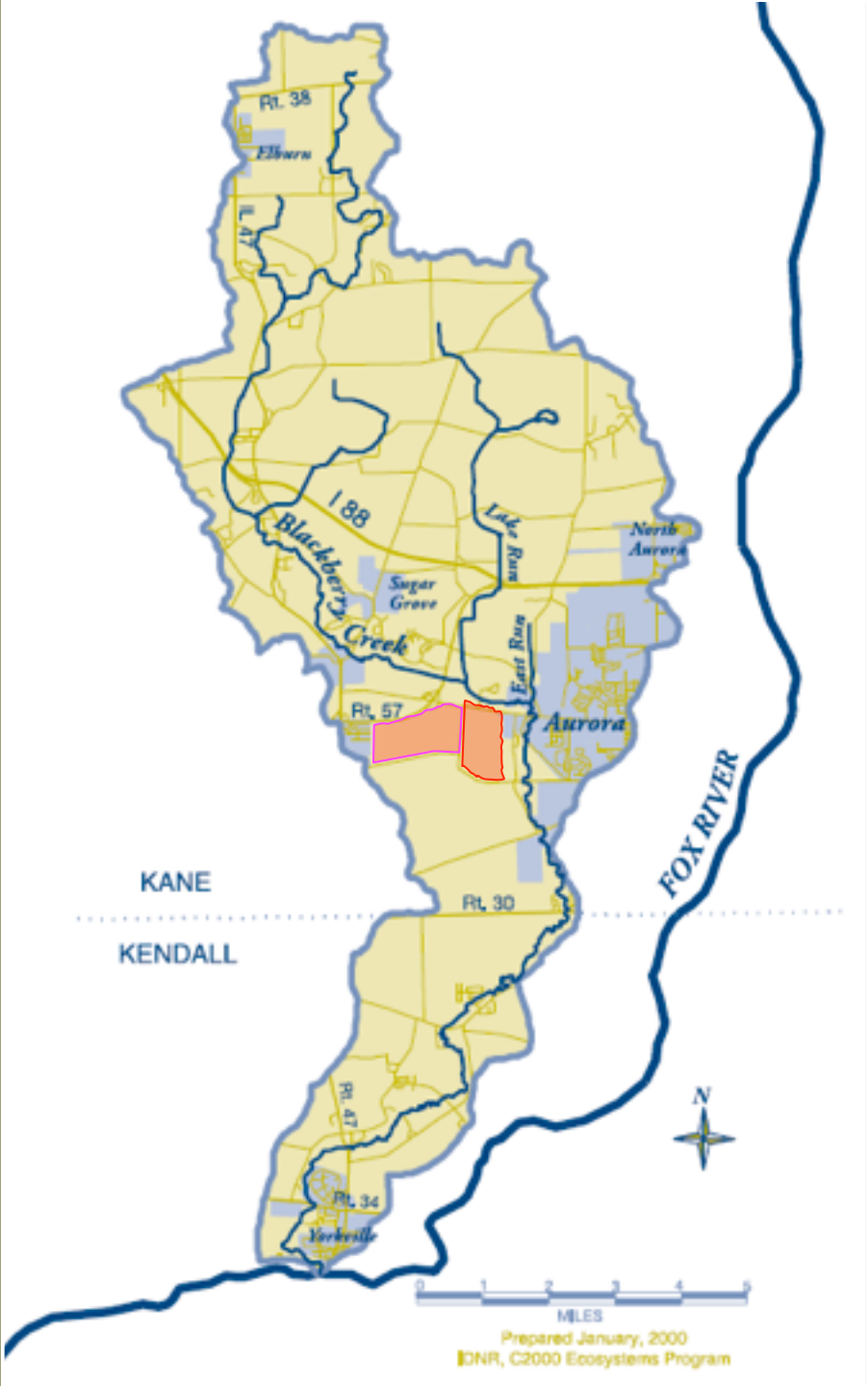
Conservation Development as an Opportunity to Achieve the Vision





Settlers Ridge Conservation Development

- Over 40% open space
- Natural landscaping throughout
- Enhancement of farmed wetlands
- Innovative stormwater BMPs (where allowed)

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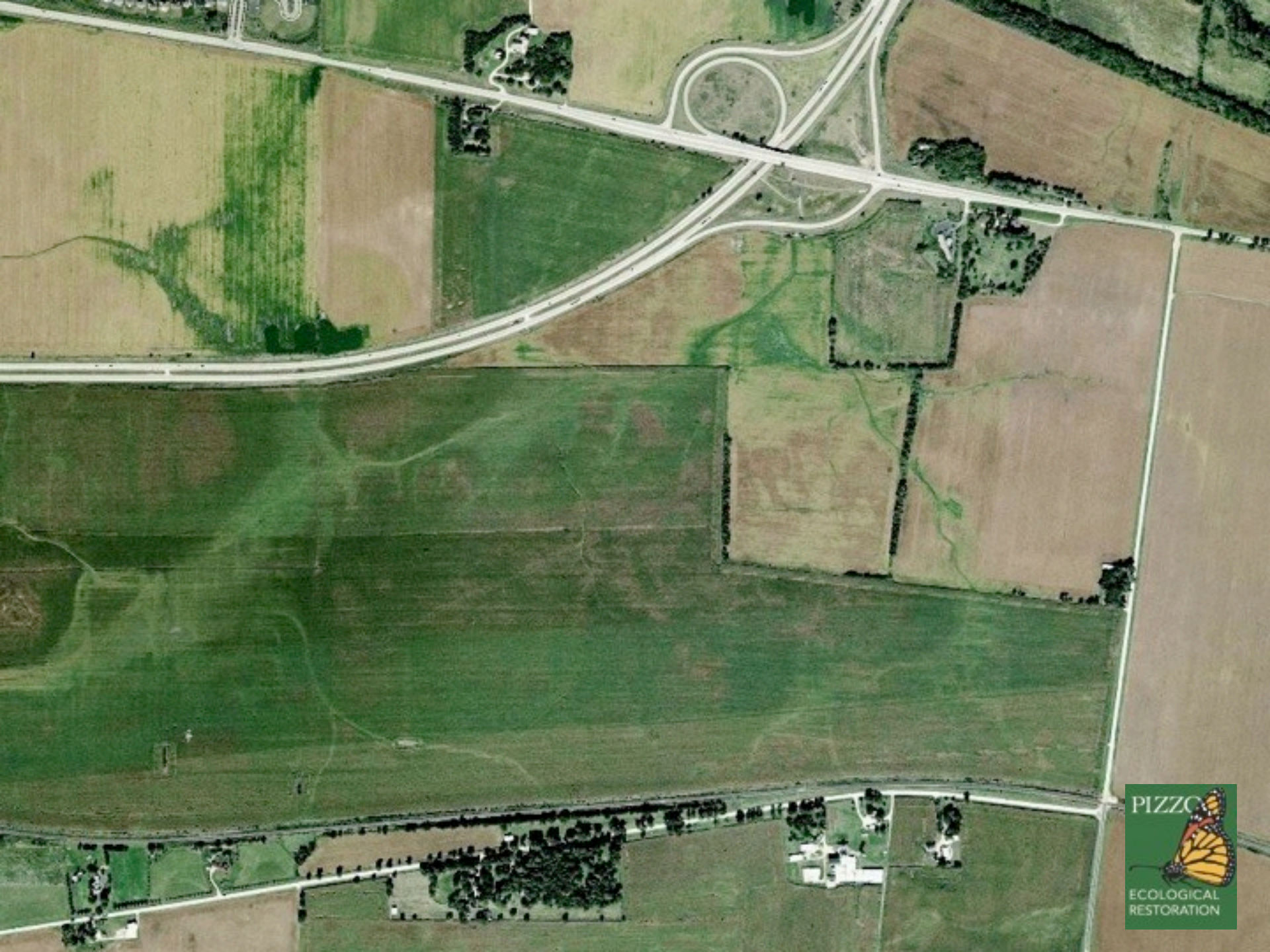
PIZZO
ECOLOGICAL
RESTORATION

PIZZO
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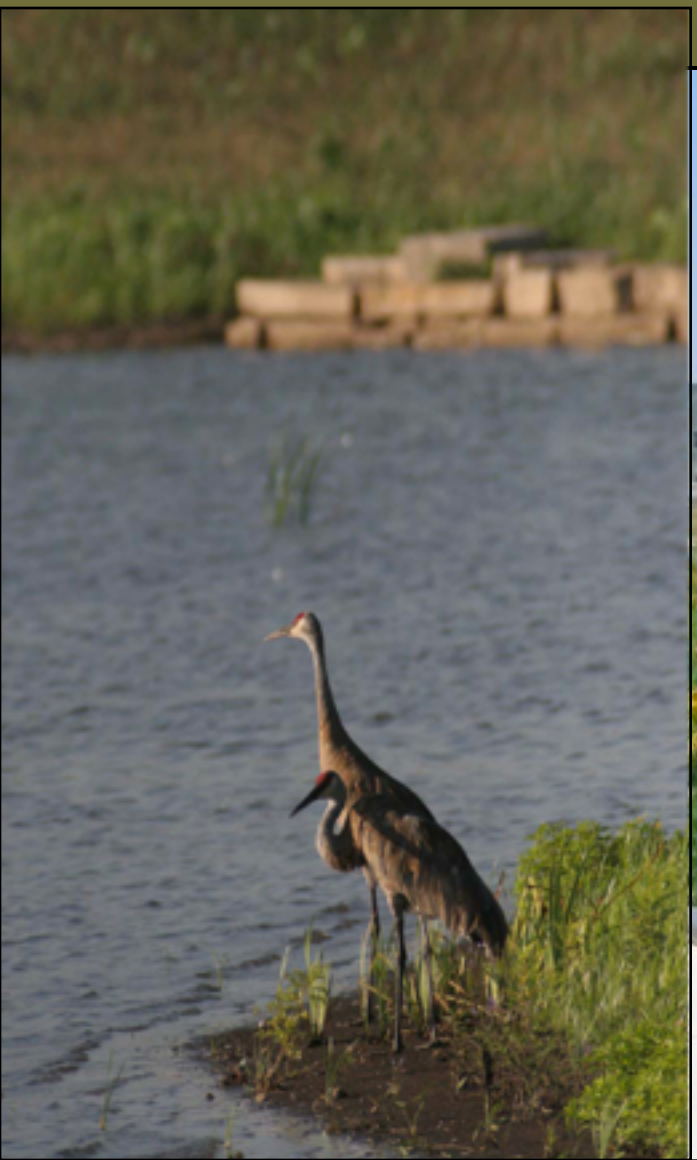
RESTORATION

Settler's Ridge Spring 2006

Settler's Ridge July 5, 2007

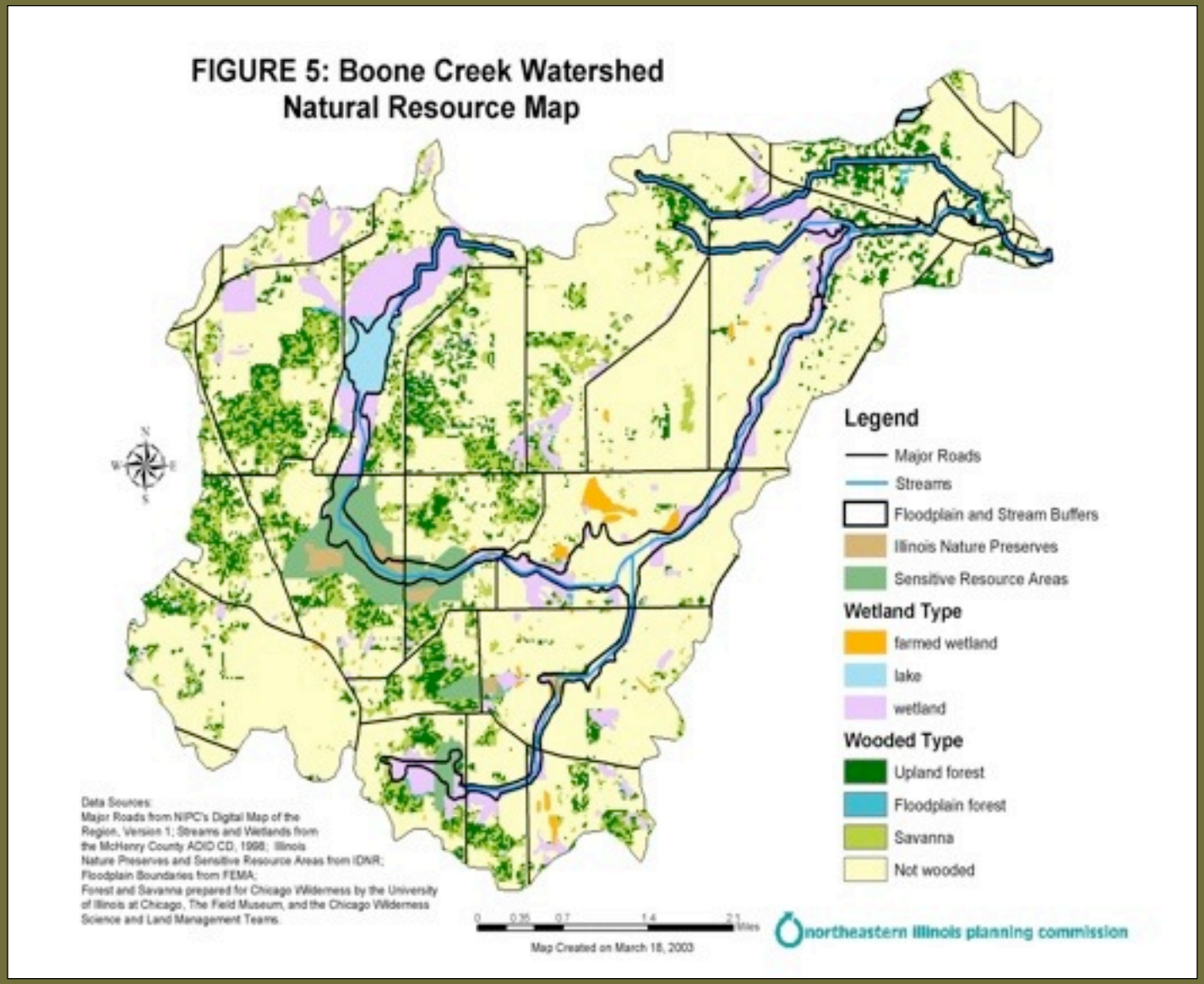
Integrated Trail and Greenway System

Linking People and Nature



Boone Creek Resource Protection Area

Boone Creek Watershed



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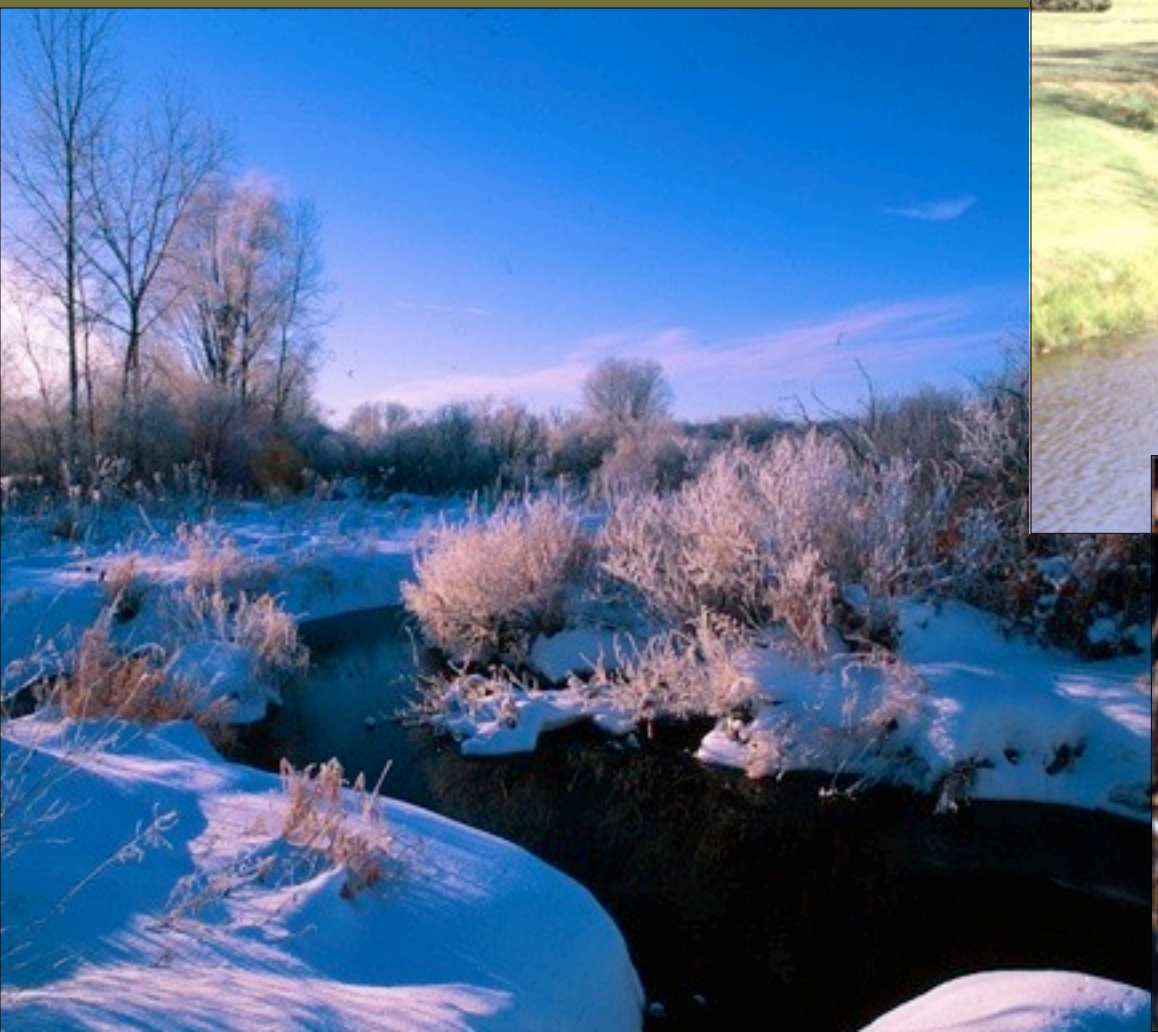
A Cold-water Stream



Surrounded by Savannas…

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…Fens and Hillside Seeps

Resource Protection Recommendations

- Conservation easements and nature preserve dedications
- Public acquisition
- Protection of recharge areas and hydric soils
- Conservation design for any new development
- Wetland restoration

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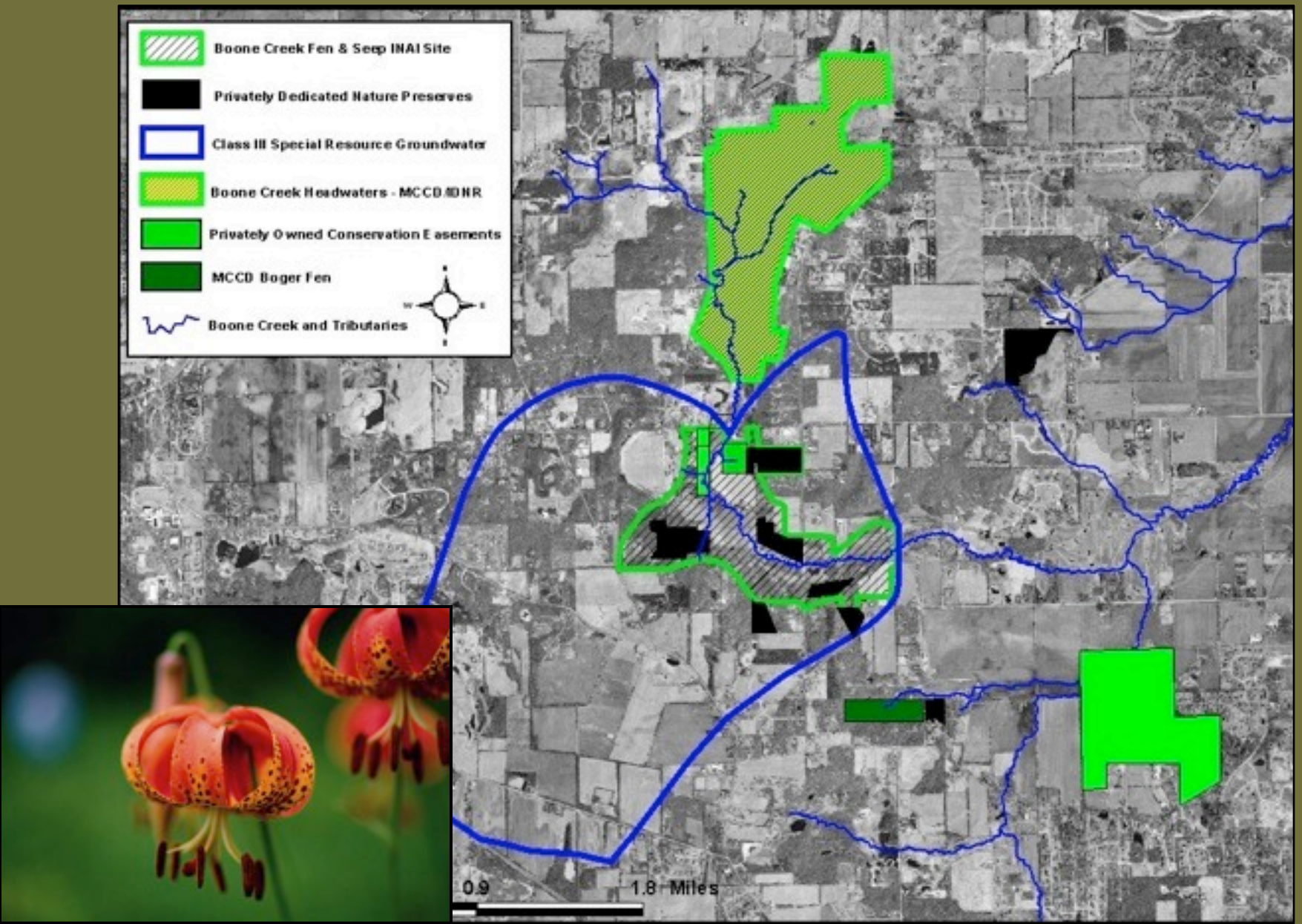
Collaborative Natural Area



Private Landowners Engaging in Restoration

Resources:

Chicago Metropolitan Agency for Planning (CMAP)
Green Infrastructure Vision Report and Maps
"Conservation Design Resource Manual", 2003.
The Ecological Planning and Design Directory

http://www.nipc.org/environment/sustainable/.

Chicago Wilderness
"Conservation Development in Practice," 2004

Low Impact Development (LID) Center,
www.lowimpactdevelopment.org.

Leadership in Energy and Environmental Design (LEED)
www.usgbc.org/DisplayPage.aspx?CategoryID=19

Sustainable Sites Initiative
http://www.sustainablesites.org/